

all information which could be given without disadvantage should be given-- a good principle for seven-place tables, without a doubt. Only, upon that principle, De Morgan's plan should be adopted of distinguishing the quarters of the last unit by means of the four ordinary punctuation marks, thus making the tables accurate to a fraction of the number entered equal to unity divided by a power of ten. However, Babbage's system was extensively adopted, and consequently it was necessary to give the proportional parts more accurately. Prof. Hussey prints a dash over every increased 5, whether it be terminal or not, and over no other increased numbers. It luckily happens that there is no case in the tables of an increased 5 followed by three zeros, otherwise the system would break down. Now, we think a system illogical, and therefore inelegant, which can only be carried out by virtue of an accident. But what is the use of carrying the proportional parts to six places? Everybody must allow that it would be bad economy of time in computing to write down one's numbers alternately to five and to six places of decimals. Now, what difference does it make that we add the six-place numbers in our heads? A centimetre and a half at the bottom of each page of the table is devoted to giving the values of S and T, and that not unambiguously. This seems decidedly awkward.

There are trigonometrical tables, both logarithmic and natural, tables of addition and subtraction logarithm, etc. At the end of the book are given formulae and constants. The latter are pretty carelessly collected and copied. The velocity of light is made to be 296.944 kilometres per second! Clarke's value of the metre in inches, 39.370432, is given, although its error has been known for many years. First Prof. Rogers and then Gen. Comstock made fairly concordant determinations, very different from Clarke's. In fact, his was merely the result of measuring copies of Bessel's toise in inches, and then deducing the length of 443.296 lines of the toise, this being the number of lines of the toise de Pérou intended to make the metre at the time of the construction of the latter. But recently M. Benoit of the International Bureau has shown that the metre so deduced from Bessel's toise is too long by its 74,000th part. So, correcting Clarke's determination, and combining it, reduced to a weight of 1/5, with the values obtained by Rogers and Comstock, we find:

	Inches
Rogers	39.37027
Comstock.	39.36985
Clarke, corr. by Benoit	39.36990
Weighted mean	39.37004

This makes 25.40003 millimetres in an inch. If we remember, then, that 39.37 and 25.4 should each be increased by one-millionth part of itself, we shall have the fact as accurately as it is known. We find this convenient rule used in the Varyan Company's Tables. Prof. Hussey's book will do for easily contented computers.

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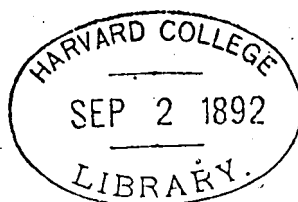
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1776 AND 1892.

BY F. M. HOLLAND.

OUR forefathers were right in declaring themselves independent of a king who was "cutting off our trade with all parts of the world," and "imposing taxes on us without our consent." Duties on tea had already called out a vigorous protest in Boston harbor; and there was just indignation against laws meant to suppress our iron-works and woolen mills in order to protect British manufacturers. Glorious resistance to unconstitutional taxation had already been made by Hampden and Cromwell, as well as by the barons who won Magna Charta. These were not merely questions of money; for he is not a man but a slave, who has no wish to defend his rights. It is not so much to save money as manhood, that we ought to resist all attempts to cut off our trade, and impose taxes on us without our consent. How far our people were from consenting to the tariff of 1890 may be judged from the fact that the next election sent three times as many of its enemies as its friends to Congress. States which had hitherto been staunchly Republican, like Illinois, Indiana, Iowa, Massachusetts, Michigan, and Wisconsin, were swept away by that outburst of righteous indignation.

The tribute most sternly to be opposed is that which we are forced by the government to pay to its favorites in the form of high prices. In making the duty on various manufactures of steel and iron high enough to prevent importation, all the money paid by purchasers, above what these articles would cost if there were free trade therein, is put into the coffers of Mr. Carnegie and other wealthy owners of mines and factories. We import about one-fourth part of the wools and woollens consumed here; and the result is that in order to put about \$35,000,000 a year into our national treasury, the tariff brings in about \$110,000,000 to owners of factories and flocks. The constitutionality of these exactions is by no means evident; and their injustice is plain enough. No one who remembers what has reduced the price of sugar can deny that duties raise prices. They would not protect any one if they did not.

It often happens, however, that the products of

one man's industry are thus made too expensive for other men, who must have them in order to labor profitably. The business of smelting silver at Chicago has been seriously interfered with by a tax on Mexican ores, which is defended by the Republican national platform against the Democratic Congress. While our present tariff was under consideration, nearly six-hundred owners and managers of iron works in New England petitioned for free coal, coke, and iron ore, with pig iron and similar supplies at reduced rates. The request was denied; and the result is that the Cambridge Rolling Mills have been obliged to close; most of the nail factories in Massachusetts have been driven out of the business, and the manufacture in that commonwealth of steel rails, highly successful before 1890, has been made impossible. Another memorial, which was presented in vain to Congress two years ago, was from manufacturers of cloth, who still find their industry checked by duties which make wool dear here and cheap in Europe, so as to "help the foreigner to send to this country vast quantities of woolen goods that, with free wool and moderate duties on the goods, might be manufactured at home." Almost all the carpet wool, for instance, which is used here has to be imported; and the price is kept so high by the duty as to make it impossible for our factories to send carpets abroad. Every nation, except ours, which has any manufacturers, lets them get wool and other raw materials free of duty, and thus enables them to undersell Americans. These American citizens are excluded by our own tariff from every foreign market, while sales at home are much diminished. Every one of our manufacturers finds himself restricted by the high price of articles made by other manufacturers; and the duties on paint, glass, lumber, tools, cotton-ties, and twine bear heavily upon farmers, planters, mechanics, and other laborers who get little or no protection from the tariff. The worst case of interference with honest industry of American citizens is in one of those branches most essential to the nation's safety and honor. Nearly three-fourths of the trade across the ocean, to and from our ports, was under our own flag in 1858. Ever since the low tariff, then in force, has been given up, there has been a

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days, to be able to trade off your stuff is perhaps less important as far as bare life goes, but even more important than production, if we are to enjoy life with comfort.

We cannot trade because the mechanism of exchange is antiquated and inefficient, and because mistaken laws prevent experiment and discovery of better methods. Gold and silver long ago were insufficient in quantity for use as a currency: private invention developed a wonderful system of banks. Now, gold and silver are too scarce even as security, yet arbitrary statute prevents the acceptance of other security even though entirely adequate.

Give us freedom of the land, freedom of the currency, and a few other freedoms that will easily come, and further progress in association will be possible. Otherwise, nothing but retrogression need be expected.

JOHN BEVERLEY ROBINSON.

BOOK REVIEWS.

A HISTORY OF PERU. By Clements R. Markham. Chicago: Charles H. Sergel & Co., 1892.

This is the first of a series of volumes in course of publication by Messrs. Sergel & Co., treating of the Latin-American republics. Perhaps, on the whole, no one could be found better fitted, so far as information is concerned, at least, than Mr. Markham for the performance of the task assigned to him. He has had intimate relations with Peru, and has studied its language and literature. Possibly for this very reason, however, the author's views are likely to be somewhat prejudiced in favor of the Peruvians, whose misfortunes appeal strongly to the feeling of those who sympathize with the unsuccessful defenders of their native soil against foreign aggression. Peru has been especially unfortunate in this respect. The conquest by the Spaniards, which resulted in the overthrow of the Inca empire, was followed by such a drain on the native population, consequent on forced labor, that in two hundred years it decreased nine-tenths in number. The rebellion in 1780 of Tupac Amaru, whose object was to get rid of the ordinances, the operation of which had caused so grievous a loss of life, led to the extirpation of the royal Inca family, under circumstances of the most heartless cruelty on the part of the Spaniards. And yet, strange to say, the very measures which the Peruvian patriot had proposed were soon after his death introduced by the new viceroy, Teodoro de Croix. From this period dates the beginning of what may be termed the modern history of Peru, for the incidents of which we must refer our readers to the work itself. Its author remarks, "The history of Peru is perhaps a sadder record than is met with in most nations, but it is full of stirring incidents, and affords much subject for thought." This is very true, and we do not think that Mr. Markham has done full justice to his theme. The book shows evidence of haste both in its preparation and in its passage through the press. As was probably to be expected, the chapters dealing with the people of Peru, its literature, and its wealth, are among the best. Those treating of the Inca civilisation contain but little new to the general reader, and we cannot accept as conclusive Dr. Brinton's statement, quoted with approval by the author, in connection with the question of the origin of the "red race," that "the culture of the American race is an indigenous growth, wholly self-developed, and owing none of its germs to any other race." Mr. Markham is more of a geographer than an anthropologist, although the map which forms the frontispiece of the work is valuable from both these points of view. The book is supplied with some good illustrations, and with an index in addition to a full table of contents, and it will probably at this period attract considerable attention.

NOTES.

In our following number the publication will begin of a series of articles by Mr. Charles S. Peirce on the methods of reasoning. (The first article of the series was announced for the present number.)

ber.) It rarely occurs that the elements of a science are presented by those who have greatly contributed to its advancement. All students, therefore, should hasten to avail themselves of the opportunity to read what Mr. Peirce has to say concerning the fundamental principles of right reasoning.

The leading article of this week's *Open Court* deals with the question of Free Trade. Political questions are wholly subsidiary to the main work of *The Open Court*; and criticisms and letters touching this subject should be as brief as possible.

About a year ago Mr. M. D. Conway published an article in *The Open Court* regarding the authenticity of the Mecklenburg Declaration of Independence. A different view, that of its non-genuineness, is taken by Mr. W. H. Burr, of Washington. Readers interested in the subject should read the editorial on the question in the *New York Sun* of August 9th.

MR. C. S. PEIRCE has resumed his lessons by correspondence in the Art of Reasoning, taught in progressive exercises. A special course in logic has been prepared for correspondents interested in philosophy. Terms, \$30 for twenty-four lessons. Address: Mr. C. S. Peirce, "Avisbe," Milford, Pa.

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