there would be any advantage in it at all. He therefore considered the inch preferable as the standard unit of decimal measure in this country.

The President said that a deputation had been sent to the present meeting from the International Decimal Association, and he hoped they would give their views upon the subject of the paper that had been read.

Mr. James Yates, as a Vice-President of the International Decimal Association, said he had been particularly gratified to find that the views expressed in the paper coincided so fully with those of the Decimal Association, with regard to the value and practicability of the decimal system of measurement; there was indeed little difference of opinion excepting in the ultimate conclusion drawn as to the standard unit for decimal measure, for which the metre was considered by the Asso-ciation the most eligible. There was no question that the mode of measurement hitherto used in this country was so irregular and inconvenient that it ought to be abandoned, and a uniform decimal system substituted for it; and the introduction of such a uniform system universally throughout the world would be attended with most important advantages, from the rapidly extending international communications. The two practical conditions affecting the choice of a universal standard unit of measure were, that it should be the one best suited for use in decimal subdivision; and that it should be the one causing the least possible alteration in the existing measures. The question was thus brought into a very narrow compass: namely, whether the preference should be given to the inch or to the metre as the unit of measure; the latter being defined by the platinum metre preserved since 1799 in the Hotel des Archives in Paris, and the former by the gunmetal yard measure or bar deposited in 1855 in the office of the Exchequer at Westminster.

The course adopted by the International Decimal Association, in order to obtain a solution of this question as to the best unit of length, had been to send a series of eleven questions to all the persons who were supposed to be best qualified to judge upon the subject; and the answers having been received, four meetings were held in London, to which all such persons were invited ; and on that occasion Mr. Whitworth's system of accurate measurement was exhibited and explained. The result of the discussion of the question at the meetings was, that a report was drawn up and circulated, in which it was recommended as eminently desirable that the unit of measurement should be of such a length as might be adapted to measure the greatest variety of objects, and in the most numerous cases likely to occur in daily life; and that it should be visible at a glance of the eye, and easily carried about and manipulated: and it appeared that for these purposes the inch or the foot would be too short, and the fathom too long; and that a measure of about the same length as the ell, the yard, the metre, or the second's pendulum was to be preferred, of which there were important reasons for selecting the metre as the universal unit. The inch indeed seemed at the outset very unsuitable to become the basis of a universal system; and although for English mechanical engineers it might be a very convenient

measure, yet even for their purposes he was not satisfied that it would be better than the metre, by the use of which he thought all measurements in mechanical work might be made with equal nicety In the ordinary transactions of and accuracy. daily life the commonest and most universal measurements might be taken as those associated with textile manufactures; and the metre being a measure suitable for cases of this kind would be the most convenient for common use and most eligible as the standard unit of lineal measurement. For example, an order for 13 metres of silk, or 64 square metres of carpet, was simple in expression, and would convey a clear conception of the quantity, if the metre system were adopted, and the unit would be very near the yard now used for the purpose; whereas with the inch as the unit, the equivalent expressions of 510 inches length, or 99,000 square inches respectively, were very inconvenient and not very easily conceived. Such illustrations showed clearly the inconvenience of using a small unit; and led to the conclusion that, in fixing a standard unit of measurement, it was necessary not to have regard to any special purpose exclusively. In aiming solely at the small measurements that predominated in mechanical engineering work, the inch might be the best ; but when a standard was required for all sorts of measurement, the inch was, in his own opinion, unsuitable for general use.

For the purpose of minute subdivision every advantage was presented by the metre which was attainable by the inch; since the accuracy of minute measurements depended not on the scale, but on the instrument, which could of course be made equally applicable to any scale. The most recent instrument for minute measurements in connection with the metre system, was that of M. Perreaux of Paris, which was shown in the Great Exhibition of 1862, and afforded the means of measuring to 1-3000th of a millimetre (about 13 millionths of an inch); and for all practical purposes that was probably as minute and exact a measurement as was required. It should be remarked that Mr. Whitworth himself, who had recommended the inch to be adhered to for mechanical engineering work, objected to the prototype yard from which the inch was supposed to be taken, because it could not be seen or used; and had shown that it was hardly to be called a measure at all, and was inapplicable and of no value whatever in mechanical operations. The Astronomer Royal too had admitted that the chief value of this standard yard was its convenience for geodetic operations. For these purposes, however, the metre was at least equally eligible; and the difficulty that was anticipated from converting the present measure of this country to the metre system, on account of the number of decimal places required, would be met by the use of readyreckoners, especially adapted to all the purposes of commerce; these would be requisite until the metre was fully established in general use, after which the need of any such aids would cease.

With regard to the relative population in favour of the inch and the metre respectively, he believed the numbers given in the *Almanach de Gotha*, as the population at the present time of all the countries in the world, were generally accepted as the best authority on the subject; and from these data