

THE ROTARY NEOSTYLE.

Some months ago we illustrated in these columns the Automatic Neostyle, a duplicating machine with which anyone could take a large number of copies from an original writing, drawing or typewriting by operating a lever. The Automatic Neostyle worked on the principle of a lever printing press.

The Neostyle Company, 96 Church Street, New York city, however, have now advanced one step further, and have recently placed on the market a duplicating apparatus known as the Rotary Neostyle, which operates on the principle of a cylinder press, and this machine is as far ahead of the old style duplicating machines as the latest Hoe cylinder presses are ahead of the old foot or lever presses.

The Rotary Neostyle is operated either by crank, treadle, or electricity. Fig. 1 shows the machine operated by crank. The stencil is laid on the outer surface of a drum made of perforated steel. The drum is rotated by an easy movement of the crank, the motion being imparted to the cylinder by means of gearing. As the cylinder is caused to rotate, an India rubber roller automatically rises at the proper moment, applies the necessary even pressure, forces the paper on which it is desired to print against the stencil, ink being forced through the stencil by means of a fountain ink roller on the inside of the cylinder. Operating the crank, therefore, causes the stencil to revolve, the necessary pressure to be applied, and copy to be automatically discharged. Very rapid and perfect work can be accomplished, as the operator has nothing to do but operate the crank with one hand and feed the machine with the other.

The machine illustrated in Fig. 2 is practically the same machine, but, instead of imparting movement by means of the crank, an electric motor is applied. This motor can be connected with any ordinary lamp socket, and an idea of the power required may be gained when it is stated that an ordinary $\frac{1}{8}$ horse power fan motor is all that is necessary. A rheostat is provided which enables the operator to regulate the speed to suit his requirements, that is to say, a beginner can set the rheostat so as to print say 30 copies per minute, and, the operator having both hands free, a beginner can print easily at this speed. The maximum speed is about 70 copies per minute, and we are informed that in many railroad offices the machine is being operated daily at this speed. When it is remembered that this means a speed at the rate of over 4,000 copies per hour and that this speed is only equaled by the very expensive newspaper presses, it will be seen that, on the question of speed, there is very little room for improvement.

The work produced, whether autographic or typewritten, is such a close resemblance to actual original work that the Post Office authorities recently made a ruling that circulars duplicated by this process must pay letter postage rates, as they were indistinguishable from personal communications. The Neostyle Company have just succeeded in getting a modification of this ruling; so that all such work will go at third class rates, provided they be handed in at the post office windows in lots of 20 copies, and further giving the right of the sender to fill in the name and address and sign his name.

The Neostyle Company also furnish a patented envelope which, while apparently sealed, is in reality open, and this envelope has been accepted by the Post Office Department for mailing third class matter such as Neostyle circulars.

Malaria Suppressed by the Use of Lime.

The following interesting letter from the pen of Mr. Minor C. Smith, of Norristown, Pa., was recently received, with the request that we should pass an opinion upon the theory advanced therein. The letter is as follows:

There can be no reasonable doubt that scores and hundreds of our younger men, especially those commanding large amounts of money, will in the near future turn their steps toward Cuba.

The fertile lands, bringing forth rich and valuable products, one crop following another in rapid succession, a soil 12 to 15 feet in depth, and rich to the core and through its entire depth, where it seems quite possible to grow about everything producible in a hot climate, needing nothing save the brain and brawn of American manhood to sow and reap. Then, too, the extensive forests, yet untouched, abounding in the richest and most choice woods, such as red cedars, mahogany, rosewood, ceiba, and ebony, will also be a great incentive to draw enterprising men toward Cuba. There we have also mines of untold richness abounding in various minerals, always a source of wealth when properly worked.

The above synopsis gives but a passing glance at Cuba's real wealth, but enough is definitely known to

make that land a veritable Mecca for our people later on. There is, strictly speaking, but one serious drawback touching our colonization of these lands, and that is the exceedingly dangerous climate for others than immunes. As these are found only in our Southland, it practically blocks Northern and Western enterprise, and to seek for the possible solution of making Cuba a healthful, charming country for all classes of Americans will be indeed a delightful task. I say delightful, because I believe it can be done, and will be.

The writer was born and spent many years in the southwestern part of the Delaware and Maryland peninsula. Thirty-five years ago chills and fever, and the various forms of malarial infections, were as common in that otherwise delightful climate as "coffee for breakfast." The medical fraternity poured quinine and other febrifuges down the throats of their unfortunate patients by the boxful; but the infection raged the more. Finally, a gentleman came into the community and purchased a farm that the neighbors said was too poor to grow sandsnipes. Now, this man did not come to rid the community of chills and fever, but he invested his money, hoping to make a farm that would be the pride of the community and make eventually a good return for his original investment.

On one portion of this farm was a meadow land, filled

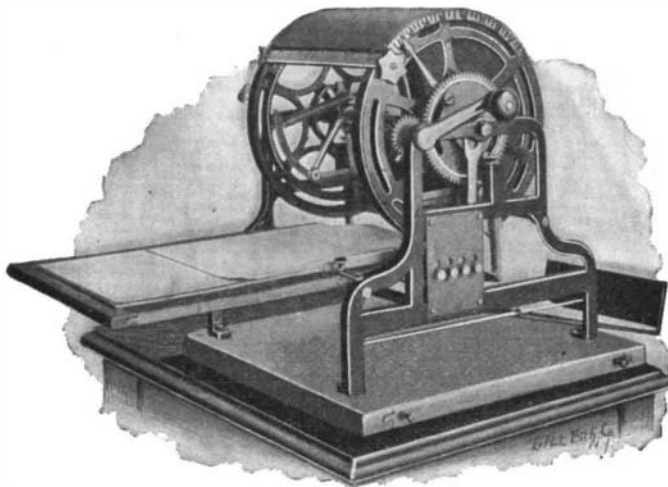


Fig. 1.—THE ROTARY NEOSTYLE.

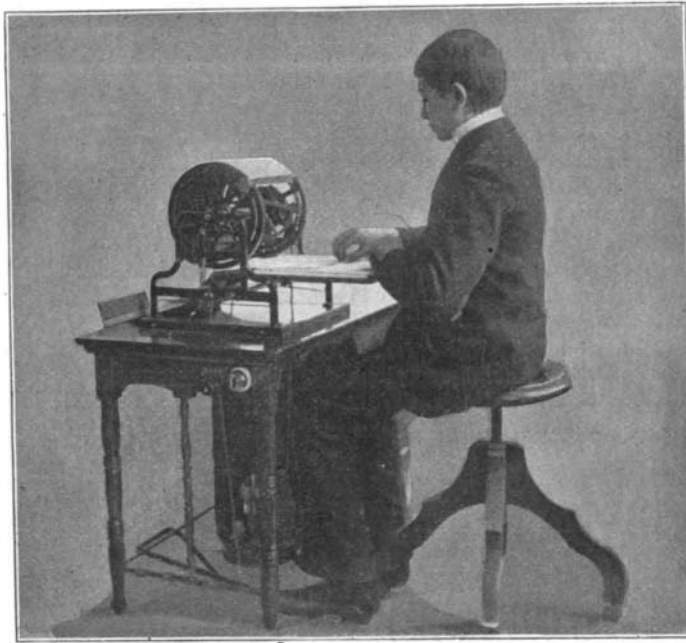


Fig. 2.—ELECTRICALLY DRIVEN NEOSTYLE.

with black snakes, mud turtles, bull frogs, and the other fellows who keep company with the above named crowd, and the mornings and evenings of each day saw rise above the meadow land a veritable cloud of miasma. No more unhealthy spot could be found for miles, and the farmer soon fell sick with fever, to keep company with the neighbors round about.

The important part of this communication begins just here. The farmer, without thought of breaking up the fevers or driving away forever the deadly miasmas that floated about that big meadow, began to haul quicklime by the carload, and in the early fall that meadow looked like a snow field in January. This done, the lime was applied to the entire farm, whereon fall grains were to be sown. Now, with the biggest subsoil plow ever seen in the community the progressive farmer turned under the sod to the depth of about two feet or more, and thus it lay for months.

The early spring of the next year saw a splendid new crop of timothy growing on this pest spot, and from that time on these lands, meadows and highlands, received their annual coating of lime and plaster; and in ten years, yes in five years, that was the finest farm in the whole section, and no chills or fever any more. In ten years the entire community was free from this awful pest through the widespread use of lime and plaster, and only a few days ago I heard from one of the leading citizens of the section referred to, and he was commenting on this very subject.

Now, Mr. Editor, if any of your readers know anything as to the value of calcareous land dressing along the lines referred to, let's hear from them. As to whether Cuba can be redeemed by such methods, aided, of course, by systematic drainage and more rigid sanitary rules, is indeed a very important question. One thing is very sure. It would cost this government but a trifle to make some experiments, and thus learn once for all whether such methods mean much or little or mean nothing at all. A few ship loads of lime and plaster generously spread on a reasonable portion of the island with proper drainage added would not be an expensive experiment and might suffice to solve the important problem.

Very truly,

MINOR C. SMITH.

We submitted the question put forward by Mr. Smith to the Department of Agriculture, and we received in reply the following letter:

To the Editor of the SCIENTIFIC AMERICAN:

DEAR SIR: I have your request of October 29, to express my opinion on the correctness of a statement in a newspaper article, that the application of lime to a region which was infected with malaria purified it completely, and to state whether I think that the liberal use of lime in infected parts of Cuba would have the same effect upon the malarial germs in that locality.

In the first place, permit me to say that the evidence of an observer in a matter of this kind is very apt to be unreliable. People who observe phenomena of any kind, without a scientific study, are apt to jump at conclusions and to assume as the efficient cause in particular affairs the first cause which may be evident.

In regard to the action of lime upon malaria, I do not know that any definite information can be given. In general, however, it may be said that this much is known. Lime promotes vigorously the decay of organic matter, chiefly by furnishing a neutral or alkaline environment in which the nitrifying germs which are most active in the destruction of organic matter exercise their most important functions. The nitrifying germs are, in many respects, the most vigorous of all which are active in the decay of organic materials. If malaria be a germ which exhibits its highest vitality in an environment of organic matter and a genial warmth, it is evident that its vitality may be greatly diminished or entirely destroyed by the action of lime in promoting the growth of the nitrifying organisms. These organisms destroy organic matter very rapidly, and thus the source of nourishment of the malarial germs might be entirely cut off.

Last summer, near Berlin, I visited an establishment for purifying water, in which the nitrifying germs alone were employed as a purifying material. Sewage water from the city of Berlin, subjected to the action of these nitrifying organisms, was changed in two hours time to a clear, limpid water without any odor or apparent taint of organic matter, and in which there was not enough organic material for pathogenic germs to flourish with vigor. The nitrifying organisms in their vital functions not only destroy ordinary organic matter, but may even attack other organisms and destroy their vitality.

I think, therefore, that the liberal application of lime to all centers of infection would prove of immense benefit by promoting the vigorous development of nitrifying organisms, thus securing a rapid destruction of organic matter and the conversion of the nitrogenous part thereof into nitric acid or nitrates. Thus, indirectly lime might prove very valuable in disinfecting and destroying the germs of malaria in general and yellow fever in particular. I can express no opinion in regard to the amount of lime which would be required to disinfect the island of Cuba, but it probably would be so enormous that the application of it would have to be confined to localities where the greatest infection existed. I am, respectfully,

H. W. WILEY,

Chief of Chemical Division.

It appears from The Engineering News that stones or pebbles, when in close proximity to metal pipes which have been subjected to electrolytic action, are electro-plated with the metal of the pipe, whether lead or iron. The following are some interesting remarks, on the subject, taken from a report of Mr. E. E. Brownell, of Dayton, O. He states that wherever any electrolytic action has attacked the cast-iron mains, there remains upon or adjacent to the mains a black substance that is due to the nascent oxygen being liberated from the decomposed water oxidizing the iron in the pipes, and this iron is then carried or held in solution by a solvent which is formed by the reaction of a current of electricity upon the constituents of the soil; from this solvent, the iron, lead, or whatever metal it has attacked, is taken or given up, to be deposited or electro-plated upon the soil and stones to the distance of several inches.