

M. Sc.

CHEMISTRY

HERBERT WILLIAM MACKINNEY
A STUDY OF THE STRUCTURE OF LIGNIN.

A method is described for isolating the portion of lignin left in the residue after exhaustive extraction of spruce wood with dilute absolute methyl-alcoholic hydrochloric acid. The residue is completely methylated and is then hydrolysed with methyl-alcoholic hydrochloric acid of the same concentration. The "Insoluble Lignin" remains as an amorphous powder, free from carbohydrates, and insoluble in solvents.

By means of sodium alcoholate this "Insoluble Lignin" has been decomposed into two products;— a solid, insoluble in water, alcohol and ether, soluble in dioxane and chloroform, representing the major portion; and a small yield of a water-soluble acidic substance yielding an ester of the formula $C_{14}H_{24}O_4$.

M. Sc.

CHEMISTRY

CLARENCE TYLER MASON

Part One:

THE SPECIFIC VISCOSITY OF ACETALDEHYDE AND
OF ACETALDEHYDE-PARALDEHYDE MIXTURES.

The specific viscosity of pure acetaldehyde and paraldehyde have been found, and a curve is given from which the viscosity of any acetaldehyde-paraldehyde mixture can be found.

Part Two:

A STUDY OF THE OXIDATION OF ALLYL ALCOHOL BY
PERMANGANATE IN AN ACID MEDIUM.

A method of preparation of acrolein-free allyl alcohol has been given, and it has been shown that the oxidation of allyl alcohol by acid permanganate gives only formic acid.

M. Sc.

AGRONOMY

F. S. NOWOSAD

THE EFFECT OF SOME COMMERCIAL FERTILIZERS ON
THE YIELD AND BOTANICAL COMPOSITION OF
PERMANENT PASTURES.

Pasture experiments have been conducted in the Eastern Townships at Cowansville, Quebec. The yields of pastures were determined by placing wire cages in plots under different fertilizer treatments. The herbage was clipped four times during each season. The botanical composition was determined by the quadrat method.

In the first experiment started in 1931 and studied in 1931 and 1932, lime produced significant increases in yield. In a duplicate experiment started in 1932 and studied in 1932 only, lime produced significant decreases in yield. Superphosphate was found to be the most effective element in increasing the yield of herbage, while potash produced smaller increases. Complete mineral treatments and nitrogen gave the highest yields.

Botanical composition was altered considerably by the addition of fertilizers to pastures. Superphosphate increased the percentage of clovers, and decreased the weeds and bare ground. Potash was less effective. Nitrogen, when added to complete fertilizers, reduced the percentage of clovers, but showed no significant effect in increasing the percentage of grasses.

M. Sc.

AGRONOMY

JOSEPH ROSARIO PELLETIER

METHODS OF SUB-SAMPLING CIGAR LEAF TOBACCO IN
RELATION TO ACCURACY.

With a view to the development of a more accurate procedure in estimating the yield and quality in experimental work with tobacco, different methods of securing the samples and different sized samples have been tested out. The data collected from samples and also the remnants from these samples have been analyzed statistically.