INTERPRETATIONS OF RESULTS NOTED IN EXPERIMENTS
UPON CEREAL CROPPING METHODS AFTER
SOIL STERILIZATION.

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It is not my intention at this time to give the details of extended
experiments upon soil sterilization and its effects; nor to enter any
special criticisms upon the work of other investigators. I wish only
to call attention to some facts, observations, and conditions of the work
centered about cereal cropping, and experiments upon soils which may
indicate that a new light may be thrown upon the conclusions to be
drawn,—with that light emanating from a different source than has
usually been indicated by most experimenters.

Observations and Reflections.—The following features of cropping
and experiments will be familiarly known to most of you:

1. New lands, when first sown to wheat or other cereals, produce
quite lavishly in seed of high quality and at slight effort on the part
of the farmer. These new land yields, in this country, are quite
commonly taken as the standard of what ought to be expected.

2. It is a common experience that as soon as a particular cereal
crop has become general, and that usually follows in a very few
years, a marked deterioration, both in yield and quality, sets in. The
crop, except in special years, and under rare exceptions of special
farming, seldom again reaches the same high grade of yield and quality.
Indeed, the yield generally falls to the average for the country, above
which it can be raised again only through exceptional methods; and,
to the chagrin of many of our most able agricultural educators, no
philosophy of cropping or land improvement seems to give the farmer
the desired results with any regularity, year by year, for any long
period of time. The crop or variety once a favorite in a locality
usually has a short life and finally gives place to a real change in
agriculture, seldom, if ever, to regain its place.

3. Not many theories have been advanced to account for these
results. The chemist and his followers have usually directed thought
in the matter, and agriculturists, generally, have taken the chemist's

\textit{dictum} that marked changes have occurred in the balance of plant
food relations of the soil, thus accounting for the rapid first deteriora-
tion of the crop through chemical losses noticed in the soil. Thus
\textit{if a lack of proteid is found in the grain of wheat and a loss of nitro-
gen is observed in the soil, it has been reasoned, without founda-}