

(German material) was found to have $2n = 24$ chromosomes, this being the number which I recorded for *O. purpurea* Jacq., another member of the subgenus *Trionychon*. *Cistanche tubulosa* Wight (Indian material) was found to have $2n = 40$ chromosomes. These three counts were made from meiotic stages in pollen-mother cells. The basic number of $x = 12$, which has been found for the two members of the subgenus *Trionychon*, may be contrasted with $x = 19$ for the members of the subgenus *Osproleon*; it might be considered that the cytological evidence is such that the relationship between these subgenera is not so close as morphological features appear to indicate.

I am greatly indebted to Prof. Tiagi, of Government College, Ajmer, India, and to Dr. Paul Eberle, of the Botanical Institute, University of Freiburg im Bregau, who determined, fixed and posted to me the Indian and German material respectively.

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¹ Hambler, D. J., *Nature*, 174, 838 (1954).

'Pearl-String' Artefacts in a Random Scatter of Spheres

FILAMENTS, similar to strings of pearl, are sometimes apparent in electron micrographs. This communication is to show that, unless other evidence is available, one is not justified in interpreting short formations of this kind as definite structures.

It has been previously shown (for example, Gross¹) that particulate matter can be deposited in 'runs' on tilted electron microscope grids. The following experiment indicates that even in a random scattering of spheres, the discerning eye may see 'pearl strings' composed of as many as twenty-four units.

Glass spheres of about 0.1 mm. diameter (Ballotini, No. 14. English Glass Co., Ltd.) were scattered over a horizontal glass plate and projected in silhouette on to a screen. Such pearl-string formations as were readily apparent were noted and the number of spheres making up each one was recorded. The experiment was repeated a number of times with fresh scatterings of spheres. The results are given in Fig. 1. From this it is concluded that the eye readily aligns four to eight adjacent spheres into a string. There were very few scatterings in which no 'pearl strings'

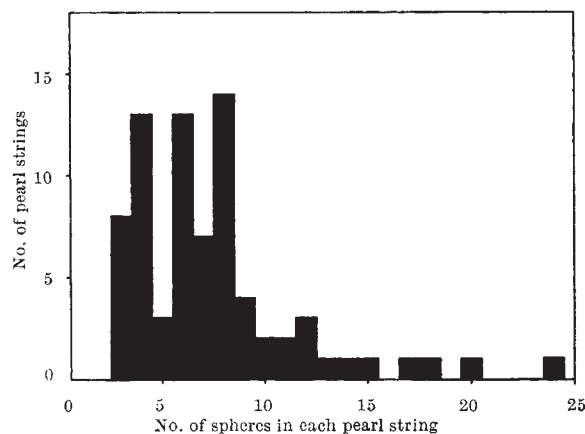


Fig. 1. Histogram showing frequency of occurrence of pearl strings of different lengths

were seen, and they occurred particularly near the periphery of denser clusters of spheres, where presumably fairly regular packing can occur. The 'shadowing' common in electron microscopy practice could intensify the illusion of pearl strings, especially when applied to uneven, multilayer deposits.

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¹ Gross, J., *Ann. N.Y. Acad. Sci.*, 52, 964 (1950).

A Simple Spinning Joint for a Rotary Film Evaporator

WHEN constructing a rotary film evaporator¹ without a rotating vessel for solvent recovery, we required a spinning joint which would remain airtight at a reduced pressure of 15–20 mm. mercury.

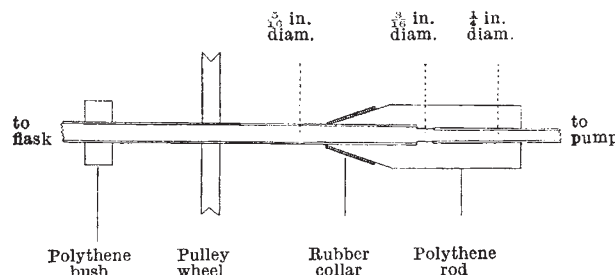


Fig. 1

A suitable joint (Fig. 1) was made using a 3-in. length of 1-in. diameter polythene rod which was drilled axially from one end to a depth of $1\frac{3}{8}$ in. with a $\frac{1}{8}$ -in. bit and from the other to the same depth with a $\frac{1}{4}$ -in. bit; the bridge between the holes was drilled out using a $\frac{1}{8}$ -in. bit. The rod was tapered to the larger hole and a sleeve of rubber tubing slipped over the distal part to improve the seal by constriction. A length of $\frac{1}{4}$ -in. glass tubing was forced into the $\frac{1}{4}$ -in. hole, the seal being improved with rubber grease; this tube is stationary when the joint is in use. Glass tubing to fit the larger hole was carefully selected for size in order to obtain maximal ease of turning with a minimum of leaking. This was done by using a polythene washer ($\frac{1}{16}$ -in. internal diameter) as a gauge. One end of the tube was carefully flamed to facilitate turning against the polythene shoulder. The flask containing the solution to be evaporated is attached to the other end. A pulley wheel to carry a belt drive was fixed part-way along this tubing. Well-constructed joints of this type when lubricated, for example, with silicone grease, will withstand the reduced pressure produced by a water pump without noticeable leaking while spinning at 120 rev./min. They have been used by us when removing hydrogen chloride and water from acid hydrolysates.

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Nature Conservancy,
Merlewood Research Station,
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Nov. 2.

¹ Craig, L. C., Gregory, J. D., and Hausmann, W., *Anal. Chem.*, 22, 1462 (1950).