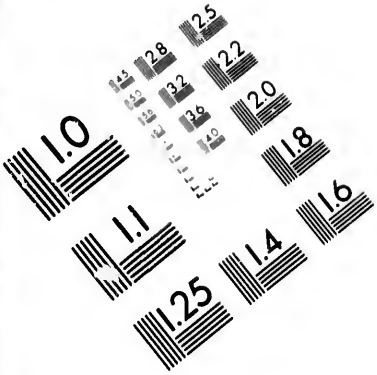

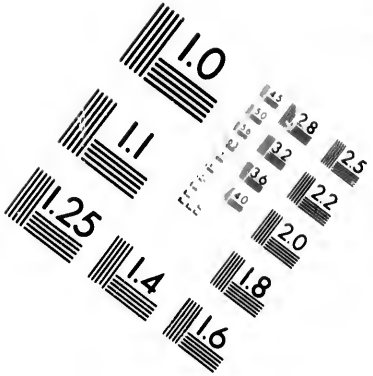

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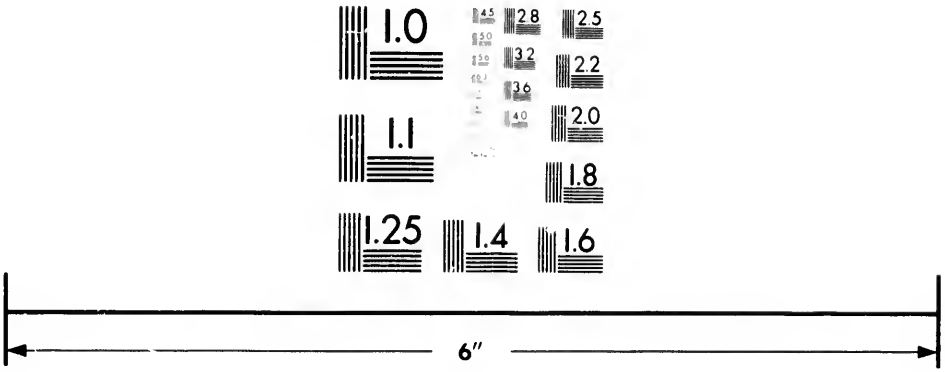

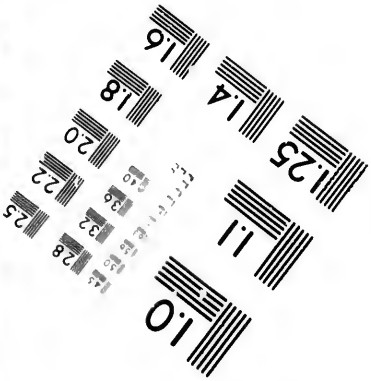

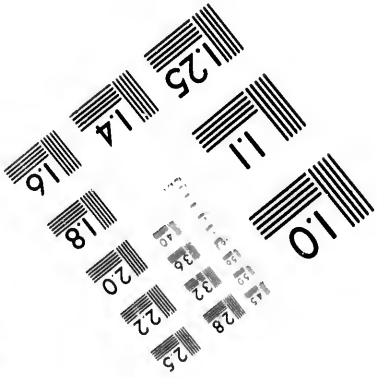

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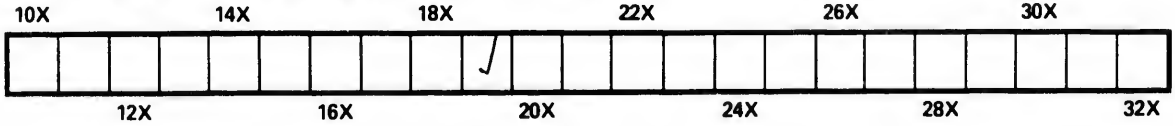

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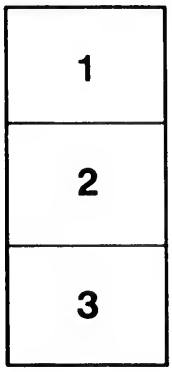

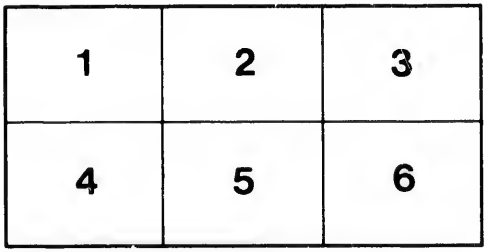

[*From the Transactions of the Nova Scotian Institute of Natural Science, Vol. VII., Part 4, 1889-90.*]

ART. III.—THE GEOLOGICAL WRITINGS OF REV. D. HONEYMAN, D. C. L.—BY E. GILPIN, JR., INSPECTOR OF MINES, &c.

My remarks this evening are more a summary of the Geological work done by the late Dr. Honeyman, through the transactions of our Institute, than an attempt to follow him in all his Geological writings. The doctor was a steady and interesting contributor to many English and foreign Scientific periodicals and transactions which are seldom seen in this quiet corner of the world, but the Institute presents the best of his labors, his field work in the Province. His articles, extending over many pages of our volumes, exhibit bold and logical attempts to unravel problems in geology, which have been in many cases of great assistance to those working after him. While tenacious of his opinion once formed, he was open to conviction and ready to admit the arguments of those who brought experience acquired elsewhere.

I find that he made his debut as a geologist in a paper read in 1859, before the Nova Scotia Literary and Scientific Society of Halifax on "the Fossiliferous Rocks of Arisaig."

The London Exhibition of 1862, was taken advantage of by the Provincial Government for a display of Nova Scotia minerals and Drs. Honeyman and How, and Messrs. Campbell and Poole, were commissioned to prepare papers and specimens illustrative of its geology and mineralogy. The Doctor was entrusted with the charge of displaying and explaining the exhibits. During the discharge of his duties in London he had opportunities of becoming acquainted with Sir R. Murchison, Mr. Salter, and Prof. Phillips and Prof. Fritsch, and many other eminent geologists, who were much interested in his collections, and afterwards kept up a friendly intercourse with him.

The doctor performed similar duties at the Dublin International Exhibition on behalf of the Province, and a medal was awarded the Government, as had been the case at the London Exhibition.

His name, so far as I can learn, first appears in our Transactions in the record of a meeting held May 8, 1866, when he contributed a paper on the Geology of Antigonish. As at this time he was elected an associate member. I presume he had not yet removed from Antigonish to Halifax. In December of the same year he read a paper on the Gay's River Gold Field. This district has not as yet proved equal in economic importance to many others, but it is specially interesting from a geological standpoint. In many countries rivers flowing across auriferous strata have accumulated at favorable points deposits of sand and gravel carrying particles of free gold. Afterwards the courses of these rivers have been diverted by natural causes into different channels, and the gold-bearing gravels have become accessible to the miner. These deposits sometimes occur concreted or hardened or covered with trap, modern soil, etc. The interest that attaches to the Gay's River mines is that this ancient beach or bed is not a modern one but of paleozoic age, a basal conglomerate of the Carboniferous, thus proving that the gold was introduced before the Carboniferous measures began to form, and presents an interesting and almost unique proof of the similarity of Geological action in very early times to that now going on.

In 1867, at the Paris Universal Exhibition, his services were also called into requisition, and his exertions secured another medal for the Provincial Government.

About this time the Doctor began to pay more attention to lithology, and remarked:

"Before 1867 I had devoted my attention almost exclusively to paleontology—to the collection of fossils, their study and correllation—to the association of fauna, their distribution and the conditions under which they 'lived, moved and had their being.' Availing myself fully of my advantages I made a special study of the Arisaig series of fauna, in order to mark the first appearance of new forms, their culmination and disappearance. When it is taken into consideration that this field is almost entirely fallow, that its strata are so replete with organisms, that they have been exposed for ages to the Gulf of St. Lawrence, lining the shores with fossiliferous boulders, requiring only the application

of the hammer to secure forms, new, varied and beautiful, it will be readily admitted that the work was enough to excite monomania, and to exact application.

"Another consideration was that I was acquiring a branch of knowledge, and an intimate acquaintance with a type which I was assured would be of infinite importance in future works in the Geology of Nova Scotia. Yet other incentives were my facilities through International Exhibitions, of receiving the invaluable aid in the work, by intercourse with the great paleontologists of England and other countries, of the examination of Museum and Exhibition Collections, and the appreciation of my work by International Judges. The work of an amateur had become the work of a profession. This change and removal to Halifax, a lithological centre, where fossils in the rocks are hardly recognisable, led to the association of the study of lithology with that of paleontology."

In 1867 he read an interesting paper on the Geology of the Londonderry Iron Mines. In 1868 he returned again with renewed ardor to the study of the rocks of Arisaig, his favorite hunting ground, a series of remote hills on the Gulf of St. Lawrence, a barrier between the waves of the Gulf and the soft carboniferous measures of Antigonish County, and traced the extension of the Silurian beds into the East River district of Pictou. In March 14, 1870, he read a very interesting and valuable paper on the Geological relations of the iron ores of this district The writer was professionally engaged in this locality about this time, and remembers very well the intricate problems that were presented at every attempt to define clearly the position of the various deposits. Although much attention has been given to it by several eminent Geologists, and large sums of money expended by mining engineers in proving and extending the beds and veins of ore, there are points not yet cleared up.

From this date the Doctor became a frequent and regular contributor to our Transactions. In 1871 he was elected Secretary of the Institute, an office which he held in conjunction with his position as Curator of the Museum until his death, although for the last few years, to enable him to devote himself more especially

to his scientific pursuits, he resigned the more active duties of his Secretaryship, which were assumed by Mr. McKay and Mr. Macdonald, and he became Honorary and Corresponding Secretary.

In 1871 and 1872 he read papers on the Geology of the rocks surrounding the Pictou coal field, in which he differed from the conclusions arrived at by Sir William Logan, and considered that they were an extension of the metamorphic Middle Silurian rocks of Irish and Fraser's mountains.

In 1873 he read a paper on the metamorphism of rocks in Nova Scotia and Cape Breton. In this interesting communication he dwelt upon the fact of the Lower Carboniferous Limestones not being altered when in contact with metamorphic precarboniferous rocks, and upon the metamorphic character of all other limestones found in Nova Scotia. In this year he spent some time in examining the sections exposed by the cuttings of the Intercolonial Railway in Halifax, Colchester, and Cumberland Counties, directing more particular attention to the Cobequid Mountains, in which he considered that he recognised extensions of his typical Arisaig series.

A summer spent in New Brunswick gave him an opportunity of still further extending his Geological horizons, and the results were embodied in a paper read Nov. 9, 1874. At the Centennial Exhibition the Doctor was represented again by collections of fossils and minerals, and by eleven maps showing results of his labors since 1867.

Hitherto, with the exception of his explorations on the Cobequids, Dr. Honeyman had confined his Geological work principally to the eastern part of the Province; but now, fortified by his experience, he began to extend his horizons into the Western Counties, and the country lying south of the Annapolis Valley was visited and carefully compared with the localities which he had, geologically speaking, mastered. His paper in Vol. 4 of the Transactions on the Superficial Geology of Nova Scotia, also marked a new departure, and his researches into the Glacial period in Nova Scotia henceforth occupied much of his time.

The casual discovery on the shores of the Atlantic of a boulder undoubtedly derived from the Triassic trap of Blomidon or Parrs-

boro, led to his efforts to delineate the march of the ice cap across the Lower Provinces. The latest contribution to this fascinating study which appeals equally to the Geologist, the Chemist, the Physicist, the Mathematician, and the Astronomer, is an extremely valuable paper in the last report of the United States Geological Survey. Much yet remains for the Glacial student in this Province. The striæ have never been studied, or classified, nor have the abnormal etchings been observed to see if they are retreat notes of a dwindling glacier, or the intermittent scoring of berg and floe ice. The course of the ice flow being assumed, the comparative strength of the rock in situ, and of the stone chisels, fast held in the ice matrix, have an important bearing on the amount of erosion to be accounted for. However, as I understand that our learned President has already referred to this part of Dr. Honeyman's labors, I need not say more, as I know that in his hands the subject has received much better attention than I can bestow on it.

The Doctor did not take as active a part in the Antwerp and Colonial Exhibitions as he did in the preceding ones, the policy of the Government having been turned more toward exhibiting the material resources of the Province. The stores of the Museum, however, were largely drawn upon for these exhibitions, the work of collecting, forwarding, etc., being assumed by the writer.

His papers on the Geology of King's County were followed by others on Aylesford, Annapolis, Yarmouth and Digby Counties, so that his maps covered the greater part of the Province outside the granites, and the slates and quartzites of the gold fields. Polariscopic and macroscopic examinations of the rocks of various localities were undertaken by him in the search for more evidence bearing upon his theories. The results of this work were communicated in several interesting papers.

During the past two or three years his attention was turned particularly to the new and interesting deep sea sponges, etc., collected by the officers of the cable steamers while engaged in the work of repairing and replacing cables. An immense amount of work was done by him in this connection, a first instalment of which appears in the Transactions just issued, and it is to be

hoped that some member of the Institute will continue it to a successful ending.

In these remarks I have not undertaken to follow the Doctor in the battles he waged with his fellow geologists, nor to enter into the details of the grounds upon which he based his geological conclusions. It may be said that his labors in working out the structures of the Arisaig rocks and tracing them into the other parts of the Province have afforded great assistance to those who have followed in his footsteps, and have given him a lasting claim on the gratitude of Provincial Geologists.

I beg in conclusion to say that I hope this brief sketch of Dr. Honeyman's Geological work will serve to us as a monument of perseverance and assiduity, and remind us of how much we owe to him for his labors in forwarding the Institute.