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Detailed table of contents for the supplement, including sections like 'ENGINEERING AND MECHANICS', 'TECHNOLOGY', 'CHEMISTRY AND METALLURGY', 'ELECTRICITY, LIGHT, HEAT, ETC.', 'MEDICINE AND HYGIENE', 'NATURAL HISTORY, ETC.', and 'CHESS RECORD'.

IMPROVEMENTS IN THE POSTAL SERVICE.

A new bill providing for the better classification of mail matter and rates of postage thereon will soon be submitted to Congress. The general principles on which the measure is based are that the Government should encourage the dissemination of intelligence by providing for the convenient and cheap transmission of letters, newspapers, periodicals, and books; that by a system of registration as a condition of cheap transmission, objectionable publications may be kept out of the mails; that uniform conditions should be prescribed for the transmission of all useful publications; that the postmaster at the place of mailing shall determine what may be sent, and fix the postage rate; that the postage on the same general class of publications, irrespective of frequency of issue, should be uniform at all post offices, and whether for specimen copies or to regular subscribers.

The essential object is to secure uniformity, and thus to obviate the constantly varying regulations or interpretations of the present postal laws relative to newspapers and periodicals made by different officials. These, when involving discrimination as to the class of periodicals, are apt to be vexatious and rarely to meet with general acquiescence, while they leave room for doubt or error which may easily become oppressive to those whose business largely depends upon the mail service. At the same time, the law as it now stands presents many anomalies, as, for instance, the fact that a monthly weighing just over two ounces, published in any of the large free delivery cities, pays \$340 postage per thousand subscriptions in the city where published, while but about \$50 postage is charged on the same if sent to any other part of the country, with free delivery at all other letter carrier offices.

The bill before us seems well adapted to meet all difficulties. It provides that newspapers and other periodical publications shall be registered yearly, and that thereupon the same may be sent at a uniform rate of two cents per pound or fraction. The periodical must be regularly issued at stated intervals, designed for dissemination of public information, formed of printed paper sheets, and published from a known office.

THE BEST WAY TO ENCOURAGE INVENTION.

In every discussion of the question of invention and its relations to human well being, it is assumed as a fact indisputable that it is a good thing to encourage invention. After the worst has been said against the incessant changes incidental to the activity of inventors, the common sense of all civilized men assents to the assertion that, in the aggregate, the labors of our inventors have been enormously beneficial, and that there is no reason to suppose that the time will come when invention will cease to be beneficial. The only point of difference is in regard to the best means of furthering the good work.

On the one side are those who hold that the simplest, most direct, and honest method is to recognize the inventor's exclusive right to the products of his thought and labor, and to place such intellectual property, for a definite time at least, on the same legal footing that other sorts of property enjoy; and in proof that this system does produce the effect desired the friends of patent rights point to the inventive activity developed in this country under the working of such a system.

The objectors say no; the result observed is due to other causes. Necessity is the mother of invention. A race of inventors has sprung up in this country because they were needed. Human labor was scarce and high. A new country was to be conquered and brought under cultivation. Wide fields demanded rapid means of sowing and harvesting. A scanty population and distant markets demanded greater facilities for rapid transit. A high ideal of life demanded a thousand new elements of gratification; and to supply all these demands a thousand new machines and processes had to be invented.

To a great extent all this is true, and much more might be said in this direction; but there is in all this no proof that without the encouragement the patent laws afforded the most of the alleged demands for invention would have been met. Barring inventions and their results, the conditions of life in this country have been precisely paralleled in Northern Asia. Over a large part of Russian Asia the climate is similar to that of our Northern States, wherein inventors have been most prolific. Its vegetable productions are very like ours. Our familiar forest trees abound in its wooded regions, and its plains are not unlike our prairies. Its soil is as fertile as ours; its minerals abundant; and its recent conquerors have many of the characteristics of our own people. An American traveler styles the Cossack the Yankee of Asia. He is energetic, thrifty, ingenious, handy with tools, can turn his hand to anything, and is mentally as bright as the average Yankee. His necessities—natural necessities—have been as numerous as those of the Yankee pioneer. His inventions—where are they? He quickly adopts the railways, telegraphs, and other products of Western invention, but adds no new ones. Our inventors have revolutionized the industries, the commerce, the modes of living of the civilized world; the Cossack, under similar natural conditions, open to the same natural necessities, endowed with the same natural gifts, has conquered a magnificent country, but he lives much as his fathers lived, and his influence upon civilization is nil.

But the Cossack is of a different race, it may be objected. True enough; but invention is not a matter of race. Brought under American influences, the least intelligent of the least

inventive race in the world, the Chinese coolies, become inventors, as our patent records show. "Ah!" our objector continues, "that is the point. The surrounding influences, of education, newspapers, and the rest, make all the difference here. The Cossack has had none of these; nor to so great an extent has the coolie at home."

Well, then, let us look at the Yankees of Europe—the Swiss. They are of our own race. They are a free people. They are energetic, thrifty, and, for the most part, intelligent. The facilities they offer their youth for industrial education and practical training in the arts and sciences have long been superior to ours; and the Swiss government long ago adopted the very means of anti-patent "encouragement" of invention that the opponents of patent rights expect so much from. The progress of the industrial arts has there been left to the natural laws of free trade and open competition, so-called; that is, the open piracy of the inventions of all nations. The Swiss have not allowed invention to be "hampered" by pre-existing claims. They have not allowed inventors' royalties to increase the cost of their manufactures. And the result is—unrestricted and unrivaled progress in the arts? Wide awake mechanics and clever inventors? That ought to be the result, if the anti-patent theorists are in the right; but such is not the result. As Professor Shaler has so pertinently observed: "Despite the remarkably advantageous position of Switzerland, the natural vigor and capacity of her people, and their admirable system of public education, there have been disadvantages in connection with this plundering system (of reserving the power of using all inventions without payment therefor) that give us another proof that, in the long run, honesty is the best policy. All the while that Switzerland has been trusting to outside training for every invention she has applied in her manufactories, she has failed to train her own people in inventiveness; the result is, that Switzerland, of all civilized countries, is the most backward in the adaptation of every skillful appliance in every part of her economic life."

The impolicy of their course has lately come home to them with alarming force. For centuries they have led the world in the art of watch making; yet to-day American watches as good as their best can be sold at their doors for less money than they can make them. "Our well developed mechanical imagination has so organized the labor and the machines used in this branch of manufacture, that the advantages derived therefrom outbalance the vast advantages of Swiss labor. Our labor is double or more, our taxes double or more, our interest about double that of Switzerland; we have no traditional skill; nevertheless inventiveness conquers them all. Yet the inventiveness used in this work is but a very small part of our vast store of this priceless product of imaginative labor that has been created for us by our patent system."

All the conditions favorable to invention, that can exist in any country in the absence of patent rights, have been at work in Switzerland; but the Swiss have failed to distinguish themselves as inventors. All the conditions favorable to successful competition with the manufactories of other countries, with the privilege of using without paying for them the inventions of all other nations, have not enabled the factories of Switzerland to maintain their original supremacy. They have fallen behind because their artisans, lacking the stimulus to invention which patent rights afford, have fallen behind their brothers in this and other countries. They do not improve themselves; they do not improve their means and methods as ours do; they are not so fertile in resources, inventive, creative. And however high their technical skill may be, they cannot compete with men who are ceaselessly improving themselves and their processes in the hope of reaping the rewards which patent rights, and patent rights easily obtainable, hold out before our artisans as incentives to invention.

There may possibly be better ways of encouraging the arts and sciences, but so far as human experience has gone the simple recognition of an inventor's right to his creations has proved most productive of good results.

A POPULAR PROJECT.

For many years the hope of finding a commercially useful northwest passage was enough to justify to the masses the cost and risk of polar exploration. Before that hope was dissipated the humane desire to find Sir John Franklin or the remnant of his lost crew kept public interest alive to the need if not the value of Arctic expeditions. Both these objects failing, there remained only the possibility of glory to be won, or some indefinite promise of advantage to science to be gained through polar observations. For the first the public cared little; for the second it was at best very doubtful whether the profit would justify the cost. And to the pertinent question, What is the use of spending more money and risking more lives in that direction? the advocates of Arctic explorations had little to answer that the unscientific could appreciate.

But now, thanks to weather warnings, a significant change has come over public feeling on this point. The most popular project in Congress and out, at this time, is Howgate's scheme for the scientific exploration of the regions about the North Pole. Committees of both Houses of Congress have made reports decidedly favoring the project, while prominent commercial and scientific men everywhere have expressed their approbation of the undertaking.

Formerly when scientific men insisted that polar observations might be helpful to the science of meteorology, the quick retort was, "What of that?" Meteorology was then