There is some evidence from other authors that diet protein has little effect in raising the serum protein concentration. But it is well known that an increase in dietary protein both increases renal plasma flow (Van Slyke, Hiller, Rhoads, Hiller, and Alving. *Amer. J. Physiol.*, 1934, **109**, 336) and renal size (MacKay and MacKay. *J. Nutrition*, 1931, **3**, 375). These factors tending to increase the glomerular filtration rate must also be considered in estimating the effect of diet.

Most authors have expressed the clearance measurements in terms of body size (cc/unit wt/unit time). Since renal size in the rat has been shown to vary not directly with body size but as a power of body size (MacKay and MacKay. *Amer. J. Physiol.*, 1927, **83**, 196), differences may enter as a consequence of the relative size of the kidney in rats of widely different weight ranges.

Finally, it may be stated that different methods of clearance determinations in the same hands may give widely varying results in the rat, depending upon the precise conditions of measurement (Lippman. *Amer. J. Physiol.*, 1948, **152**, 27). Determinations were made upon rats receiving nearly the same dietary protein concentration (17%) as one of Dicker's groups. If reduced to the same terms by calculation, Dicker obtained a value of 0.64 cc/gm kidney wt/min, whereas this author will report a value of 1.15 cc/gm kidney wt/min.

While it is not my intention to minimize the error that may undoubtedly be introduced into renal clearance measurements through variations in the diet, it seems to me that the precise conditions of measurement are at least of equal importance, and probably of greater importance, in explaining the differing results obtained.

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Record of the Occurrence of *Physoderma graminis* in Canada

Agropyron repens L. plants in the neighborhood of Central Experimental Farm, Ottawa, were found to be parasitized by the chytrid *Physoderma graminis* (Büsgen). The diseased plants showed dwarfing due to suppressed culm elongation and also the presence of yellowish to brown stripes. The stiff erect leaves and general yellowish appearance make these plants conspicuous in the field under close-mown conditions.

Physoderma graminis, though well known in Europe on several grass hosts, is known only from Wisconsin (United States) in North America, being recorded by Thirumalachar and Dickson (*Phytopathology*, 1947, **37**, 885–888). The present record of its occurrence in Ottawa, Canada, indicates a rather widespread occurrence of the disease. The diseased plants are easily overlooked in the field, since they are overgrown by the neighboring healthy plants.

Though quack grass is not of economic importance, the possible spread of *Physoderma graminis* to other important grass hosts needs to be watched and studied. Few cases of its occurrence on *Dactylis glomerata* L. have been noticed by Dr. J. G. Dickson near Madison, Wisconsin. In Europe it is reported on several grass hosts of economic importance.

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Fisheries Statistics and the Past Oyster Production of the Gulf Coast of the United States

Most Gulf States do not collect adequate data on their fisheries production, and those that do have only done so for a few years. The State of Louisiana has recorded its oyster production for many years. Fisheries production data are important to fisheries biologists, students of economics, business concerns, legislative bodies, and others, and the lack of them is a deplorable gap in our knowledge of past conditions of the Gulf Coast fisheries. The same remarks apply to some extent to other parts of the United States. The deficiency in state production statistics has been partly filled by the U. S. Wildlife Service and its predecessors, the Bureau of Fisheries and the U. S. Fish Commission. Their statistics are comparable from state to state and, to a lesser extent, from year to year. Here again there are great gaps, and statistics on the Gulf Coast fisheries are available for only 24 of the years between 1880 and 1945, or slightly more than one-third of the period. These blank spaces exist because Congress was not foresighted enough to allocate funds for collection of statistics by the Federal fishery agencies. The process still goes on, and Radcliffe (Oyster Institute of North America, Vol. 14, Bull. 4, p. 2, August 17, 1948; mimeographed) has recently pointed out that while $1,000,000 was appropriated under the Farrington Act for the study of fisheries in the mid-Pacific, due to the lack of some $20,000 a year the Fish and Wildlife Service cannot gather adequate production figures on the marine fisheries of the continental United States. When such anomalies as this arise, we may well question the wisdom of Congress or the Bureau of the Budget, or possibly both.

In discussing the present oyster situation, oyster biologists and conservationists are given to pointing to the huge production of the past and comparing it with dismay to present production. For various reasons this picture is too often correct. Nevertheless, it is exaggerated because of a quirk in the Federal oyster statistics, as they are published. As stated above, the Federal statistics are the only ones available for all Gulf States. Oystermen have always reported their catches in gallons, bushels, or barrels. However, the Federal statistics are given in pounds, and evidently the statistics collectors used a factor to translate bushels of oysters to pounds of oysters.

Fiedler *Fishery Industries of the United States, 1931* Appendix II, Report of Commissioner of Fisheries, Bureau of Fisheries, 1932, pp. 97–440) stated that in the Federal series of reports (*Fishery Industries of the United States*) in all years previous to 1931 all oysters

were computed on the basis of 7.0 lbs of meat to the bushel. However, the factor was determined or redetermined that year and found to vary from 3.23 for Alabama oysters to 4.65 for Texas oysters. Since then, the Federal reports generally give this computing factor for each state for the years reported, because the factor also varies from year to year for each state. For the State of Louisiana it varied from 4.09 to 5.59 in the 5 years reported between 1932 and 1940, averaging 4.57 lbs to the bushel. This means that the Federal statistics for the State of Louisiana, in pounds, are approximately 35% exaggerated for all years previous to 1931. It explains why Louisiana's oyster production in pounds, as given in the Federal reports, shows a much greater variance from the State of Louisiana barrel figures before 1930 than afterwards. However, when the proper computing figures are used for turning the Federal figures into barrels produced, it is found that the annual oyster production of Louisiana, as given by the State and Federal Governments from 1911 to 1945 for the 16 comparable years in that period, differs only by 20,181 barrels or approximately 3%, the Federal figure being the greater.

According to the pounds figures of the Federal Government, the State of Louisiana produced 10 times as much oysters in 1911 as in the lowest depression year, 1932.

Possibly this situation is the cause for misgivings concerning Louisiana's oyster industry, viz. Chipman (Oyster Institute of North America Trade Report No. 91, June 1948; mimeographed): ". . . the mortality of oysters in Louisiana waters threatens the very existence of the large oyster industry of that state." However, the misgivings are unfounded, for the State of Louisiana statistics and properly interpreted Federal statistics show that there has been no major decline in Louisiana's oyster production since 1905, when the industry got under way. A complete analysis will be given elsewhere.

Unfortunately, the same thing cannot be said of other Gulf States. Taken together, they produced 952,000 barrels of oysters a year in the 1920s, 395,000 in the '30s, and 209,000 in the '40s. This decline is clear, indubitable, and huge.

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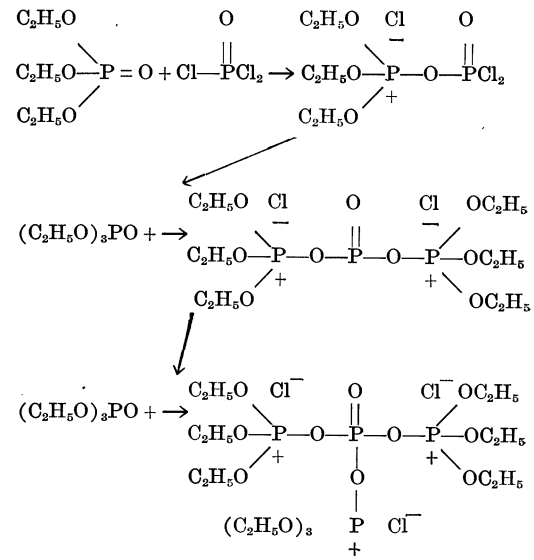
Some Views on the Phosphorylation Reactions

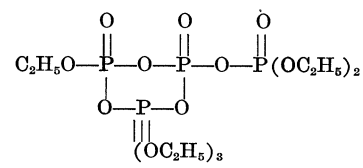
Although several years have passed since the introduction of polyphosphate esters as insecticides, no investigations have been made public in which the nature of the products or the mode of their formation from phosphorus oxychloride and, for example, triethyl phosphate has been studied. The patents under which these compounds were disclosed (Ger. 720,577 and U.S. 2,336,302; to I. G. Farbenindustrie) represent the reaction of formation of "hexaethyl tetraphosphate" as substitution of chlorine atoms by diethylphosphoryl groups, giving the final product a symmetrical pyramidal structure.

Determinations of molecular weights of reaction products of three moles of triethyl phosphate with one mole of phosphorus oxychloride in accordance with the patent disclosures showed that the actual molecular weights range from 560 to over 700 (freezing point, in benzene); that is to say, they are considerably in excess of the theoretical value (506) required by the pyramidal formulation. In addition, the infrared absorption spectra of such products reveal a close similarity to the spectra of ethyl metaphosphate esters, characterized by a wide and intense band near 10 μ.

Correlation of these observations with the known hydrogen bonding tendency of trialkyl phosphates, as shown by Audrieth and Steinman (*J. Amer. chem. Soc.*, 1941, **63**, 2115), leads to the possibility of the following representation of the nature of the reaction and of the resulting products, on the basis of addition reactions to the PO bond of the triethyl phosphate, giving intermediate "phosphonium type" adducts, which are capable, at each step, of formation of linear polyesters or of cyclic polyesters by thermal decomposition analogous to that of the thermal cleavage of true phosphonium compounds. The complexity of possibilities at each step merely confirms the complex nature of the final product.



It will be noted that the intermediates can decompose either "intragroup" (losing ethyl chloride) or they can react with a group in another part of the molecule by an "intergroup" reaction. Carrying the scheme to its logical conclusion, one arrives at structures shown below:



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