

THE OLDEST WORKING LOCOMOTIVE IN THE WORLD.

By courtesy of the Engineer, London, we are enabled to present the accompanying illustration of what was unquestionably the oldest working locomotive in the world. In tracing her history we are taken back to the year 1819, when the owners of the Hetton colliery near Durham decided to change their wagonway into a steam railroad, and secured for this purpose the services of the great Stephenson, who had already made his name in connection with a similar undertaking for the Killingworth colliery. This earlier locomotive was the first that Stephenson built, and it was placed on the Killingworth Railroad on the 25th of July, 1814, and proved its value by drawing eight loaded cars of a total weight of 30 tons up a grade of 1 in 450. The Hetton Railway was eight miles in length and extended from Hetton colliery, which is located a few miles west of the city of Durham, to the shipping point on the River Wear at Sunderland. As the line had to be carried directly across some hilly intervening country, it was necessary to introduce no less than five inclines, on which the full wagons served to draw the empty ones up, and also two inclines worked by two stationary engines of 60 horse power. The line was opened November 18, 1822, which is nearly three years earlier

in the present locomotive; but its design, with the exception of the chimney and one or two minor points, has remained unchanged. Although at various times different parts, as they have worn out, have had to be renewed, the new pieces have been made from the same patterns as the old, and some parts of the engine, notably the steam dome, are actual portions of the machine as constructed in 1822. This most interesting relic has lately been withdrawn from service, and it is to find a permanent resting place in the Durham College of Science, Newcastle-on-Tyne.

Another Artificial Camphor.

A few weeks ago the SCIENTIFIC AMERICAN published an account of the discovery of a method of making artificial camphor, which attracted no little attention. News now comes from abroad that E. Callemberg, of Lank-on-Rhine, has also succeeded in preparing what he calls artificial camphor. Mr. Callemberg's compound is pure chlorhydrate of terebinth. It is soluble in nitroglycerin, diminishing greatly the maximum temperature reached during explosions, hence it may prove useful in the manufacture of safety explosives. It further lowers the freezing point of nitroglycerin to a very marked degree, a solution containing from

the chemical laboratory where the fire was hottest. Officers of the Survey arrived on the scene in time to superintend the removal of these valuable articles to the street.

Smithson's Remains to Be Conveyed to America.

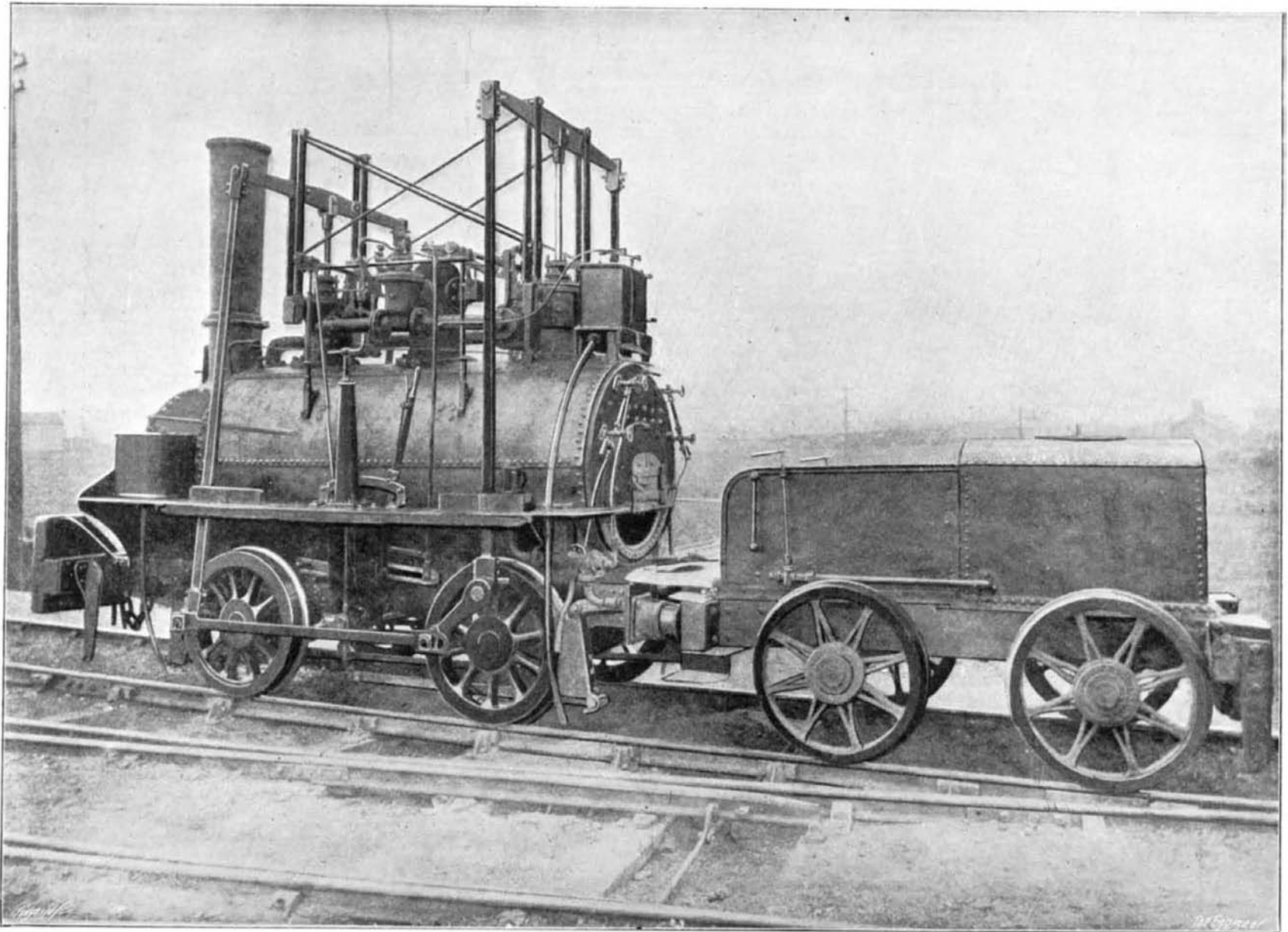
Prof. Alexander Graham Bell has arrived in Genoa. He will convey to the Smithsonian Institution, Washington, D. C., the remains of James Smithson, the founder of the Institution, who died in Genoa in 1829.

Prof. Bell expects to return to Washington from Genoa on January 15.

Prof. Bell offered three years ago to bring the remains of Smithson to Washington at his own expense, and renewed the offer last spring. The action is taken with the sanction and authority of the regents of the Smithsonian Institution. It is expected that there will be no opposition to the removal of the body, as Smithson had but one relative, a nephew, who died many years ago.

The Use of Salicylic Acid as a Preservative in Food.

Macalister and Bradshaw attempt in the London Lancet to refute an error sanctioned by tradition and



Built by George Stephenson in 1822 and only lately removed from service. Cylinders, 10¾ inches diameter by 24 inches stroke. Weight, 15 tons.

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than the opening of the first "public railway," the famous Stockton & Darlington; and on the date named, five of Stephenson's locomotives were in active service. The average speed of the trains was about four miles an hour, and each engine drew a train of seventeen wagons, which weighed in all about 64 tons. As the main interest of this article centers in the longevity of the locomotive we are describing, it is well just here to note that one of the stationary engines at Hetton, which was built in 1822 for hauling the coal wagons up one of the inclines, continued working until 1876, a period of fifty-four years of continuous service.

Our illustration is from a photograph of one of the original Stephenson locomotives, which commenced service on the opening of the Hetton road in 1822, and which after eighty years of unbroken service is still drawing the coal trucks at Hetton, and incidentally maintaining its proud distinction of being the oldest working locomotive in the world. Its dimensions are as follows: Cylinders, 10¾ inches in diameter by 24 inches stroke; diameter of the driving wheels, 3 feet; weight of engine, 15 tons; and haulage capacity, 120 tons at a speed of 10 miles an hour on the level. Of course, it stands to reason that not much of the original material built into it by Stephenson remains

3 to 5 per cent of the chlorhydrate solidifying at 10 deg. to 15 deg. C., the product being a gelatin dynamite of improved quality, while the pure solvent in nitroglycerin dissolves in the cold every kind of gun cotton, including the so-called insoluble varieties. According to La Nature, the chlorhydrate has also proved useful in the manufacture of explosives containing nitrate of ammonia.

Fire in the Geological Survey Building.

On the evening of December 27 the top floor of the building occupied by the United States Geological Survey, Washington, D. C., was practically devastated by fire, although the flames were confined to the chemical and photographic laboratories. Many valuable records, maps, and documents which cannot be replaced were badly damaged by fire and water.

A room next to the photographic laboratory contained more than \$30,000 worth of maps recently completed by the Survey. Although the partition of this room was burned, the maps were not injured by fire or water.

The recently completed maps which will be sent to the St. Louis Exposition, and which are worth many thousands of dollars, were in a room directly beneath

authority, feeling it to be their duty to place on record their conviction that the allegations which have been made against the employment of salicylic acid as a preservative in moderate quantities cannot be maintained, and to challenge the opponents of its use to bring forward a single instance in which it can be shown that bodily injury has resulted from its employment in such a manner. They deny that in the proportion in which they have met with it in articles submitted to them for examination it could be taken by any rational beings to such an extent as to do them any harm whatever. They further maintain that the use of this substance enables manufacturers to place on the market wholesome, agreeable, and inexpensive articles of food which form an acceptable and beneficial variety in the diet of persons who cannot afford more costly luxuries, and which, above all, supply the place of intoxicating drinks. This is the position which they maintain, and state it after mature consideration and with an adequate sense of responsibility.

New York grape growers have two tons of choice grapes in cold storage and will display them in the Palace of Horticulture on the opening of the World's Fair.