THE GEOLOGICAL AND NATURAL HISTORY SURVEY OF MINNESOTA.

FIRST REPORT

OF THE

STATE ZOÖLOGIST,

ACCOMPANIED WITH

NOTES ON THE BIRDS OF MINNESOTA,

By Dr. P. L. HATCH.

HENRY F. NACHTRIEB, State Zoölogist.

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LETTER OF TRANSMITTAL.

To the President of the Board of Regents of The University of Minnesota:

SIR.—I have the honor herewith to transmit to your honorable Board my first report as State Zoologist.

Nearly all of the matter originally intended for this report has been crowded out by Dr. Hatch's "Notes on the Birds of Minnesota," which for several reasons I felt constrained to submit at present in their original form, and which accompany my general introduction.

Dr. Hatch was years ago requested to write a report on the birds of Minnesota, by Professor Winchell, when the State Geologist had charge of all the divisions of the survey. For this and other reasons I have not assumed any editorial responsibilities and privileges, but simply those of a transmitter.

A *report* on the birds of Minnesota is now in process of preparation, and just as soon as the ornithologist has important data, not yet in hand, at his disposal, and the mass of notes and material collected during the past thirty years has been thoroughly sifted and arranged, it will be submitted for publication.

Very respectfully,

Your obedient servant,

HENRY F. NACHTRIEB.

GENERAL INTRODUCTION.

The Geological and Natural History Survey of Minnesota, was established by a legislative act approved by the Governor of the State March 1st, 1872. "There is no question," to quote the words of the State Geologist, "but one of the prime motives of the law was to introduce another auxiliary force into the State University, by making it a center whence should radiate information concerning the natural features of the state, and toward which should gravitate all collections of natural history that should otherwise be brought to light." Taking the statement in its most comprehensive sense, it is undoubtedly true; and the fact that the State Geologist has always been enrolled with the faculty of the University in the catalogue, and that the law explicitly makes the Board of Regents the director of the survey, fully justifies the statement in regard to the relation of the survey to the University, and indicates an element of excellence not to be found in the laws creating similar surveys in other states.

At the time the present survey was organized it seemed desirable for various reasons to pay more attention to the geology of the state than to the botany and the zoölogy, and accordingly a geologist was appointed to take charge of the survey work. This was in accordance with the spirit of the times. And in accordance with an established custom, the geologist of the survey was generally called the State Geologist, an appellation that common usage has given the weight of a title, though it never was officially conferred as such. For many years the "Natural History Survey," existed only in the wisely formulated law, for which excellent and comprehensive law we owe thanks to Dr. Wm. W. Folwell, who was at that time president of the University.

Later on the importance and necessity of beginning the botanical and the zoölogical work was now and then recognized in the appearance of papers relating to the flora and fauna of the state. Naturally, however, the botanical and zoölogical work was not prosecuted with the same vigor and accuracy as the geological, for the day had gone by when one man could master all sciences. And the geologist of to-day finds problems enough in geology to engage all his time and tax all his energy and genius.

It was the recognition of these facts as well as the desire to make a more efficient "auxiliary force" of the survey contemplated in the law that prompted the Board of Regents to relieve the State Geologist of the excess of requirements and put the

botanical and the zoölogical work of the survey under the charge of, respectively, the professor of botany as State Botanist and curator of the botanical museum, and the professor of animal biology as State Zoölogist and curator of the zoölogical museum.

The present State Zoölogist was appointed by the Board of Regents about three years ago. Nothing was done during the first two years, other University duties taking me abroad one year, and sickness making work impossible the other. Last summer (1891) a party of three spent not quite four weeks on Lake Vermilion, as much as the funds remaining after purchasing apparatus and chemicals would permit. The exceedingly bad and disagreeable weather reduced this time to about two weeks. Nevertheless, some valuable data and experience were gained that are of value for the future.

It has been a surprise to me that so few of our "posted" citizens know anything about the existence of a law creating The Geological and Natural History Survey, and to dispel a little of this ignorance where it ought not to be, I quote here the sections relating to the Natural History division of the Survey.

"Section 1. It shall be the duty of the board of regents of The University of Minnesota to cause to be begun as soon as may be practicable, and to carry on a thorough geological and natural history survey of the state.

Section 3. The natural history survey shall include, first, an examination of the vegetable productions of the state, embracing all trees, shrubs, herbs and grasses, native or naturalized in the state; second, a complete and scientific account of the animal kingdom as properly represented in the state, including all mammalia, fishes, reptiles, birds and insects.

Section 6. It shall be the duty of said board of regents to cause proper specimens, skillfully prepared, secured and labeled, of all rocks, soils, ores, coals, fossils, cements, building stones, plants, woods, skins and skeletons of animals, birds, insects and fishes, and other mineral, vegetable and animal substances and organisms discovered or examined in the course of said surveys, to be preserved for public inspection, free of cost, in the University of Minnesota, in rooms convenient of access and properly warmed, lighted, ventilated and furnished and in charge of a proper scientific curator; and they shall also, whenever the same may be practicable, cause duplicates in reasonable numbers and quantities of the above named specimens, to be collected and preserved for the purpose of exchanges with other state universities and scientific institutions, of which latter the Smithsonian Institution at Washington shall have the preference."

Certainly no zoölogist will complain that this law is too narrow and irrational, for section 3 alone commands for him a field so wide as to call for all lines of zoölogical investigation. There are, however, certain lines of investigation universally recognized as coming particularly within the scope of such state surveys. But even such investigations almost invariably demand others that at first sight seem foreign.

The intensely practical man is almost always really the most unpractical, and the greatest obstacle to progress. He will pooh—pooh the investigation of the habits and life history and structure of an unpalatable sucker or the "insignificant" stickle back and demand the investigation of the bass and other food fish only, entirely loosing sight of the fact that the one serves as food for some of his favorite fish and the other wages ruinous war against them.

Many similar examples clearly show up the folly of trying to consider only that which we can immediately utilize, and usually convince the short-sighted that we can not intelligently and successfully manage the one in ignorance of the other. Too many of us forget that what we now call applied science was at one time considered pure science, and that it is a question whether the Edisons or the Webers, Faradays and Franklins have done most for the comfort of mankind, and whether the zoölogists, who through years of patient work gathered the life histories of many of our parasites, thus dispelling the dark cloud of superstition and suggesting a rational treatment for many diseases and giving to every one the simplest means of protection, should not be classed among the most practical.

If the results of the patient work of honest investigators of past generations are to-day wielded by the most mechanical laborer, what is to keep the work of the so called scientist from becoming a tool for the comfort and happiness of future generations? Indeed are we not reminded on all sides that the more thorough our knowledge of the things and phenomena about us becomes through observation and experiment, the better do we utilize them and the more uniform and generally accepted become our interpretations. And does the intellectual work and triumph mean nothing to any or all of us?

The universe is a whole and not a collection of absolute independents, and no line or kind of work, however purely scientific it may appear at the time, can be carried on without sooner or later becoming evident and universally tangible in some practical form.