ments have often suggested that rust, at times, either attacks wheat from the soil in some form or manner, not now known, as characteristic of the life history of rust, or that it may come in some manner from the seed. This will at once suggest to those who are familiar with the investigations upon the rusts of cereals, the studies conducted by Professor Ericksson, of Stockholm, and his odd and undemonstratable mycoplasm theory. That author by his experiments seems to have demonstrated that in some manner a rust of wheat (*Puccinia glumarum*) of that region can be transmitted by the seeds, and claims to have demonstrated by structure studies certain micro-protoplasmic bodies directly associated with the cellular structure of the young wheat plant in such a manner that they are able to transmit the rust infection by finally transforming into filamentous structures in the aftergrowth from the embryo.

Through persistent studies upon this phase of the rust question we are now able to point out a more rational possible explanation of the transmission of rust through the seed of wheat, if it really ever is transmitted in that manner. Professor Ericksson in his experiments enclosed wheat from the time it was seeded until the time of maturity in certain germ proof glass cages and found that rust still appeared in the crop.[1] Bolley at the North Dakota Experiment Station several times duplicated this work.[2] He used sound wheat grains externally treated and in no case was able to secure rust under the conditions of culture; that is, was unable to confirm the results of Ericksson. It is possible that the wrong kind of wheat was selected in order to prove this work. In the experiments just cited, Bolley used the best selected grains of a particular kind of wheat which was known to rust easily. It was not certain, however, that the grains used had grown on rust-attacked mother plants. Late observations at the North Dakota Experiment Station Botanical Laboratory, in which numerous samples of wheat harvested from the badly rusted crop of 1904 were examined, now allow us to make the definite statement that wheat grains from badly rusted mother plants quite often, indeed, in some strains are quite uniformly internally infected by wheat rust filaments to such extent that spore beds are formed bearing both uredo-spores and teleuto-spores (*summer spores and winter spores*) beneath the bran layer. In some samples of the rust-infected crop of 1904, as high as thirty per cent. of all grains harvested were so infected with the stem rust (*Puccinia graminis*) and spore beds bearing both types of spores were found variously located beneath the bran layer of the grains and about the embryo wheat plants. The spots or spore beds are most commonly located immediately at the germ end, causing a black or blighted appearance, but are often found on other portions of the berry, especially along margins of the grooves. It is also found that these grains, thus affected, germinate as freely as any other wheat grains.

These new observations have opened up a new line of investigation, but it is too early to affirm that wheat rust attacks may come in this direct manner from the seed. If, however, later experiments should confirm this possible mode of rust propagation, these observations must undoubtedly throw a new light upon the Ericksson mycoplasm controversy and place another strong emphasis on the importance of proper seed selection and grading of grain in farm practise. The fact that rust thus attacks the wheat grain by way of its attachment is also an apparent explanation of why rusted wheat often fails to properly mature the seed even though there is yet plenty of strength in the parent plants.

Henry L. Bolley,
F. J. Pritchard.
North Dakota Agricultural College,
July 11, 1905.

[1] Dr. Jacob Ericksson, 'A General Review of the Principal Results of Swedish Research into Grain Rust,' *Botanical Gazette*, Vol. XXV., No. 1, 1898.

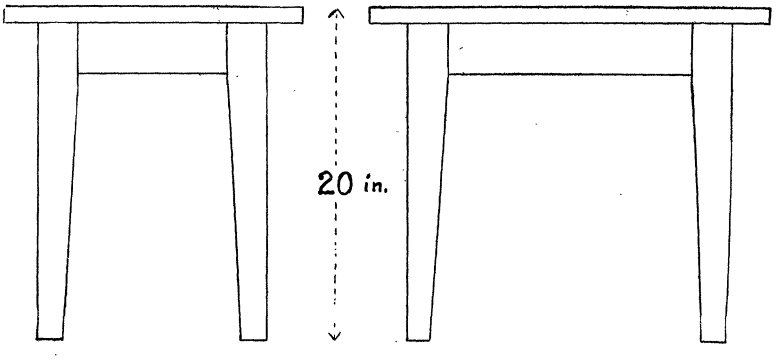
[2] Bolley, in *Centralblatt für Bacteriologie, Parasitenkunde und Infectionskrankheiten*, Zweite Abteilung, IV. Band, 1898, Nos. 23, 24 and 25.

APPARATUS TABLES FOR ELECTRICAL LABORATORIES.

The apparatus tables, here described, were designed to meet the needs of an advanced laboratory in electrical measurements. The

novelty is not one of design, but one of application. This, together with the fact that the decided advantages possessed by the tables are so obvious, makes one doubt if the utilization of such tables for an electrical laboratory is new.

The accompanying diagram will show the actual dimensions of the tables. They are built of hardwood and made heavy in order to withstand any usage. Upon the tables can be fastened any permanent equipment such as reversing keys, switches, etc. Inasmuch as these tables seem to satisfy the needs of a laboratory for electrical measurements so perfectly, I venture to call attention to some of their most marked advantages.



1. If the apparatus of the student, such as resistance boxes, condensers, etc., be arranged before him on a table of the ordinary height, it will be very inconvenient for him to make any adjustments, or to make any examination of his connections without rising from his seat; both because of the distance he has to reach, and because he can not see sufficiently well. If tables only twenty inches in height are used, everything is in clear view and also within easy reach. It matters not whether the student is using a galvanometer and telescope and scale, or whether he is reading ammeters and voltmeters, the advantage is the same.

2. The greater convenience of the student means a greater accuracy in his work.

3. Some experiments require comparative isolation from magnetic disturbances, but, on account of the perfection of the D'Arsonval galvanometer, this is usually not necessary. It therefore often happens that economy of space is a very important factor in the consideration of laboratory plans. With such small tables (top 18 in. by 24 in.) the observer occupies just that floor space which he needs. Not only can he make up a table of the proper area by combining two or more of the small tables, but he also can group them to suit the conditions. It is an application of the 'unit system.'

4. A laboratory would find the tables useful not only in work in electricity, but as general utility tables. They can be easily lifted and carried about. They are convenient in the research laboratory, in the lecture room, and no doubt in many places about a laboratory.

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UNIVERSITY OF NORTH DAKOTA,
February, 1905.

QUOTATIONS.

THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY.

A MAJORITY decision by the full bench of the Supreme Court, to the effect that the Massachusetts Institute of Technology can not sell its present property under the grant of 1861 and can not build over more than one third of the area bounded by Berkeley, Newbury, Clarendon and Boylston streets, seems to be the final word in a matter that has attracted much more than local attention for several years. This result will produce somewhat mingled public emotions. The rapid development of this institution in considerably less than half a century was unforeseen by most of