

# THE OTTAWA NATURALIST

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VOL. XXIII. OTTAWA, AUGUST, 1909

No. 5

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## CERTAIN BIOLOGICAL PRINCIPLES AND THEIR PRACTICAL APPLICATION IN THE IMPROVEMENT OF THE FIELD CROPS OF CANADA.

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By L. H. NEWMAN, B.S.A., Secretary, Canadian Seed Growers' Association, Ottawa.

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*To learn what is true in order to do what is right is the summing up of the whole duty of man.*—T. H. HUXLEY.

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Modern science has done much to awaken a greater interest in the improvement of the lot of man by giving us a better understanding of life processes. A more comprehensive knowledge of the laws which determine our well-being in the physical world has resulted in the control of many dread diseases. A greater knowledge of the interaction of, and the relation between, hereditary forces and environment places within the reach of man a remarkable power in guiding and controlling the creative forces of nature. This last makes possible the betterment of the condition of man through the improvement of his food.

The world's supply of food to-day is directly dependent upon one great kingdom—the vegetable kingdom. At first man depended for his livelihood upon the chase and the fruits, seeds and herbs which nature provided. This source, however, soon required to be supplemented so that we find even our primitive races resorting to the raising of crops as a means of sustenance. The native forms of plant-life which were utilized soon responded to the hand of man, and from this early beginning dates the improvement of plants.

The great complexity and diversity in the forms of vegetation which clothe the surface of the earth has long been a question to haunt the mind of the scientist and the philosopher. That new species were constantly being produced in nature was a recognized fact as long ago as before the birth of Christ, but the exact manner in which these were brought into existence has long remained obscure and puzzling.