Oil patent are 117–125° C and 116–121°, respectively.

From our experiments the conclusion must be drawn that if dimethyldioxans are formed when propylene glycol is distilled with sulphuric acid, the amounts are at least insignificant.

Experimental: Hydrolysis of the acetal. The acetal is sparingly soluble in water, but on heating with 1 % hydrochloric acid and shaking the acetal layer soon disappeared, propionaldehyde being evolved. The solution was kept for some time in an evacuated desiccator with phosphorus pentoxide and the remaining liquid distilled. The temperature rose rather rapidly to the boiling point of 1,2-propanediol. The distillate was viscous, miscible with water in all proportions and the taste sweet.

Reaction with 2,4-dinitrophenylhydrazine. 5 ml of concentrated sulphuric acid was added to 1.0 g of the reagent, then — drop by drop — 7.5 ml water and finally 25 ml ethanol (96 %). This solution was added to a solution of 0.250 g acetal in 10 ml ethanol (96 %). The precipitate (0.478 g) after repeated crystallisation from 96 % ethanol melted at 153.5°. The melting point showed no depression on addition of specially prepared propionaldehyde-2,4-dinitrophenylhydrazone. (Found: C 45.54; H 4.31; N 23.51. Calc. for $C_{17}H_{10}O_4N_4$: C 45.37; H 4.23; N 23.53).

The reaction between propionaldehyde and 1,2-propanediol. 17 g of propionaldehyde and 13 g of 1,2-propanediol were heated in a sealed tube to 160° during 68 hours. On fractionating it was found that the liquid distilling below 50° C consisted essentially of propionaldehyde. Between 50° and 86° a two-layer fraction was obtained. Subsequently the temperature rose rapidly to 160° C. The upper layer of the middle fraction was dried with anhydrous sodium sulphate before refractionating. After repeated fractionation the infrared absorption spectrum of the fraction 114–117° was compared with the spectrum of a corresponding fraction obtained from the distillation of 1,2-propanediol with sulphuric acid. The two fractions were found to consist of the same chief component, the contents of free propionaldehyde being somewhat different.

The molecular weight of the acetal prepared according to the I. G. Farbenindustrie patent was determined cryoscopically: Found 115.8, calc. 116.3.

Thanks are due to Mr. J. Lothe for taking the infrared spectra.

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A Preliminary Note on the Composition of the Non-hydratable Soyabean Phosphatides

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Degummed soyabean-oil, *i. e.* soyabean-oil from which the "mucilages" and the phosphatides have been removed by treatment with steam or hot water, still contains some phosphorus-containing compounds ordinarily referred to as non-hydratable phosphatides. The composition of these has never been fully established.

From a soyabean-oil extracted from american-grown beans and degummed by treatment with steam the non-hydratable phosphatides corresponding to more than 80 % of the remaining phosphorus-content have been isolated.

The nitrogen-content of the isolated phosphatides was only 0.3 %, whereas the ash-content normally was 21–22 %. The ash consisted mainly of Ca and Mg-phosphates, indicating that the isolated phosphatides were present as Ca and Mg-salts.

After converting the salts into free acids, the ether-soluble part, which contained about 75 % of the phosphorus, was fractionated using the countercurrent technique developed by Craig¹.

Fig. 1 shows the distribution-curves of weight, phosphorus, nitrogen and fatty acids obtained when using the solvent system: 62 volumes of carbon tetrachloride, 35 volumes of methanol and 3 volumes of water².

Fig. 1. Distribution curves.

○ — ○ weight,
 □ — □ nitrogen,
 ● — ● phosphorus,
 × — × fatty acids.

The curves exhibit three distinct maxima at transfer Nos. 116, 154 and 285, obviously representing three different components or groups of components, and a less pronounced maximum at transfer No. 205, probably representing a fourth component.

On mild acid hydrolysis the components at transfer No. 116 yielded glycerophosphoric acid and inositolmonophosphoric acid. The latter contained about 12 % of the total phosphorus present at this maximum.

The components at the three other maxima yielded on mild acid hydrolysis glycerophosphoric acid as the only phosphorus-containing ester.

As 1) phosphorus and fatty acids are present in equimolar quantities, 2) nitrogen is not present and 3) glycerophosphoric acid is the only phosphorus-containing ester, the component represented by the maximum at transfer No. 154 is in all probability lysophosphatidic acid (monoacyl-glycerophosphoric acid).

The two maxima at transfer No. 205 and No. 285 both contain phosphorus and fatty acids in a mole ratio of 1:2. As nitrogen is not present and the only phosphorus-

containing ester is glycerophosphoric acid, the maxima are thought to represent two groups of phosphatidic acids (diacylglycerophosphoric acids), which are differing in chain length and degree of unsaturation of the fatty acids.

The small nitrogen-content derives from ethanolamine and serine, the latter contains about 10 % of the total nitrogen present. They are in all probability present as esters of phosphoric acid and glycerophosphoric acid.

Based on this distribution, it is possible to state the composition of the investigated mixture, leaving out the nitrogen-containing components, as follows:

inositolmonophosphoric acid	2 %
glycerophosphoric acid	15 %
lysophosphatidic acid	28 %
phosphatidic acid	55 %

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