

Research Board for the award of a Fellowship.

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November 30, 1949.

1. Schneider, H., and Steenbock, H., *Jour. Biol. Chem.*, 1939, 128, 159. 2. Dikshit, P.K., and Patwardhan, V.N., *Ind. Jour. Med. Res.*, 1947, 35, 91.

### CHEMICAL EXAMINATION OF KARLA PLANTS

FATTY oils from Karla seeds (*Memordica Charantia* and *Memordica dioica*, N.O. *Cucurbitaceae*) develop rancidity fairly quickly converting themselves into a powdery form; this form changes once again to a liquid state when allowed to stand for nearly 3-4 months, or when autoclaved for one hour at 120° C. under a pressure of 15 lbs. This phenomenon and the glyceride structure of the oils are now being studied.

Their seed cakes (after petroleum ether extraction for the oils) were extracted successively with benzene, chloroform and alcohol. The alcohol extract yielded a white solid, m.p. 236° C. (uncorrect) giving colour reactions for alkaloid. It was crystallized from water.

After extraction with these solvents a water soluble and saline soluble protein was extracted from the cake. On heating the aqueous extract, the protein coagulated and became "denatured". It contains nitrogen, 14.5% and sulphur, .967%. It shows the presence of methionine estimated according to Horne Jones and Blum (*J. Biol. Chem.*, 1946, 166, 313) and of cystine estimated according to Callan and Toennies (*Ind. and Eng. Chem. Anal. Ed.*, 1941, 13, 450).

After the removal of these proteins, the seed cake residue was extracted with hydrochloric acid and the acid extract neutralized with ammonia. A white solid separated out which was washed with alcohol, chloroform and ethyl acetate, successively. On ignition it suffered a loss in weight to the extent of 45.5%, the residue consisting of aluminium and magnesium.

Details of this investigation will be published later elsewhere.

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### ANALYSIS OF ANCIENT GLASS BEADS

THE beads are from the site of Arikamedu, near Pondicherry.<sup>1</sup> On the basis of the red glazed pottery (Arretine ware) and of the two-handled jars (amphoræ) found on the site and from literary evidence, the period has been fixed as the first century A.D.

The beads were dull blue approaching indigo and almost opaque. The specific gravity of the glass was 2.53. Microscopic examination of thin flakes (120×) showed the presence of numerous tiny air bubbles due to imperfect fusion. The opacity of the glass may be due to these tiny air bubbles.<sup>2</sup>

The composition of the glass expressed as percentages is:—

SiO<sub>2</sub>-73.6, Al<sub>2</sub>O<sub>3</sub>-1.9, FeO-2.0, Fe<sub>2</sub>O<sub>3</sub>-1.1, CaO-3.9, MgO-1.4, K<sub>2</sub>O-13.4, Na<sub>2</sub>O-2.1, MnO\*-0.4, Total 99.8.

The data shows that the glass is essentially a potash-lime-silicate. The alkali being largely potash, suggests that plant ash must have been used.

The colour of the glass is due to iron. The sample is free from copper and cobalt. The usual colours due to iron are green and yellow the former corresponding to the ferrous and the latter to the ferric state. That iron can impart blue colour also was first discovered by Gmelin more than 150 years back. Other cases have also been recorded in which the blue colour of the glass had been due to iron compounds.<sup>3</sup> Some blue Chinese glazes are also said to owe their colours to ferrous oxide.<sup>4</sup> Bancroft and Cunningham<sup>5</sup> are of the opinion that the blue colour is due to an unstable modification of ferric oxide which is stabilised chiefly by ferrous oxide but to some extent by other substances. In this connection the presence of both ferrous and ferric iron in the bead is significant. The ratio of ferrous to ferric in this case is 1.82, which is not the optimum ratio advocated by the above authors in the case of borate glasses. But as they themselves point out "the ratio of ferrous oxide to ferric oxide necessary for a good blue may be quite different in a silicate glass from what it is in a borate glass." Moreover there is the question of "other components".

The manganese must have been an impurity of the quartz used as raw material. The bluish violet colour which manganese imparts to potash glass must also have helped to give the final shade of colour.

The author's thanks are due to Dr. A. Aiyappan, Superintendent of the Madras Government Museum, and to Mr. C. J. Jayadev, M.A.,