he had come to the conclusion that the population in favour of the metre should be taken as about three times that using the inch, instead of the majority being in favour of the inch as argued in the paper. Russia, with a population of 74 millions, appeared to have been put down as favourable to the inch, because it used the "sagene" of 7 feet English, or 84 inches. This measure, which was the Russian fathom, had been fixed at a time when the length of that fathom was very uncertain, by Peter the Great, who decided that it should be exactly equal to 7 feet English. It had been stated however by Mr. Kupffer, the imperial superintendent of weights and measures in Russia, that, although the inch was known in Russia as the 1-84th part of their standard unit, it was not used by any means in the same manner or to the same extent as the inch was used in England : on the other hand he instanced many points in which the present weights and measures in Russia approached very nearly to the metre system; and he expressed his opinion that it would be far easier for Russia to adopt the metre system than for England to do so, and he decidedly considered the metre system was preferable for Russia to the inch system. A report had also been presented to the Minister of Finance, by the Imperial Academy of Sciences in St. Petersburg, in which the adoption of the metre was recommended for Russia ; and there was therefore some ground for saying that Russia was decidedly tending to the adoption of the metre. The different states forming the Germanic Confederation had formerly been exceedingly confused in their weights and measures, and had recently appointed commissioners to devise a uniform system, who recommended the adoption of the metre system throughout all Germany. A meeting of the several representatives was then held at Frankforton-the-Maine, when all the states except Prussia agreed to adopt the recommendation of the commissioners; and at length in 1863; when the statistical congress was held in Berlin, Prussia also gave in its adherence to the metre system; thus all Germany might now be fairly reckoned on the side of the metre. Moreover Germany had for a long time past made a partial use of the metre system, the half kilogramme having been employed as the standard unit of weight in the custom house, the post-office, the railways, and other public departments. In India also there was a movement going on which was favourable to the metre system. and recent extracts from the Madras Times showed that that district of India was considering the subject and inclining to the metre. On the whole therefore he thought that Germany and Russia should be added on the side of the countries favorable to the metre, and India should at least be omitted from the number for the inch; and the population favorable to the metre would then be more than 200 millions, in comparison with about 70 millions actually using the inch at the present time.

An important movement was now going on in this country for introducing the metre system in education, since it was clear that the system could not be brought into universal use unless it was first taught universally in schools. He had found a widely prevalent desire on the part of schoolmasters and others interested in education to have

the metre system taught in schools to all claases of the community, and it was astonishing to see the amount of facility with which the system was learnt. He exhibited a digram of the measures and weights of the metre system (Dowling's synoptic table), by means of which he was confident any child might be made to understand the principles of the system thoroughly in a few hours; and if the system were taught for three months in any of the elementary schools, the children would become quite familiar with it. But on the other hand it was well known that the present confused tables of weights and measures were a continual torment to the learners, who had no sooner got them by heart than they began to forget them. The metre system, however, was not intended to be rendered compulsory in this country at present, but to be publicly taught, and by that means gradually introduced, and not made compulsory until the nation was fully prepared for it.

He was happy to acknowledge the favourable opportunity that had been afforded by the paper just read for a practical discussion of the subject in one of its many important bearings; and such a course could not fail to contribute to the satisfactory settlement of this important international question.

Several other members of the International Decimal Association took part in the discussion, going over similar grounds to Mr. Yates, and strongly urging the adoption of the metre as the unit of measure.

RECENT APPLICATIONS OF MAGNESIUM. (By W. White.)

A Paper read before the British Association, Birmingham, September, 1865.

Last year magnesium was introduced to commerce; and since its introduction several attempts have been made to convert it from an article of curiosity and amusement into one of utility.

At Bath, last autumn, we brought it in wire, and blinded ourselves and dazzled our friends with its brilliant light Shortly after, it was discovered that combustion was improved by flattening the wire into ribbon; and ribbon has almost superseded wire in the shops.

Magnesium so far has almost exclusively been regarded as a source of light, and the problem has been, how to burn it to the best advantage.

Assuming that wire or ribbon was the best form, the question narrowed itself to the contrivance of some apparatus, which would pay it out at the precise rate of combustion.

Invention moves by easy steps. The first attempts were made by Mr. William Mather, of Salford, and Mr. F. W. Hart, of Kingsland, who each produced a lamp in which the wire was delivered by hand from a reel, and guided through rollers and a tube to the flame of a spirit-lamp, in order to avert the risk of distinction. To this lamp Mr. Alonzo Grant, an American, affixed clockwork; and with this addition it has met with considerable success.

The risk of sudden extinction was a chief difficulty in the early use of the magnesium light, probably arising from some flaw in the wire—the presence of some foreign matter in its substance.