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The Chemical Composition of the Burlington Limeston Near Oakville, Iowa

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A STUDY OF THE ABSORPTION OF HYDROGEN BROMIDE BY CINNAMIC ACID IN THE PRESENCE OF ULTRA-VIOLET LIGHT

GLADYS M. WOODS AND THOMAS C. POULTER

In the absorption of various reagents at the double bond of organic compounds it has been noted that in some cases a different product was obtained when the absorption was carried out in the presence of ultra-violet light. This difference has been frequently explained on the basis that the polarity of the reagent being absorbed was changed by the ultra-violet light. The question has been raised as to whether the difference was actually due to the change in polarity in the double bond. In order to investigate this condition an absolute ether solution of cinnamic acid was treated with a highly polar reagent such as HBr in the presence of ultra-violet light for a period of one hour. This reaction was carried out in a quartz container connected with a reflux condenser. The ether was then evaporated, and the residue was extracted with ligroin. The small portion of the material dissolving in ligroin was found to have a melting point of about 50°. The undissolved residue had a melting point of 131° to 133° corresponding to the unchanged cinnamic acid. The physical properties of the material extracted by the ligroin correspond very closely to those of Alpha brom Beta phenol proponic acid. It is very soluble in water and in ligroin and melts at 48° to 49°.

It is, therefore, the belief of the authors that the polarity of the double bond has been slightly altered due to the influence of ultra-violet light.

IOWA WESLEYAN COLLEGE,
MOUNT PLEASANT.

THE CHEMICAL COMPOSITION OF THE BURLINGTON LIMESTONE NEAR OAKVILLE, IOWA

NICHOLAS KNIGHT

An analysis of four specimens of Burlington limestone from near Oakville, Louisa county, was recently made in the chemical laboratories of Cornell College. The rock is hard, compact and crystalline in structure. There seems to be a pure white variety and one with a decided tinge of yellow. We were surprised at the small percentage of magnesium in all the specimens analyzed.

The Burlington rock with its small magnesian content would be well adapted to one of the world's greatest industrial products,

Portland Cement, and also calcium carbide. Its use as a face powder has been suggested.

I. The White Variety, Percentages		II. The Yellow Variety, Percentages	
$CaCO_3$	93.10	$CaCO_3$	95.15
$MgCO_3$	00.12	$MgCO_3$	1.04
SiO_2	5.88	SiO_2	1.95
Fe_2O_3 and Al_2O_3	0.92	Fe_2O_3 and Al_2O_3	1.83
Total	100.02	Total	99.97
III. White Variety, Percentages		IV. White Variety, Percentages	
$CaCO_3$	97.40	$CaCO_3$	95.40
$MgCO_3$	0.25	$MgCO_3$	1.54
SiO_2	2.32	SiO_2	3.04
Fe_2O_3 and Al_2O_3	0.12	Fe_2O_3 and Al_2O_3	0.12
Total	100.09	Total	100.10

CORNELL COLLEGE,
MOUNT VERNON.

THE REACTION OF NITROGEN TRICHLORIDE WITH UNSATURATED ACIDS

GEORGE H. COLEMAN AND G. M. MULLINS

Nitrogen trichloride reacts with crotonic acid in carbon tetrachloride solution slowly at 25° to form nitrogen, chlorine and the hydrochloride of chloro-aminobutyric acid. On reduction with sodium amalgam this product yields β-aminobutyric acid.

A similar reaction occurs with cinnamic acid.

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THE EFFECT OF LECITHIN IN DAIRY PRODUCTS UPON BUTTER FAT DETERMINATIONS

O. W. CHAPMAN

The amount of lecithin present in the ether extract of milk, cream, skimmed milk, and buttermilk is determined, and shown to be present in large enough amounts to have considerable influence upon the fat tests of substances which are low in fat. Lecithin prepared from egg yolks and added to buttermilk is shown to give high results in fat determinations, thus showing that the lecithin present in milk is a factor to be considered. The amount of lecithin in buttermilk is great enough to reduce the apparent average fat content of buttermilk from 0.7 per cent to 0.57 per cent.

SECTION OF DAIRY INDUSTRIES,
IOWA STATE COLLEGE.