tiations. The people of Vermont becoming dissatisfied with Congress, in consequence of what they regarded as an unjust dismemberment of their state in favor of New Hampshire and New York, commissioners were dispatched to the British authorities on the frontier, ostensibly for an exchange of prisoners, but in reality to treat with them about a return to British allegiance. The place of meeting was Isle-aux-Noix. The English officers were General Haldimand and Colonel Dundas, and the American Commissioners were headed by Ira Allen, a brother of the famous Ethan Allen. The conference led to no definite result, except that it probably induced Congress to come to terms with Vermont.

After the American Revolution, the works at Isle-aux-Noix were once more allowed to fall to ruins. They remained in that condition for nearly thirty years, but in 1813, when England and the United States were again at war, regular fortifications were set up and have been retained ever since. They were strengthened during the excitement of the unfortunate Trent affair, and are, at the present time, in a high state of efficiency. There is no question that the point is a strong one for defensive operations.

Thus, this island is full of historical associations. It recalls three great eras of Canadian annals—the domination of the French, that of the English, and the invasion of the Americans. If antiquarian researches could be made, probably traces of the ancient fortifications raised by each of these nations might be pointed out.—*St. Johns News.*,

SCIENCE.

Important Discovery.

In the English engineering journals a valuable paper by Mr F. A. Paget, C. E., has been published, explaining a method of detecting *faults* in iron forgings by means of an examination of the bar, shaft, or other work, with a magnetic needle; and not only does this method detect imperfections in the welding but it indicates the change which so often occurs in iron from the fibrous to the crystalline condition. The extreme value of this discovery, made by Mr S. M. Saxby, R, V., will be appreciated by all who have dealings with shafting, iron wheels, axles, and the various combinations which depend for safety entirely upon the integrity of the iron work used in the construction.

The process, which has been tested upon a great variety of forgings at the Royal Dock yards at Sheerness and Chatham, depends upon the principle that a bar of soft homogeneous iron of the best quality and free from defects or flaws causing any separation of the particles becomes at once sensibly magnetic when placed in the position of the dipping needle. With internal flaws the bar is no longer one regular magnet, but several different magnets with the different magnetisms separated from each other. Being placed east and west in the equatorial magnetic plane the bar to be examined, when tested by passing over it a delicate magnetic needle, keeps the latter at right angles with it, that is N. and S., *so long as no flaw exists;* but on arriving at the place of a fault the needle leaves its normal position and assumes a new direction. In the trials made at the Royal Dock yards in the presence of many engineers and iron workers chalk-marks were made at the places where flaws were thus indicated by the needle, and the bars being subsequently broken at those places the decision by means of the magnet was in every case proved.

So far as made, the experiments on rolled plates, upon steel and cast iron &c, have been satisfactory.— From the *American Railway Times.*

Extract.

London " Engineering", in remarking upon the lull of invention has the following:—" Several years have now passed without any really great invention,—an invention capable of " adding millions to the national wealth.

" Future invention must give us cheaper food, cheaper clothing and cheaper lodging. Past invention has not sufficiently " secured these, and the condition of trade and of society is " such that a majority of the population, even when working " almost continuously, can gain but a decent subsistance, without any practical advance upon their daily necessities. Among " the great inventions of the future, we believe we may look for " a highly scientific and artificial *agriculture* which shall more " than double the productive power of the soil. We shall learn " how to restore to the soil a great deal of the vitability of which " we now rob it turning it to waste; we shall learn how to secure " increased action of the sun and atmosphere and even of stimulating gases within its substance; and we shall thus place it, " in a measure, beyond the caprices of climates. The force of " steam, and many artificial agencies, including artificial moisture, will be turned to account, and the production of food " will become a great and elaborated manufacture, to be carried " on with an amount of talent and cultivated skill correspond- " ing to that now engaged upon railways or in the great textile " and metal manufactures of the country."

Agricultural Science.

At the Annual conversazione of the Natural History Society of Montreal the value of Agricultural Science to the community at large as well as the concern every one ought to take in promoting its cultivation were thus pleasingly illustrated and enjoined upon the attention of all lovers of their country.

Principal Dawson, said:

To many persons the objects of this Society seem rather curious than useful, and on an occasion of this kind, when we appear in gala dress and entertain our friends, it may well appear so. But at our ordinary meetings our attention is occupied with subjects often of a very utilitarian character, and I propose on the present occasion to say a few words on one of these, intimately connected with a topic which has recently engaged much of the attention of the Legislature of this Province, and which is well worthy of its most serious consideration. I mean the art of making two blades of grass or two kernels of wheat grow where one grew before. In order not to weary you, and to confine myself to one portion of this fertile theme, I shall define my subject to be *the ashes of a slice of bread*, in their relations to the questions of national wealth, population and emigration. Now your slice of bread, or of cake if you prefer it, may be shewn to consist of the following things: starch, with perhaps some sugar, mucilage and oil, gluten, woody matter, water and ashes. Suppose that for the present we leave out of the account all these matters, except the last—the ashes. We shall find that these consist of quite a number of different things. On the wall is a table of the ashes of wheat, and it would be easy to shew you that all the substances named are more or less necessary to the plant and to the animals that feed on it; but let us confine our attention to one, and I select one of the most important of the whole—*Phosphoric Acid.* Some of you may say: We do not know anything of Phosphoric acid. But this is a mistake. Every one present has in his body several pounds of phosphate of lime, or bone-earth, and must have found means to obtain this, otherwise his frame would be very rickety. Now, we must obtain this bone-earth from our food, and whether we get it from animal food or vegetable food, it comes originally from plants. So, if we subsist mainly on bread, it comes from the ashes of wheat. But where does the wheat get it. Necessarily from the ground; and this column of the composition of a fertile Canadian soil, taken from analyses by Dr. Hunt published in the Report of the Canadian Survey, shows you that this susbtance exists in the soil, though but in small quantity. Now, observe in connection with this that every kernel of wheat that grows must