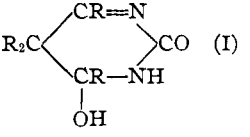
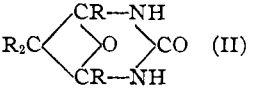
In a recent paper of the above title[1] the writer showed that 5,5-dialkylbarbituric acids react with the Grignard reagent to form stable crystalline products. In the case of diethylbarbituric acid and ethylmagnesium bromide a complete analysis of the product gave the empirical formula $C_{12}H_{22}O_2N_2$. With barbituric acids or Grignard reagent containing other alkyls the nitrogen determinations indicated analogous products. The formula represents a product which would result from a reaction between one mole of the barbituric acid and two moles of Grignard reagent with loss of one molecule of water. On the assumption that two carbonyls had reacted and that the water could be split out in either of two ways, two structural formulas were tentatively proposed:

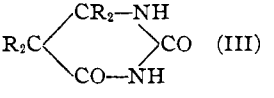


(I)



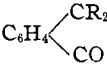
(II)

A third possibility occurred to the writer at the time but was not mentioned because it seemed less in conformity to the usual Grignard reactions. This consists in the reaction between a single carbonyl and two molecules of Grignard reagent with loss of one molecule of water, giving a product (III) with the same empirical formula:

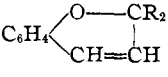


(III)

It now appears that precedent is to be found for reaction products of Type III, since anhydrides and lactones react in this manner. Bauer[2] obtained dialkylphthalides (IV) and Houben[3] dialkylchromenes (V) by reaction between a single carbonyl and two molecules of Grignard reagent.

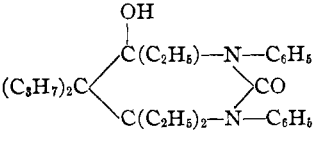


(IV)



(V)

In the case of 1,3-diphenyl-5,5-dipropylbarbituric acid, where three Grignard reagent molecules reacted and one molecule of water was split off, the product, if represented by Type III, would be



(III a)

The constitution of these substances still remains to be determined, but in the light of Bauer's and Houben's work Type III affords a fairly satisfactory explanation of the reaction except that hydrolysis would be expected to yield an amine instead of the ketone actually obtained.

ARTHUR W. DOX

Magnesium Diethyl and its Reaction with Acetyl Chloride, by Henry Gilman and F. Schulze.

P. 2329. In lines 9 and 18–19 instead of "dimethylethylcarbinol" **read** "methyldiethylcarbinol."

[1] Dox, THIS JOURNAL, **49**, 2275 (1927).

[2] Bauer, *Ber.*, **37**, 735 (1904).

[3] Houben, *Ber.*, **37**, 489 (1904).