second lot of slides was rubbed with a cotton swab saturated with the Silicone GE Dri-Film. Excess Silicone was removed by rubbing with a dry cotton swab. An equal volume of distilled water (25 λ) was deposited on each surface from a micropipette. The appearance of the water drops can be seen in a vertical view in Figure (a). It is obvious that the drop on the right, which is on the Silicone surface, occupies less area than the one on the Formvar-coated surface on the left. When equal volumes of saline solution and serum were also deposited on the 2 surfaces, the results were the same as illustrated with the water drops.

According to JIRGENSONS and STRAUMANIS[8], the wetting of a surface is a function of the cosine of the contact angle (ϕ) between the surface and a tangent to the liquid drop surface at the edge of the drop. Wetting is perfect if $\phi = 0$ ($\cos \phi = 1$). Conversely the water repellent or hydrophobic quality of the surface increases as ϕ increases ($\cos \phi$ decreases). Figure (b) illustrates the fact that the contact angle of the drop on the Silicone GE Dri-Film surface is greater than the contact angle of the drop on the Formvar-coated surface on the left. This means that the Silicone-coated surface actually has a greater degree of hydrophobicity than does the Formvar-coated surface. This increased hydrophobicity is another quality of the Silicone GE Dri-Film coated surface which makes it more useful than repellent surfaces produced by other agents.

We have successfully used Silicone GE Dri-Film coated surfaces for microprecipitin tests under oil and agar gel double diffusion tests; presumably such surfaces would be helpful in other serological tests if a hydrophobic surface is desired.

Résumé. Le silicone GE Dri-Film SC 87 produit une surface hautement imperméable aux réactions sérologiques. On démontre expérimentalement qu'il est plus hydrophobique que le formvar.

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[6] Available from Silicone Products Department, General Electric Company, Waterford, New York.
[7] The author has also used the General Electric Silicone Dri-Film SC 88 which provides a water repellent but not optically clear surface. This is not recommended.
[8] B. JIRGENSONS and M. E. STRAUMANIS, *A Short Textbook of Colloid Chemistry*, 2nd revised edn (The MacMillan Co., New York 1962).

Bulk Staining of Ovules and Ovaries to Note the Percentage of Well-Organized Embryo Sacs in Sterile and Semi-Sterile Plants Utilized for Breeding Purpose

When sterile and semi-sterile plants (where, at times, either of the sexes alone is functional) are utilized for breeding purposes, it is necessary for a breeder to know the percentage of viable pollen grains and well-organized embryo sacs, so that appropriate techniques can be applied during controlled matings. While fertility tests for pollen are quite simple – iodine or tetrazolium – there are no such quick methods by which female gametes could be tested, except smears; but there again the 'full picture' of the ovule is lost and older ovules present difficulties while squashing. A quick paraffin method described here is found to be very useful.

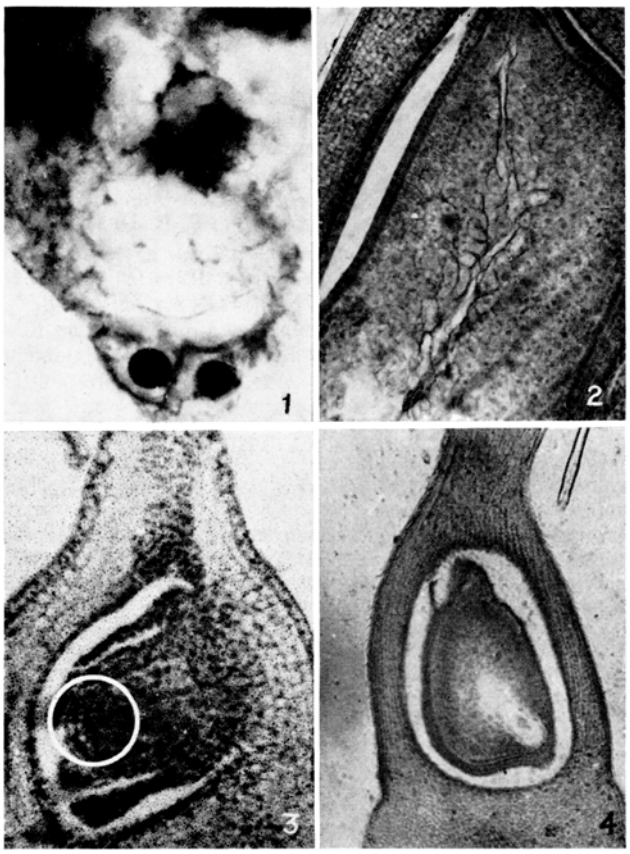
Material and method. Flower buds of normal and hybrid *Oryza sativa* at different stages of their development were fixed in formalin-acetic-alcohol and processed further as follows: (1) Fixed material; if possible dissect out ovaries and ovules. (2) Carry dehydration through alcohol grades as routine. (3) Alcohol-xylene mixture, 1:1. Dissolve the stain-fast green and leave till deeply stained. (4) Pure xylene. (5) Infiltration, embedding and cutting as routine. (6) Affix paraffin ribbons (with stained sections) on slide and use xylene to remove the paraffin completely. (7) Mount in canada balsam.

This method is found to be very useful (Figures 1–4) especially with plants such as haploids, triploids, autotetraploids and semi-sterile/sterile hybrids and mutants, in which one needs to know whether the embryo sac is developed and if so whether its organization is normal, on the basis of which breeding experiments can be planned. However, the ultimate test of viability lies in actually pollinating with the viable pollen and looking for a seed-set, on similar lines as the pollen viability is ultimately decided on its capacity to germinate and fertilize.

Merits. (1) Large number of ovaries and ovules can be sectioned and observed. (2) The laborious and tedious procedure of staining is avoided, saving time and alcohol. (3) A reliable percentage of normal embryo sacs is obtained, because a large number of buds can be observed and it helps a breeder to plan his experiments accordingly. (4) Percentage of non-functional embryo sacs and the exact stage(s) when they degenerate can also be noted[1].

Résumé. La maculation massive des ovaires et ovules d'*Oryza sativa* L. a été faite avec du vert rapide et de alcool:xylol (1:1) par étapes. Après section il fut possible de noter le pourcentage des sacs embryonnaires viables et non-viables plus particulièrement dans des plantes

[1] Acknowledgment. I am grateful to Dr. G. B. DEODIKAR, Director M.A.C.S., for providing facilities to complete and confirm the observations made by me while I was at the Central Rice Research Institute, Cuttack, India.



stériles et semistériles. Ce procédé peut donner aux planteurs des directives dans leurs expériences d'élevage. Il a permi aussi de localiser les phases exactes de l'avortement.

A. B. SAPRE

Maharashtra Association for the Cultivation of Science, Poona 4 (India), 8 July 1967.

Fig. 1. Longitudinal section of ovule, showing egg cell and the polar nuclei in normal plant of *Oryza sativa* L.

Fig. 2. Longitudinal section of the ovule, showing degeneration of the nucellus and the embryo sac in a hybrid *Oryza*.

Fig. 3. Longitudinal section of young ovary, showing degeneration of the ovule at the megaspore mother cell stage in a mutant *Oryza*.

Fig. 4. Longitudinal section of the ovary, showing degeneration of embryo sac in triploid plant of *Oryza*.

CONGRESSUS

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10th International Congress of Internal Medicine

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Principal themes: (1) Enzymatic mechanisms in the pathogenesis of internal disorders. (2) Disturbances in protein metabolism.

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Programme and further information from: Department of Medicine, Institute for Postgraduate Medical Education, ul. Solec 93, Warszawa 30 (Poland).

Israel

Symposium on Permeability Problems

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To be held by the Commission on Cell and Membrane Biophysics of the International Union for Pure and Applied Biophysics. The topics to be discussed will be: transport problems in animals and plants exposed to arid conditions; transport across epithelia; water transport in biological systems; physical chemistry of charged membranes; the theoretical interpretation of tracer fluxes.
Further information can be obtained from each National Committee for Biophysics or Biophysical Society, or from the Secretariat, Symposium on Permeability Problems, Polymer Department, Weizmann Institute of Science, Rehovot (Israel).