

PHOTOGRAPHY OF A CANNON BALL IN MOTION.

To the Editor of the *Scientific American*:

In firing an eight inch mortar recently, we were successful in making an instantaneous photograph of the same, catching the shell about twelve feet from the mouth of the mortar, as you will see by the inclosed cut. The practice firing was under the command of Lieut. Frederick S. Strong, U. S. A., commanding the cadets of this academy. I think that you will agree with me that this is an exceptionally fine view, and worthy of publication in your excellent journal.

J. SUMNER ROGERS,
Col. and Supt. M. M. A.
Michigan Military Academy,
Orchard Lake, Mich.

A New Asbestos Mine.

The wonderful asbestos mine found near Hamilton has been uncovered in a ledge for a distance of seventy-five feet, and at the cropping, or as far as the discoverers have been able to go in this brief time, says the *Olympia Tribune*, the ledge proved to be eight feet in width. The rock taken from the ledge after the surface crusting was removed is pure asbestos ore, as white as chalk and fine as silk, the feathery fibers being as long as the pieces of rock from which they are pulled, in some cases reaching the entire length of eighteen inches. From the remarkable progress made, it is estimated that one month spent in development would so open the easily accessible store as to enable the valuable contents to be removed in almost any quantity. The mine is being opened at an altitude of about 2,000 feet. Asbestos is found in Switzerland, Scotland, Virginia, Vermont, and on Staten Island, off the coast of New Jersey. The finest quality discovered up to this time is in Italy. It is used extensively in the manufacture of fireproof roofing, flooring, clothing, hose, steam packing, lamp wicking, safe filling, and as a non-conducting envelope for steam pipes.

THE "IRON GATES" OF THE DANUBE.

The work of blowing up the masses of rock which form the dangerous rapids known as the Iron Gates on the Danube, was inaugurated on September 15, when the Greben Rock was partially blown up by a blast of sixty kilogrammes of dynamite, in the presence of Count Szapary, the Hungarian Premier; M. Baross, Hungarian Minister of Commerce; Count Bacquehem, Austrian Minister of Commerce; M. Gruitch, the Servian Premier; M. Jossimovich, Servian Minister of Public Works; M. De Szogyenyi, Chief Secretary in the Austro-Hungarian Ministry of Foreign Affairs; and other Hungarian and Servian authorities. Large numbers of the inhabitants had collected on both banks of the Danube to witness the ceremony, and

the first explosion was greeted with enthusiastic cheers. The history of this great scheme was told at the time the Hungarian Parliament passed the bill on the subject two years ago. It is known that the Roman Emperor Trajan, seventeen centuries ago, commenced works, of which traces are still to be seen, for the construction of a navigable canal to avoid the Iron Gates.

For the remedy of the obstruction in the Danube,

The benefit to Servian trade will then be quite on a par with that of Austria-Hungary. Even Germany will derive benefit from this extension of trade to the East. These, however, are by no means the only countries which will be benefited by the opening of the great river to commerce. Turkey, Southern Russia, Roumania, and Bulgaria, not to speak of the states of the West of Europe, will reap advantage from this new departure. England, as the chief carrier of the world, is sure to feel the beneficial effects of the Danube being at length navigable from its mouth right up to the very center of Europe.

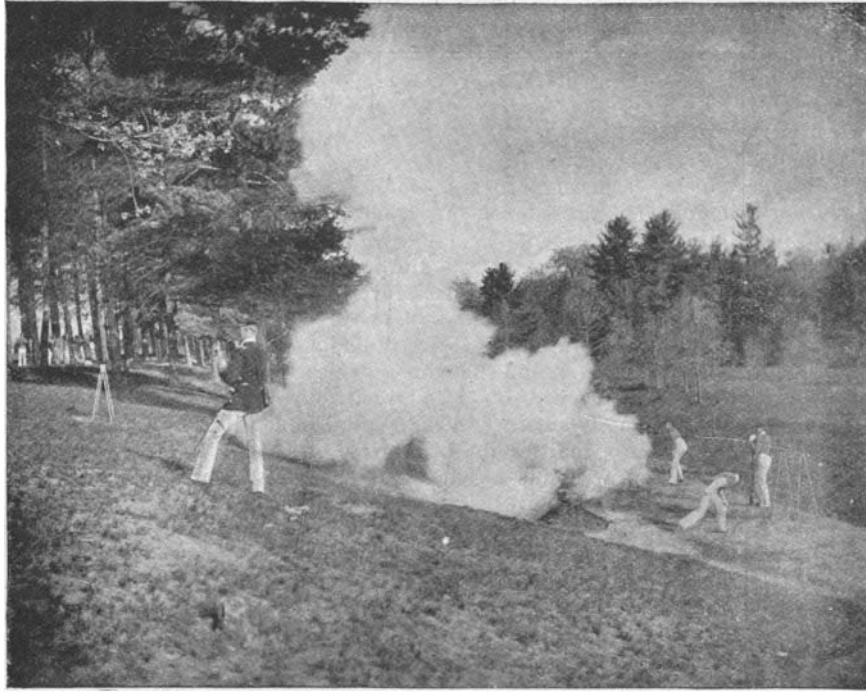
The removal of the Iron Gates has always been considered a matter of European importance. The treaty of Paris stipulated for freedom of navigation on the Danube. The London treaty of 1871 again authorized the levying of tolls to defray the cost of the Danube regulation; and article 57 of the treaty of Berlin intrusted Austria-Hungary with the task of carrying out the work. By these international compacts the European character of the great undertaking is sufficiently attested.

The work of blasting the rocks will be undertaken by contractors in the employ of the Hungarian government, as the official invitation for tenders brought no offers from any quarter. The construction of the dams, however, and the cutting of several channels to compass the most difficult rocks and rapids, will be carried out by an association of Pesth and other firms. The cost, estimated altogether at nine million florins, will be borne by the Hungarian exchequer, to which will fall the tolls to be levied on all vessels passing through the Gates until the original outlay is repaid.

Sad Condition of the Panama Canal.

The Panama Canal is actually a thing of the past, and Nature in her works will soon obliterate all traces of French energy and money expended on the Isthmus. Reports of October 25 say that the late heavy rains have caused vast slides into the canal from the hilltops near Obispo, and the canal excavation at Circaracha is entirely filled up. Only one dredge of the American company now remains at Colon, the Nathan Appleton. The dredge Ferdinand Lesseps, of the same company, was sunk about sixty miles from Colon, while being towed to Greytown. Lieut. N. B. Wyse, acting for the Panama company, writes from Bogota, under date of October 20, that owing to the exacting terms sought to be imposed by the Senate committee, "it appears that it will be impossible to reach an understanding."

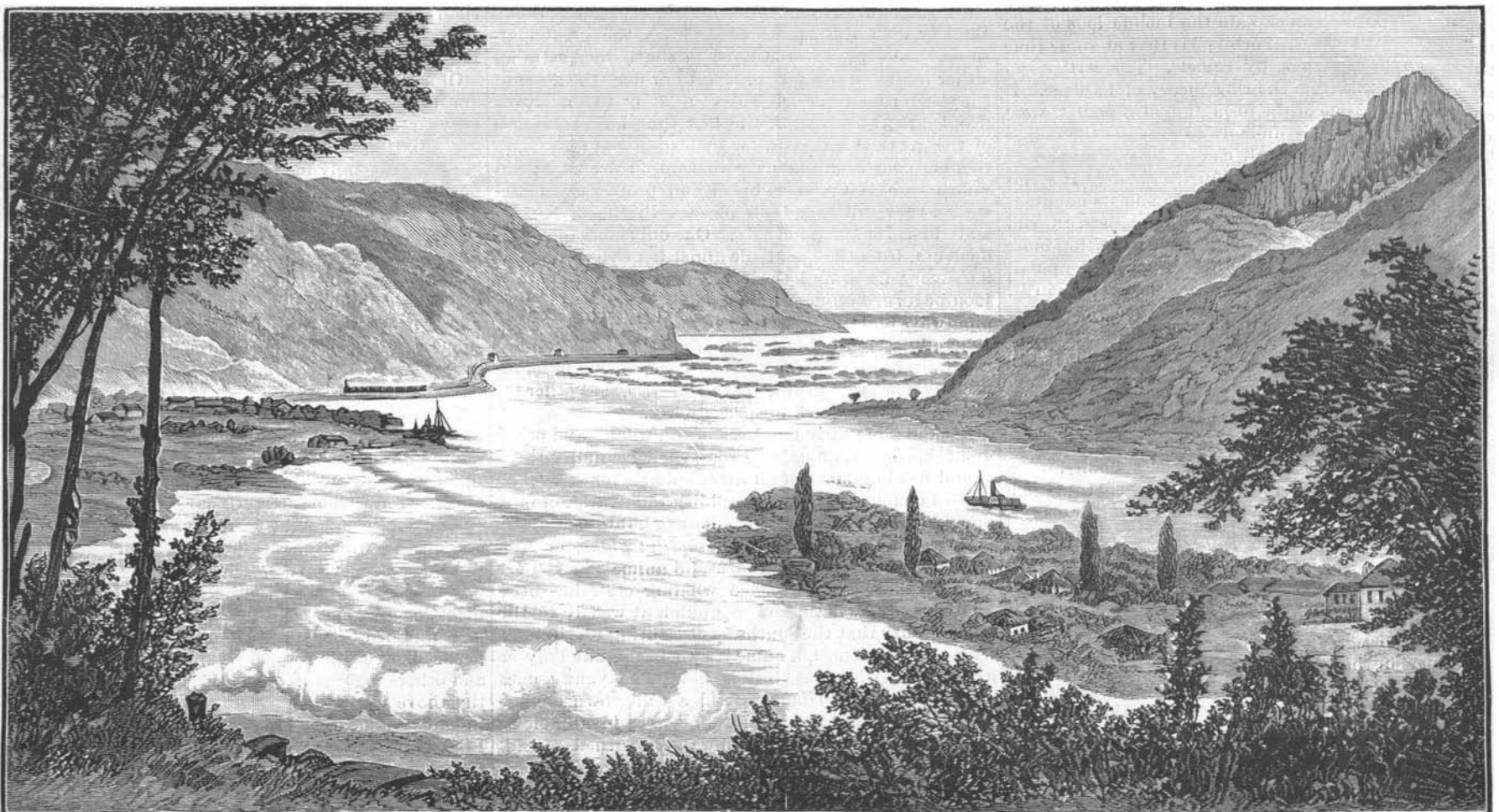
MR. A. C. WILLIAMS, of Elk Falls, Kansas, a former signal service man, is conducting experiments tending to show a variability of the earth's gravity.



CANNON BALL PHOTOGRAPHY.

much discussed of late years, there were two rival systems—the French, which proposed to make locks, and the English and American, which was practically the same as that of Trajan, namely, blasting the minor rocks and cutting canals and erecting dams where the rocks were too crowded. The latter plan was in principle adopted, and the details were worked out, in 1883, by the Hungarian engineer Willandt. The longest canal will be that on the Servian bank, with a length of over two kilometers and a width of eighty meters. It will be left for a later period to make the canal wider and deeper, as was done with the Suez Canal. For the present it is considered sufficient that moderate sized steamers shall be able to pass through without hinderance, and thus facilitate the exchange of goods between the west of Europe and the East.

The first portion of the rocks to be removed, and of the channels to be cut, runs through Hungarian territory; the second portion is in Servia. The new waterway will, it is anticipated, be finished by the end of 1895, and then, for the first time in history, Black Sea steamers will be seen at the quays of Pesth and Vienna, having, of course, previously touched at Belgrade.



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