anticlinal folds and shows that on a proper recognition of this fact largely depends the success and future of deep gold mining in Nova Scotia. He also advises the adoption of a method of mining followed in Bendigo, where the occurrences are of a very similar nature, which consists in sinking perpendicular shafts on the anticlinal axis from which cross-cuts and levels are driven to intersect the interbedded saddles. Mr. Ingall, reporting in this volume, complains however that the funds placed at his disposal were insufficient for the prosecution of important mining work which had been initiated by the Mines Section.

In 1895, the Survey undertook a new duty in supplying small typical collections of Canadian minerals and rocks to educational institutions in Canada, and no less than fifty-nine collections of this kind, embracing 6655 specimens, were furnished. In addition, the excellent work of the previous year was extended along similar lines.

In short, during Dr. Dawson's all too short term of office as Director of the Survey both his own-work in the field and that of the department generally was of an eminently useful and practical character. This is well pointed out by Dr. F. D. Adams in his "Memoir of George M. Dawson," *where he states "his work . . . . contributed largely to great development of the mining industries. . . during recent years, for his reports, though thoroughly scientific, always took account of the practical and economic side of geology, and accordingly commanded the attention and confidence of mining capitalists, mine managers, and others interested in the development of the mineral resources of the country." Dr. H. M. Ami, in his appreciative biographical sketch also refers to the consideration given by Dr. Dawson to economic work "Through his personal efforts," he writes, "and that of his staff, he did so much to disseminate information regarding Canada's mineral resources, that the mining interests of the Dominion may now be said to be fairly well established upon a firm and non-speculative basis."

Dr. Dawson died suddenly on the 2nd of March, 1901. And from that time to the present the Survey has been without a Director. These duties, however, have been performed by Dr. Robert Bell, who as Acting Director, has had the responsibility of the work, but neither the honour nor the emoluments which should go with it. Under Dr. Bell much work of great value has been done by the Survey; but in its relation to the mining industries it is necessary to add that the present system, which remains practically the same as that followed a quarter of a century ago, is by many, competent to express an opinion, regarded as antiquated and inadequate having regard to present requirements, the growth to which the mining industry has since attained, and the important position it now occupies. And by contrasting the methods adopted by the United States' Survey with those still followed by our own, this complaint appears to have certain justification. Taking, for the sake of example, one branch, the Mining and Statistical Division of the Survey, it is impossible to truthfully assert that its scope or usefulness has been greatly, if at all, extended since the date of its inception. In fact it is currently believed that the officer in charge of the branch has received little, if any encouragement at any time to special effort in this regard. The geological reports themselves too, although frequently of great value from an economic point of view, are with some exceptions, still somewhat unsuitable for general circulation, since they rarely contain the practical details and facts in that readily accessible form which the busy man of affairs, contemplating an investment in any one of our mineral industries is desirous of having placed at his disposal.

*Bull. Geol. Soc., Am. Val. 13, 1901.

THE ESTABLISHMENT OF THE MINES BRANCH OF THE DEPARTMENT OF THE INTERIOR.

It was doubtless in consequence of a realization of the requirements in this respect that the Government in July, 1902, established in connection with the Department of the Interior, a Mines Branch, in charge of Dr. Eugene Haanel, Ph.D., who received the title of Superintendant of Mines. The establishment of the Mines Branch did not include a statement of its functions, but a memorandum suggesting the lines on which organization should proceed, was prepared and presented to the Minister.

The work to be accomplished by the Department would, the memorandum states, most conveniently be distributed among the following sections:—

1st: *Mineral Resources.*—The general object of the work of this branch to be the collection and publication of data regarding the economic minerals of the country and of the processes and activities connected with their utilization. This to be accomplished under the following two heads:

(a). *Statistics*: Covering the investigations into (1) the production, consumption, exports and imports of the economic minerals of the country, (2) the collecting of figures relating to costs, freight, markets, etc. These tabulated on a proper system of classification, with discussions as to the causes of variation of production, exports and imports, fluctuations of market, etc., should be published annually, or at such frequent intervals as may be found practicable.

(b). *Technological*: Covering the preparation and publication of bulletins and monographs giving information in a concise form regarding (1) the location, mode of occurrence, extent and character of the various economic mineral deposits, (2) assays and analyses of ores and in the case of building material, tests of strength and endurance of pressure, etc., (3) description of the method of exploitation, treatment for extraction of metallic contents, or resultant products. The information to be obtained from material already published, but scattered and in a great measure inaccessible, to be supplemented wherever necessary by visit of officer in charge to the respective localities. A separate monograph for each mineral, as coal, iron, copper, nickel, gold, etc. (except building materials which may be written up as a class to be published, giving all available information in reference to them. The publications specially framed to meet the needs of the public commercially interested in these matters and annually bound in one volume, entitled "The Mineral Resources of Canada." The separate monographs to be distributed as widely and freely as possible to bring the mineral wealth of Canada prominently before the investing public and thus aid in bringing capital into the country, necessary for the development of its resources.

2nd: *Mining Geology.*—Covering the investigation of mineral areas and mining camps, determining the mode of occurrence, extent and character of the ore bodies and furnishing to the practical miner clues regarding the probable direction in which to exploit his property, and by a careful study of the associated rocks and their relation to the ore bodies establishing principles which shall be helpful as a guide regarding the occurrence of similar ores in other regions. This to include the preparation of good topographical and geological structure maps of important mining districts.