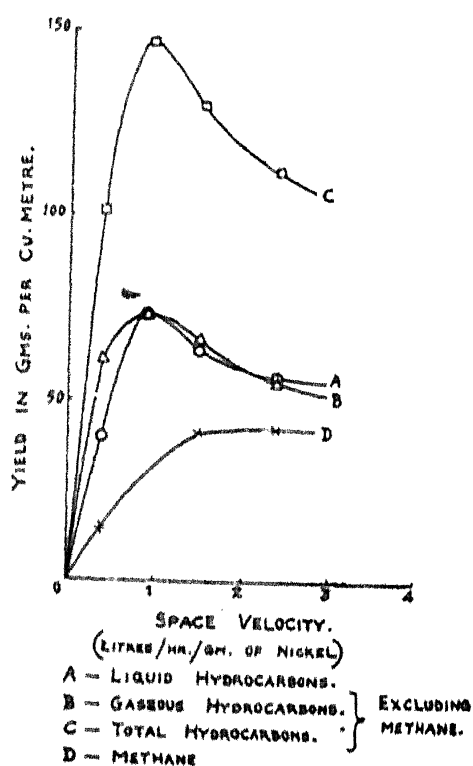


The catalyst (5-6 c.c.) is then charged into the reaction chamber and again reduced *in situ* at 300-350° C. in a current of H₂ for 6 hours, and the synthesis gas is passed through the catalyst. Reactions are carried out at different temperatures and at different space velocities.

The products of reaction are passed through a glass condenser, cooled in ice where liquid hydrocarbons and water are condensed and then through four glass-stoppered U-tubes, first containing soda lime to absorb CO₂, and the rest containing active carbon cooled in ice, for absorbing gaseous hydrocarbons. The products of the cooled glass condenser are analysed for water by the method adopted by Smith and Bryant.²

It was observed that the best reaction takes place at 195° C. The catalyst is remarkably steady at that temperature. The results are illustrated in Fig. 1.



From the graph it is observed that the catalyst yields at atmospheric pressure, 147.5 gms. of hydrocarbons, excluding methane per cubic metre of synthesis gas with a space velocity of 0.90 litres per hour per gram of nickel in the catalyst which compares well with that used in industrial practice.

J. C. GHOSH.
N. G. BASAK.
G. N. PADAMI.

Section of General Chemistry,
Indian Institute of Science,
Bangalore,
September 17, 1947.

1. Chakravorty, K. M., *Science and Culture*, 1938, 3, 366. 2. Donald Milton Smith and Bryant, W. M. D., *J. Am. Chem. Soc.*, 1936, 57, 841.

NOTE ON THE DETERIORATION IN GERMINATION-CAPACITY OF A PADDY STRAIN IN MALABAR AND SOUTH KANARA

SOME varieties of rice seeds like *Garikesannavari* of the Godavari delta and the *Boro* rices of Orissa, are found to lose viability if they are stored in receptacles which are not air-tight, like loose gunnies, straw-twist bundles or cloth bags.

More or less the same type of deterioration was noticed a few years ago in the case of Co. 3 strain (Coimbatore *Vellai samba*) cultivated in Malabar and South Kanara, where it is sown in August-September and harvested in December-January. Locally the harvested grains are dried and stored in straw-twist bundles or other non-air-tight receptacles till the time of next sowing in August-September. The seeds thus pass through the wet weather period of the south-west monsoon which usually records about 60 to 80 inches of rain in the two months of June and July and deteriorate as indicated by low germinability unlike those preserved in metallic or air-tight receptacles.

In the course of an investigation to find out a simple and effective method of overcoming this defect, it has been possible to establish a fairly close correlation between the deterioration in the germination and the capacity of the grains to germinate immediately after harvest, with a value for $r = +0.7968$.¹

The kernels of the deteriorating types have, besides, a flinty appearance; they expand better on cooking immediately after harvest than non-deteriorating types. In the dry state as seed, they show a marked capacity to absorb more moisture. These facts would suggest that they might have undergone a process of intense desiccation in the field during the maturing phases of the grain.

It is common observation that in rice, the ripening of the grain and the ripening of the foliage do not always go together; in some varieties earheads ripen while the straw is still green, while in others the two processes synchronise; in still others the straw ripens and lodges before the grains reach full maturity. Thus the ripening of the ear and the attendant transformations of the contents in the grain might be independent features conditioned by atmospheric humidity, intensity of sunlight, diminishing supply of water, etc. Continual decrease of the water content is a significant feature of this process of ripening; even the important role of enzymes may be conditioned, above all, by the amount of moisture the grain holds at successive stages of dehydration which in turn might determine the nature and proportion of the different carbohydrates in the grain at the time of harvest.

This line of thought suggested that if the process of hydration and dehydration taking place in the ripening grains on the plant, is followed on after the harvest of the grains also, gradual dehydration could be induced in contrast to rapid desiccation and the defects of the seeds could be got over.

From the results of a series of experiments conducted with different periods of soaking and