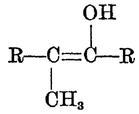
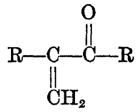
THE SEARCH FOR A STABLE SUBSTITUTED VINYL ALCOHOL

FOR a long time chemists[1] have been attracted by the possibility of preparing a stable substituted vinyl alcohol. Recently Fuson, Corse and McKeever[2] had reason to believe that they had finally reached that goal. Their compound I (M.P. 126–7° C) to which they assign the structure



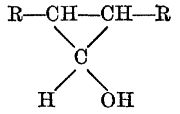
$$\mathrm{R-\underset{\displaystyle CH_3}{\underset{|}{C}}=\overset{\displaystyle OH}{\overset{|}{C}}-R}$$

(where R is mesityl) resulted from catalytic hydrogenation of a compound II (M.P. 131.5–133° C) considered to be

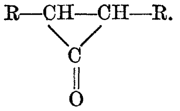


$$\mathrm{R-\underset{\displaystyle CH_2}{\underset{\|}{C}}-\overset{\displaystyle O}{\overset{\|}{C}}-R}$$

but for which no structure proof was given. The compound I, however, has such a high stability for an enol that one is tempted to consider other possible structures for it. It occurred to me that it might be



and compound II the corresponding ketone



These structures are not incompatible with the observed behavior. If such a relationship exists between these two compounds then it should be possible to oxidize compound I to compound II. This was found to be the case. Fifty mgs of compound I (M.P. 126–127.5° C) on treatment for three hours with an equimolar amount of chromic acid in acetic acid yielded 20 mgs of a crystalline compound of M.P. 132.5–133.5° C which by the mixed melting point method proved to be identical with compound II of the same melting point. Catalytic reduction of this oxidation product regenerated compound I. Such behavior on oxidation is difficult to reconcile with the vinyl alcohol formula without assuming an unprecedented 1,4 dehydrogenation. On the other hand, no claim is made at this time for the correctness of the cyclopropanol structure. It is offered merely as a possibility not readily eliminated by available data. This experimental work does suggest, however, that it might be wise to accept the vinyl alcohol structure with some reserve until further evidence in its support is forthcoming. If this enol formula can be definitely established by its sponsors they will have made a valuable contribution to the subject.

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[1] Claisen, *Ber.*, 25: 1781, 1892; Biltz, *Ann.*, 296: 242, 1897, *Ber.*, 32: 650, 1899; Kohler, *Am. Chem. Jour.*, 36: 177, 1906; Tiffeneau and Daufresne, *Compt. rend., Acad. d. Sci.*, 145: 628, 1907; Wislicenus and Waldmüller, *Ber.*, 42: 785, 1909. See claims of Grignard and coworkers, *Compt. rend., Acad. d. Sci.*, 179: 1573, 1924, 182: 422, 1926; *Bull. Soc. Chim.* [4] 49: 23, 1931, and refutation by Kohler and Thompson, *Jour. Am. Chem. Soc.*, 55: 3822, 1933, and Hückel and Radszat, *Jour. prakt. Chem.*, 140: 247, 1934; Kohler, Tishler and Potter, *Jour. Am. Chem. Soc.*, 57: 2517, 1935; Kohler and Thompson, *ibid.*, 59: 887, 1937.

[2] Fuson, Corse and McKeever, *Jour. Am. Chem. Soc.*, 62: 3250, 1940.

THE ANTICANITIC VITAMIN

OF the findings in vitamin studies that have come into recent prominence none is of more esthetic interest than the condition described by Morgan, Cook and Davison[1] as occurring in rats. The graying of hair in experimental animals is now thought to be cured by a substance whose chemical nature is little understood and which is often called colloquially "the anti-gray hair factor." A similar syndrome in rats,[2] of economic importance in the rearing of silver foxes,[3] was recognized by Lunde and Kringstad in Norway. As the term "anti-gray hair factor" popularizes the curative and prophylactic attributes of the responsible substance or substances, the use of such a designation does not seem desirable.

A name to meet this objection has been advanced; namely, "anti-achromotrichia factor." But this term tends to make scientific terminology more complex than necessary and hence a simpler name is needed. The writer prefers the neonym "anticanitic vitamin" that will be easily understood by biochemists, members of the medical profession and other scientists. *Canitic* is derived from canities (Latin *canus* = white), meaning "the turning gray of the hair," and its employment as indicated was proposed by Dr. W. A. Hamor[4] of Mellon Institute.

The aim of the present communication is merely to report this new descriptive term and to propose the cooperation of others in using it, especially in medical literature. As yet the nutritional significance for human beings of the anticanitic vitamin, if it is needed at all, remains to be established by further work.

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[1] Agnes F. Morgan, Bessie B. Cook and Helen G. Davison, *Jour. Nutrition*, 15: 27–43, 1938.

[2] G. Lunde and H. Kringstad, Avhandl. Norske Videnskaps Akad. Oslo. I Mat. Naturv. Klasse 1938, No. 1, 17 pp. *Chem. Abstracts*, 32: 5456–7, 1938.

[3] G. Lunde and H. Kringstad, *Saertrykk av Norsk Pelsdyrblad*, 13: 500–4, 1939.

[4] *Nutritional Observatory*, 1: No. 3, 1941.