cal changes can be brought about in raw jute by certain esterification and etherification treatments, among which acetylation gives complete protection, whereas methylation with an ethereal solution of diazomethane affords only partial protection. After these treatments it is probable that substituted polyphenols which are incapable of quinone formation are produced during irradiation. The introduction of acetyl groups has the two-fold effect of preventing the formation of coloured quinones and causing the production of a bleaching agent during irradiation. Methylation, on the other hand, duly prevents quinone formation, but does not repress any discolouration due to aldehydic polymerisation. Furthermore, it has been noted that the colour obtained during irradiation of methylated jute resembles the yellow colour which results from the accelerated ageing of delignified jute.

Meanwhile, Sarkar and his colleagues[1] have shown that delignified jute does not discolour if immersed in ethyl alcohol. The mechanism of this inhibition reaction, stated by the authors to consist of the preferential oxidation of the alcohol is rendered untenable in view of the fact that, as shown above, the presence of oxygen is not necessary for the formation of coloured derivatives. Preferential absorption of the particular wave-band responsible for the discolouration reactions, by such an applied substance is, however, more likely to lead to success. Initial removal of potential colour-producing substances and replacement by an artificial resin may be possible.

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1. Sarkar, Chatterjee, Mazumdar and Nodder, *Curr. Sci.*, 1947, **16**, 74. 2. Lewis and Fronmuller, *Paper Trade J.*, 1945, **121**, *Tappi Sect.*, 133. 3. Atkins and Callow, Provisional B. P. 22366/46. 4. Peill, *Nature*, 1946, **158**, 554. 5. Callow, *Ibid.*, 1947, **159**, 309.

YELLOWING OF BLEACHED JUTE—FURTHER OBSERVATIONS

DISCOLOURATION of raw jute and yellowing of the fully bleached fibre on exposure to light or on storage may not be due to the same changes in so far as the role played by the hemicelluloses alone is concerned, for the hemicelluloses in the raw fibre are not, in all probability, identically the same as those in delignified jute. Apart from oxidative changes (jute holocellulose prepared with sodium chlorite dissolves appreciably in very dilute NaOH solution at room temperature with a yellow colour) there is the cleavage of a chemical bond between lignin and polyuronide hemicelluloses (some recent observations in these laboratories appear to confirm this). Our note in *Current Science*[1] was exclusively on the yellowing of fully bleached jute; so I must confine my remarks to this problem only. We have observed that delignified jute turns appreciably yellow even when stored in the dark (in thick glass tubes covered several times with black paper) though to a slightly lesser extent than in diffused light. The changes leading to yellowing of bleached jute on storage does not, therefore, appear to be exclusively photochemical.

Since the publication of the note, further important observations have been made in this regard which necessitate modification of a view expressed therein. Delignified jute stored under benzene has been observed to turn yellow to the same extent as that kept under alcohol containing a little water. Since aqueous alcohol cannot prevent the yellowing of bleached jute as absolute alcohol does, our explanation on the basis of preferential oxidation, offered earlier, does not stand. Some agent other than oxygen is possibly responsible for the yellowing; this apparently supports the view of Mr. Callow expressed in the foregoing note.

But the following observations would indicate that the presence of moisture in the delignified fibre is essential for the development of yellow colour on storage. (*i*) A sample kept over fused calcium chloride in an ordinary desiccator for more than a year has not turned yellow as yet. Another sample placed over conc. H_2SO_4 in an ordinary desiccator has turned very slightly brownish. (*ii*) A similar sample, stored over saturated NH_4Cl solution in a vacuum desiccator turned yellow just like the control, exposed to air. In view of these facts, the protection afforded by absolute alcohol would seem to be due to its dehydrating nature. Further experiments are in progress.

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1. Sarkar, *et al.*, *Curr. Sci.*, 1947, **16**, 74.

SOME NEW CHEMICAL AGENTS FOR CONTROL OF RABBIT COCCIDIOSIS

COCCIDIOSIS is a common cause of mortality both in poultry and rabbits. In the latter, *Eimeria stiedæ* (Lindemann) and *E. perforans* (Leuckert) are discharged as unsporulated oöcysts by chronic carriers. *E. stiedæ* attacks the liver and causes unusual hypertrophy of the organ owing to the proliferation of biliary epithelium and bile ducts.[1] *E. perforans*, on the other hand, causes acute enteritis. Mixed infections by both the parasites resulting in very quick death of the host are not uncommon. Reports of successul attempts of control of coccidiosis in rabbits with sulfasuxidine and pthalylsulfathiazole have recently been made.[2,3] The result of trials conducted by the author with 14 chemical agents for destroying the rabbit coccidian oöcysts *in vitro* are given in Table I.

Fresh, washed, unsegmented oöcysts from the liver and intestine of infected rabbits were suspended for 24 hours in sporulating dishes containing each of the reagents. At the end