

THE TRANSACTIONS  
OF THE  
NOVA-SCOTIAN INSTITUTE OF NATURAL SCIENCE.

VOLUME I.—PART I.

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*Inaugural Address.* By P. C. HILL, D. C. L., President.

IF we would know the extent of our knowledge in the present day, how far man has penetrated into the mysteries of creation by which he is surrounded, we must compare the state of knowledge at different periods of the world's history; we shall thus obtain a kind of standard by which to measure the progress which has been made, and may form at least an approximate idea of our actual position; we shall see that the boundaries have been constantly enlarging themselves, and that at the present day the extent of man's knowledge in nearly every department of Nature is infinitely wider, and, at the same time, more accurate than at any previous period. Now, how has this been accomplished? Much, of course, is due to the progressive nature of all science, and to the heaven-born thirst of knowledge which burns in men of every land, and impels them to toil in its acquisition; but, however great the ardor or untiring the efforts, all such isolated labors would really tend but little to enlarge the boundaries of human knowledge or to increase its aggregate amount. Communication with each other; every laborer in the field casting his contribution into a common receptacle whence all can freely draw, can alone give these results of individual effort their highest value, and convert that which formed the recreation of a single mind into the component portions of one mighty whole.

It is, then, to aid in this important work and to afford a well constituted and organized channel for the contributions to the general stock of knowledge of those among ourselves who are interested in the fascinating

fields of knowledge embraced in the term "Natural Science" that the "Nova Scotian Institute" has been established. Should our hopes not be disappointed, we look forward to the time when our "transactions" shall be exchanged with older and more important institutions, and any new and well authenticated fact, having passed the ordeal of our own local organization, shall be transmitted to the great centres of science, and become the property of the whole world.

And let us not underrate the importance of having such a channel of communication opened to us. Nothing is more characteristic of the science of the present day than the value attached to facts verified and ascertained *in situ*, if I may use the expression; thus every well authenticated specimen, either of plant or animal, procured on the undoubted place of its existence, sheds light on the theory that the *fauna* and *flora* of every distinct zone or district had a separate and local centre of creation, in contradistinction to that opinion which looks to a region of Central Asia as the original source and centre whence emanated all animal life at least, after the deluge. Closely connected with this subject are those important questions in Ethnology, which are attracting the deepest attention at the present day, but more particularly in America; and although, in my judgment, those who adopt the theory of a plurality of races in the human family, have erred in reasoning by analogy from the distinct centres of creation of the lower *faunas* of the earth, to man, inasmuch as between man and the highest form of anthropoid apes there is a wide and impassable gulf, yet every fact which tends to hasten the final solution of the question possesses the utmost importance. In this view, what a significance the acquisition of even one indisputable fact assumes! To whatever branch of Natural History the enquirer devotes his studies, he cannot divest his labors of their connection with these questions in which all that can interest man is involved.

Let us also remember that our own country presents in many aspects a new and untrodden field for research;—those representatives of the fish, of the edible mollusca, of the mineralogy of the Province, which were sent to the great International Exhibition, have not exhausted the ground: he who would advance the status of his country in the world of science, as well as add to the stores of human knowledge, has here both the incentive and the field to urge him to his noblest efforts.

The love of knowledge itself, however—that noble and unextinguishable thirst to which I have already alluded, must be the great motive animating all our efforts. And rightly viewed, what higher incentive could be presented to any intelligent mind? The works of nature are

but the manifestations and exponents of the Creator's skill ; the universe is not a mere agglomeration of incongruous elements thrown together at random and without mutual dependence on each other ; order and system, even where unseen by man, prevail throughout every portion of creation. To discover this—to trace the harmony and connection pervading the whole universe is, in other words, to obtain some insight into the plans and designs of the Creator when He built up the habitable world, clothed it with a luxuriant vegetation, and peopled it with that manifold animal life which occupies every portion of its surface. From the lichens of the Arctic regions to the stately oak—the monarch of the woods ; from the coral-building polype, almost destitute of organic life or functions, to man, made in the image of his Maker, there is a gradation and order of no human or arbitrary devising, but forming an essential and fundamental element of the whole. To have lifted the veil from some portions of this wonderful order and design ; to have learned something of the true system in which the Creator has arranged His works, form the glories of modern science. Classification, which simply, in one word, embodies this idea, is now the great object of attention ; thus, the orders into which the animal kingdom is divided are based on the essential and immutable diversities which modern research has revealed, and the transfers which sometimes take place of species, or even a genus, from one place to another, in the general system, are merely the result of a further insight obtained by pains-taking laborers into this universal plan of creation.

The field of labor here opening to us is unbounded ; the objects presenting themselves for our studies are literally inexhaustible ; and he who, in earnest sincerity of purpose, devotes his attention to any one branch, however special and circumscribed it may appear, cannot fail to see new and hitherto unknown evidences of the skill and wisdom of the Great Architect, the contemplation of which will not only confer on himself the most exalted pleasure, but will add to the general stock of human knowledge.

In these fields of observation, we have in our own Province the most extensive and interesting materials for study. The shores, the forests, the rocks, of Nova Scotia, present inexhaustible stores to the student of nature. What DAWSON has done for Acadian geology, may be done by any other student in any other branch of Natural Science. The object of this Institution is to stimulate the effort to follow so bright an example, and to aid and encourage the student by giving a recognized position and permanency to the results of his labors. If we succeed, in however

limited a measure, in effecting this object, our intentions in founding the Association will be fulfilled, and our humble efforts for the promotion of Science and the elevation of our native land will be abundantly rewarded.

In conclusion, I may add that the Society embraces in the field of its observations not only the Province of Nova Scotia, but also Prince Edward Island, Newfoundland, Labrador, and the Bermuda's localities, to which the scientific observer has hitherto paid but slight attention.

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ART. I.—*On the common Herring (Clupea elongata)*. By J. BERNARD  
GILPIN, A. B., M. D., M. R. C. S.

[Read Feb. 2, 1863.]

FROM five specimens before me, — one taken at Red-bay, Labrador; the second, from the "Banks," ten miles seaward; the third, from Halifax harbour; the fourth, from Annapolis Royal, Bay of Fundy; and the fifth from a cod's stomach, caught last winter, upon the Banks, I may say they are identical, except in teeth and size; they all may be called slender: the head about one-sixth the entire length, the lips dusky black, the opercles the same, and fins alike in relative position with each other, and in number of rays, and the belly slightly carinated. They all dip forward when held by the dorsal fin, and they all correspond in colour, as far as may be judged from the specimens more or less denuded of their scales, and part preserved in salt, and part in alcohol. As regards teeth, they all had teeth upon the tongue and vomer, except the one from the cod's stomach, which had none upon the tongue; but the Labrador specimens had none upon the lower jaw, the others having them there. J. M. JONES, Esq., showed me a specimen of a Newfoundland herring, with teeth upon vomer, tongue, and both upper and lower jaws. On the head of another Labrador specimen, boiled and taken apart, I found teeth only on the vomer; under a strong glass the lower maxillary was slightly serrated. In size, the Labrador measures 15 inches; the Bank, 13½; the Shore, 11; the Annapolis, or Digby herring, 7 to 8; and that taken from the cod, about 5 inches. Notwithstanding the difference in size, and in teeth, which last I shall again refer to, I can only consider them of one species.

The description of an ordinary herring taken from the market at Halifax, will serve as a type for all:

"Body, long and slender; head, one-sixth the length; 2 pectoral, 1 dorsal, 2 ventral, and one anal fin. The caudal deeply cleft. The dorsal