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Contents.

(Illustrated articles are marked with an asterisk.)

TABLE OF CONTENTS OF

THE SCIENTIFIC AMERICAN SUPPLEMENT

No. 347,

For the Week ending August 26, 1882.

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POSTAGE STAMP LOSSES.

On several occasions the postal department has tried to determine approximately the number of pieces of each sort of mail matter transmitted by the post offices of the country in the course of a year. To keep an accurate record of each day's work throughout the year would add to the labor of the offices and involve delays that would cost more than the information would be worth. Accordingly the department has been content to make one week's work, as determined by actual count, the basis of an estimate for the year. A week thought likely to be one of average postal activity is selected, and all the matter received for transmission at each of the post offices is classified and counted, the aggregate of such original business during the appointed time being reckoned as the fifty-second part of the business of the year. Obviously the closeness of the approximation hinges entirely upon the fitness of the selected week to represent the average weekly work of the year.

Knowing approximately the number of pieces of each sort of mail matter handled, it is possible to estimate roughly the revenue the Government ought to receive from the sale of stamps, cards, stamped envelopes, etc., and from other postal charges. The estimate would necessarily involve a good deal of assumption and guesswork; yet if the estimated or calculated volume of business done is not unreasonably wide of the truth, the estimated revenue ought to be something near the actual revenue as reported in sales of stamps and the rest.

The *Evening Post* has gone to the trouble of collating the statistics given in the last annual report of the Post Office department, and comparing the sums which, according to its calculation, should have been paid for the conveyance of the matter embraced in the year's work as officially estimated, with the sums actually received, finding very serious discrepancies.

The sale of stamps, cards, stamped envelopes, etc., for the year aggregated $34,625,436. Assuming the department's estimate of annual business to be correct, and the *Post's* analysis of it equally correct, the department should have received from the sources named $42,795,815. The deficiency in receipts for the amount of matter conveyed thus exceeded eight million dollars. The *Post* remarks: "The immense deficiency in the number of postage stamps sold, according to the department's figures, is made especially striking by adding together the postage values of the letters and postal cards which made up the first-class mail. By so doing we obtain the sum of $34,628,784.84. If we deduct from this the $34,625,435.91 of postage stamps sold, without allowing for the special stamps and wrappers not used on letters, we have a deficiency of $3,348.93—leaving the whole of the second, third, and fourth class mails to be carried for nothing, and treating registration as free. If the $1,398,674 of newspaper and periodical stamps and the $431,154.60 of newspaper wrappers be deducted from the sum total of stamps sold, and the remainder be deducted from the value of the first-class mail, a deficiency of $1,833,177.53 appears in the revenue from that class of matter alone."

The experienced postmaster of this city, Mr. Pearson, to whom the *Post's* figures and deductions were submitted, mentioned four causes which might have contributed to produce the discrepancy: (1) Issued but unused stamps carried over from the previous year; (2) over-estimation of the number of pieces of mail matter handled; (3) unwise selection of the time for making the seven days' count, the week chosen being first before the holiday season, when the mails are more heavily loaded than at any other period; (4) the washing and fraudulent reissue of stamps. That the last cause was a very efficient one Mr. Pearson did not believe. He admitted that there were various ways of washing canceled stamps so that they could be used again, and it was possible that persons in different parts of the country practiced these methods independently of each other; he was confident, however, that no organized conspiracy existed for this purpose, since it would not be possible to dispose of large quantities of washed stamps without the plot being discovered.

The assumption that the concerted washing of stamps on a large scale would be necessary to cause the Government to lose materially by reused stamps will hardly hold. There are nearly 45,000 post offices in the country, and if the department were to carry from each office a single fraudulently stamped letter a day, the Government would be cheated to the extent of nearly half a millon dollars a year. It may not be possible to dispose of $8,000,000 worth of washed stamps in bulk; yet out of ten million letter writers it would not be possible to find enough who are willing to use again cleaned or imperfectly canceled stamps, and having opportunities enough to do it to cheat the revenue out of all that the deficiency is found to be.

That the cancellation of stamps is very frequently imperfect is known to all who handle many letters. In many instances the stamp is not defaced at all; in more the mark is so slight that it may be easily rubbed off. Mr. Pearson admits that no cancelling ink is ineffaceable, and expresses the opinion that postage stamps ought to be printed in fugitive colors, which would be removed by any attempt to wash off the canceling mark.

The conditions under which stamps must often be handled, however, by children and other unskillful persons, both before and after they are put upon matter to be mailed, forbids the use of other than fairly permanent ink in printing them. They are held in sweaty hands, carried in pockets, where they are subject to dampening by rain, perspiration, and the like, and always liable to over-wetting when the gum is moistened to affix them. Hence the necessity of good paper and waterproof ink.

If stamps are used, security against their reuse must be sought rather in some means of canceling them indelibly or destructively. Thus far no ink has been discovered that could not be discharged or washed off by suitable means. For destructive cancellation many devices have been tried to cut, abrade, rupture, or burn the paper of the stamp. None of these, however, have proved entirely satisfactory, their tendency being to mutilate or set on fire the letter or parcel the stamp is applied to. A more promising plan contemplates the use of a stamp of two parts, one to be gummed to the letter or package, the other to be left free, to be torn off by the postmaster and destroyed, making it impossible to use the same stamp again.

This plan seems well calculated to prevent the reuse of stamps except by parties inside the post offices, where there is reason to suspect a large part of this fraud upon the revenue is perpetrated. In multitudes of offices the new mail matter often lies for hours before being made ready for transmission. In such cases there is little or nothing to prevent a dishonest clerk from removing the uncanceled stamps and substituting those that have already been canceled. The individual frauds may be small, yet if frequently repeated in a large number of places, the aggregate loss to the department may mount up to millions.

The most obvious way of stopping frauds of this nature would seem to be the use of stamped envelopes and wrappers; and in view of the probable saving to the revenue by preventing reuse, the Government might find it profitable to encourage the more general employment of stamped envelopes, by allowing to purchasers of them a considerable discount from the price of the stamps. It might be practicable also to print the stamps across the face of the envelopes in such a way that in the writing of the address the stamp would necessarily be canceled. The usual post marks would suffice to show whether any wrapper had done its appointed service.

The ingenious reader will readily see how inviting a field is here presented for successful invention. The large amount of revenue involved, and the urgent demand the world over for a practical preventive of the frauds pointed out, make it certain that whoever will solve the problem will not fail of a large reward.

THE DENVER MINING EXPOSITION.

The National Mining Exposition just opened at Denver, Colorado, would be a credit to the oldest and richest of mining regions. Indeed it may be doubted if in any other part of the world so large and instructive an array of precious metals and their ores could have been collected for such a purpose. The effect in convincing the visiting world of the substantial wealth of a multitude of mining districts scattered over the Rocky Mountain country, and now known only as outlandish names on the newer maps, cannot but be enormously beneficial to the States and Territories represented.

The exhibition was opened the first of the month, and has been a popular success from the start.

The exhibition building is a handsome and substantial structure covering four acres. It is in the form of a cross, 500 feet from north to south, and 300 feet from east to west, with spacious vestibules and entrances at the four extremities. There are 2,000 linear feet of galleries, 29 feet in width, supported by solid columns, and approached by eight broad and easy stairways. Two more stairways and two elevators give access to the central tower, 80 feet in height. Each of the eight corner towers, 70 feet high, is approached by a special stairway. The building is lighted by 800 windows.

The exhibits are arranged in thirteen departments: (*a*) Mineralogy, with eleven classes, comprising ores of the precious and the useful metals, clays, coals, and other metalliferous specimens; (*b*) Geology, eight classes; (*c*) Hardware, edge tools, and all cast and wrought iron goods, in four classes; (*d*) Metallurgical machinery, in four classes; (*e*) Agricultural and horticultural products, and floral displays, dairy products, etc., six classes; (*f*) General machinery, including steam engines and machine tools, printing, pneumatic, leather working, and laundry machinery, five classes; (*g*) Agricultural and horticultural implements, machinery, tools, carriages, wagons, etc., four classes; (*h*) Textile fabrics, leather, furs, and the like, four classes; (*i*) Household goods, watches, jewelry, optical and scientific instruments, ornamental articles, ceramics, etc., six classes; (*k*) Liberal arts, natural science, and education, five classes; (*l*) Food preparations and miscellaneous articles used in domestic economy, miners' supplies, etc., three classes; (*m*) Chemical and medicinal preparations, illuminating and lubricating oils, etc., four classes; (*n*) Miscellaneous unclassified articles. The main building contains over 150,000 square feet of floor area, yet the demands for space have made several annexes necessary.

The machinery is driven by a 250 horse power Corliss engine of Chicago make. The display of mining machinery is very full and attractive, particularly to those directly interested in mining. Popular interest, however, naturally centers in the vast and varied collections of ores and minerals, which have been gathered by carloads from hundreds of mining districts scarcely yet heard of by the Eastern world.

Through her advantages of situation and superior mining