This difference in coupling ability of γ- and β-tocopherols suggests possible fixation of the bond structure in the benzenoid nucleus of the tocopherols according to IV instead of V. The sub-

IV V

stituted tetralins, which have a ring system similar to that of the tocopherols, are considered to have a double bond between the rings. The observed difference in the tocopherol isomers may also be related to the Mills–Nixon effect.[3,4]

The advice of Dr. C. F. H. Allen is gratefully acknowledged.

(3) Mills and Nixon, *J. Chem. Soc.*, 2510 (1930).

(4) Gilman, "Organic Chemistry," John Wiley and Sons, Inc., New York, N. Y., 1943, 2nd Ed., Vol. I, p. 136.

COMMUNICATION NO. 56
FROM THE LABORATORIES OF
DISTILLATION PRODUCTS, INC.
ROCHESTER, NEW YORK RECEIVED DECEMBER 7, 1943

The Alkylation of Isopropylmalonic Ester Using Sodium Triphenylmethide[1]

BY J. C. SHIVERS, B. E. HUDSON, JR., AND CHARLES R. HAUSER

The difficulty of alkylation of secondary alkyl malonic esters, for example, isopropylmalonic ester, by the ordinary procedure using sodium ethoxide[2] in alcoholic solution has been ascribed to the incomplete formation of the sodio derivative.[3]

$$RCH(CO_2C_2H_5)_2 + NaOC_2H_5 \rightleftharpoons [RC(CO_2C_2H_5)_2]Na + C_2H_5OH$$

Wallingford and co-workers[3b] found that, by substituting an alkyl carbonate for alcohol as a reaction medium and distilling all alcohol produced from the reaction with sodium ethoxide, certain secondary alkyl malonic esters could be alkylated. We have found that alkylation of isopropylmalonic ester may be achieved by using the stronger base, sodium triphenylmethide, in an inert solvent. The yields of alkylation product with ethyl iodide and isopropyl iodide were 73 and 23%, respectively.

$$(CH_3)_2CHCH(CO_2C_2H_5)_2 + NaC(C_6H_5)_3 \longrightarrow Na[(CH_3)_2CHC(CO_2C_2H_5)_2] + HC(C_6H_5)_3$$

$$RI + Na[(CH_3)_2CHC(CO_2C_2H_5)_2] \longrightarrow (CH_3)_2CHC(CO_2C_2H_5)_2 + NaI$$
$$\qquad\qquad\qquad