Here is the first Canadian work of the 20th century, which is also its first published product of the Anglo-Keltic mind. It is not unreasonable that such a book should be a book of measurement. The subject of it is "Decimals and Decimalization," and it is a plea for the adoption of the metric system throughout the British Empire. "One of the Canadian contingent in South Africa," says the author, "used to dollars and cents, was called upon to act as regimental paymaster, and wrote in dolorous tones of the waste of time in making up the pay-roll in £. S. D. We, who are habituated to a decimal currency, can picture him to ourselves, worrying over hundreds of entries, in three columns, with many compound multiplications, additions and subtractions, all by a queer and antiquated currency, and can fancy him sympathizing with Dickens's Mantolini, who wished 'to skip the intermediate steps and arrive at once at the 'demnition total.'" After citing this instance of the obsoleteness of the British system, the author quotes Sir John Bowring and Prof. De Morgan to show the increased difficulty, as well as tediousness of ordinary arithmetical operations when "£. S. D.," is substituted for dollars and cents. Take such an account as 215 tons, 17 cwt., 3 qrs., 9 lbs., at £9 11s 6½d (the example offered by Sir J. Bowring), and how much more expeditious the calculation would be if decimals were used! In fact English actuaries and assayers employ decimals in their delicate computations. Englishmen of science and learned societies use the metric sys-

tem for the most part in works addressed to the scientific world.

The metric system is that of which the metre is the basis. The metre is supposed to be the one-ten-millionth part of the distance from the equator to the north pole. It is equal to 39.37079 inches. The units of surface, solidity and weight are all related to this primary measure and to each other. The multiplication and subdivision are invariably decimal, and the former is denoted by Greek prefixes; the latter by Latin. For instance, we have hectometre, kilometre, myriometre, on the ascending and decimetre, centimetre, millimetre, on the descending scale. The are, the stere, the gramme and the litre form other standards familiar to the continent of Europe, and in scientific writings. In money computation the centime is the 100th part of a franc, as a cent is of a dollar. The system, in fact, is an adaptation of the Arabic notation to the practical uses of trade.

Before telling how the all-reforming patriots of the French revolution initiated the metre, the author of this aurore de siecle booklet goes back to the beginning of things—to the early ages, when men counted with their fingers. That cunning old man of the sea, celebrated in later times by the sportive Hawthorne, the god Proteus, is represented by Homer, we are told, as "counting his herd of seals by fives." That is to say, Homer uses a word that is derived from the numeral "pempe," the old form of "pente" (and not unlike the Welsh "pump") to indicate the action of counting his briny flock. Dr. Tylor points out in his "Anthropology" that words once meaning hand are still used by some nations with the signification of five. Twice five (two hands) gives us ten; if we add the fingers of the feet (once more in evidence in daily life than now) we have the score. We have also the double or pair, and its double (4), while three is suggested by the pair and the unit. Thus six, twelve, sixty, eight, sixty-four, etc., would be gradually developed. When our Sir Fenwick Williams was engaged on the work of the Turco-Persian Frontier Commission, Mr. William K. Loftus, who superv ised excavation under him and afterwards dedicated to the veteran his Travels and Researches in Chaldaea and Susiana, discovered a tablet fully confirming the statement of Berosus that the Babylonians used a sexagesimal notation. The tablet in question contains a table of squares, which Mr. Loftus has reproduced. He mentions, however, that Sir Henry Rawlinson had already published it in the Journal of the Royal Geographical Society.

It might be thought that no system

could surpass for conciseness, lucidity and practical convenience the decimal as now applied by the metric plan. It was assuredly a great improvement that the Arabs brought westward to supersede the Roman numerals. One wonders how the Greek and Roman youths did their sums, just as one wonders how Chinese boys learn their "letters." And yet it was but slowly and painfully that, our forefathers became habituated to the improved method. The author reminds us that it was still a novelty in Chaucer's time, and, indeed, in one of his Cabot papers, Dr. S. E. Dawson cites a document which shows that it was not universal a century after Chaucer's death. But does not the praedecimal method linger still in the very vestibules of science and learning? "It is curious," says our author, "how the old notation clings on here and there; you will find it on the title-pages and in the preface-pagination of many books, on tombs and tablets which bear commemorative inscriptions; on most of our clocks and watches." But while the Arab symbols, the wonderful Ten by which any number imaginable may be expressed with ease, are invaluable for the functions and arts of life, there are points in which the duodecimal system has the advantage. As our author points out, "you cannot divide ten by either three or four without a remainder. As it is often convenient to halve a half, eight would be in some ways better than ten, and twelve would seem to be scientifically the best." Still, save in England, where the dozen is still a power to be reckoned with, the duo-decimal has had to make way for the decimal, and he thinks that, in these days when "inter-communication has become so rapid, intercourse and exchanges so frequent that the civilized world is like one family, we ought to abolish all needless divergences as soon as possible." At the same time he indicates certain reasons why in the United Kingdom any project of decimalization "has to be approached with much caution." But excessive caution defeats itself, as was shown by the negative results of the House of Commons committee of 1853. The florin, a tenth of a pound, already introduced without any accommodation of the smaller coins, did not take with the public, and the decisive action advised by the committee did not follow. Yet, as the author shows, this start (the florin) might have proved an easy mode of transition into a decimal system for England, had steps been taken to introduce the necessary corresponding modifications. The plan suggested is that the sovereign should be retained with a value of 1,000 doits. Then we should have a half sovereign (500 doits); a florin (100 doits); a shilling or half florin (50 doits); a dime (ten doits); a half dime or penny (five doits), and the doit or mil. This last would be in the new coinage the substitute for the old farthing. The change in values would be in accordance with the difference between 960 (the number of farthings in the actual sovereign), and 1,000 (the number of doits or mils in the new sovereign).

R. V.

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## COLD IN THE KLONDIKE