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## Relation of Starch to the Strength of Wheat Flour

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## MAGNESIA CRUCIBLES IN AN ARC FURNACE

EDMOND E. MOORE AND ANSON HAYES

A satisfactory method for preparing pure magnesium oxide crucibles in an arc furnace has been worked out. Bakers C.P. MgO, so-called, is decarbonated by heating to 1200°F. for three hours, the CO<sub>2</sub> liberated being driven from the furnace by a slow current of air. The magnesia is next packed loosely in graphite containers and sintered in an arc furnace by heating to 3100°F and holding at that temperature for one hour. The sintered magnesia is then ground to pass a 100 mesh sieve, shaped into the desired form in graphite containers by packing dry around a graphite core. The core is removed, graphite lids are placed on the containers and the sintering repeated as above. The crucibles are of sufficient strength to allow pouring molten metal.

DETERMINATION OF THE COLLOIDAL MATERIAL  
IN SOILS

D. VERNE MOSES

Separation methods for the determination of colloidal material in soils have been eliminated by microscopic analysis, and proof of the existence of secondary reactions has cast doubt on many of the so-called adsorption methods. An adsorption method depending upon measurement of the partition coefficients for dye with alcohol and chloroform has been devised. The soil is saturated with dye from water, dried, extracted to equilibrium with chloroform, again dried and extracted with alcohol. The color in the alcohol is a measure of the colloidal surface. The method is simple and eliminates secondary reactions.

RELATION OF STARCH TO THE STRENGTH OF  
WHEAT FLOUR

G. G. NAUDAIN AND J. H. BUCHANAN

The condition of the starch of wheat flour is undoubtedly a factor that will indicate the strength of flour. A microscopical examination subsequently checked by baking tests shows that flour containing the larger proportion of small starch grains will be a stronger flour. A study of the action of various reagents shows the small grains to be more resistant. This may be indicated by the following studies: 1; by microscopically measuring the swell-

ing of the grains: 2; by measuring the viscosity of flours, and starch from flour: 3; by measuring imbibition of flour, and starch from flour. The following relationships were noted on two typical flours:— 1. Large loaf, large absorption, low ash, small starch grains, large imbibition, low imbibition by starch. 2. Small loaf, high ash, large starch grain, small imbibition, low absorption, large imbibition by starch.

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## METABOLISM AND VITAMIN A

V. E. NELSON AND C. M. McCAY

The following determinations were made on urines of rats receiving a control diet and a diet lacking vitamin A:—volume, specific gravity, acidity, ammonia, urea, total N, uric acid, creatin, creatinine, total solids, albumin and sugar. The volume, specific gravity, total solids, acidity and ammonia were greater on the control diet. The animals on the deficient diet excreted a much larger percentage of their nitrogen in the form of urea than the animals on the complete ration. Uric acid, creatine and creatinine did not vary. Sugar was not found. Albumin was found in both cases, and appears to be a normal constituent of the urine of the rat.

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## A COMPARATIVE STUDY OF THE REMOVAL OF CORN AND COTTONSEED OIL STAINS FROM WOOL AND SILK

RUTH O'BRIEN AND BARBARA WENTCH

This study was made in an effort to explain the development by dry cleaning of brown stains on silk and wool garments soiled with salad oils made from vegetable oils. The results indicate that age, light, and oxygen alone are negligible factors—the chief contributing cause being heat in the presence of air. This condition is brought about by hot pressing before cleaning or drying in a tumbler in a dry cleaning plant. Corn oil is particularly troublesome, due apparently to the larger percentage of esters of unsaturated fatty acids.

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## SOME RECENT STUDIES CONCERNING ORGANO- METALLIC COMPOUNDS

H. H. PARKER, F. SCHULZE, W. B. KING, J. M. PETERSON  
AND H. GILMAN

In connection with studies concerned with the mechanism of