

monia solution and sulphuric acid are without action on one another at -80° , but complete action suddenly sets in at from -60° to -65° . Common salt and sulphuric acid do not react at -50° , nor is there much action until the temperature reaches -25° . Moderately dilute sulphuric acid does not attack carbonates at -80° . Bubbles of gas begin to appear between -60° and -50° , but brisk effervescence does not set in until the temperature has reached -30° or upward. Similar results were obtained with nitric in place of sulphuric acid, but the temperature at which action commenced was rather lower in each case. Even the very sensitive vegetable colors are not affected at very low temperatures. Thus the litmus is not reddened by sulphuric or hydrochloric acid at -120° , and alcoholic potash does not give a coloration with phenolphthalein at -135° . From these and similar experiments, Pictet concludes that chemical reaction cannot occur between -125° and -150° .

AN EFFICIENT TRAVELING CRANE.

The work of installation of exhibits in the different buildings on the Fair grounds, during April and the early days of May, was greatly facilitated by the use of the very efficient and easily operated traveling crane shown in the illustration. Tracks were laid to every portion of the floor space of the various struc-

60° F. of boric acid, and eight hundred grammes of alcohol.

"The solution of cardine is a clear, transparent liquid, of a pale straw color, with the specific gravity of 1.070. Under the microscope, it exhibits no morphological constituents. It does not change, so far as I am aware, under any ordinary circumstances, and no bacteria possess sufficient vitality to exist in it.

"I have arranged the dose after many experiments upon healthy men and women of average size, and have accordingly fixed upon five minims as the proper dose of cardine after a maceration of from eight to ten months.

"The physiological effects of cardine, in their order of occurrence, as nearly as I can arrange them, are as follows:

"1. Within ten minutes the pulse becomes fuller, stronger, and sometimes more frequent. The sphygmograph shows this very clearly. The influence in increasing the force and frequency of the pulsations is remarkable, and it is still more remarkable that a tracing, taken eight hours subsequent to the injection, shows that the effect upon the heart was still present in a scarcely diminished degree.

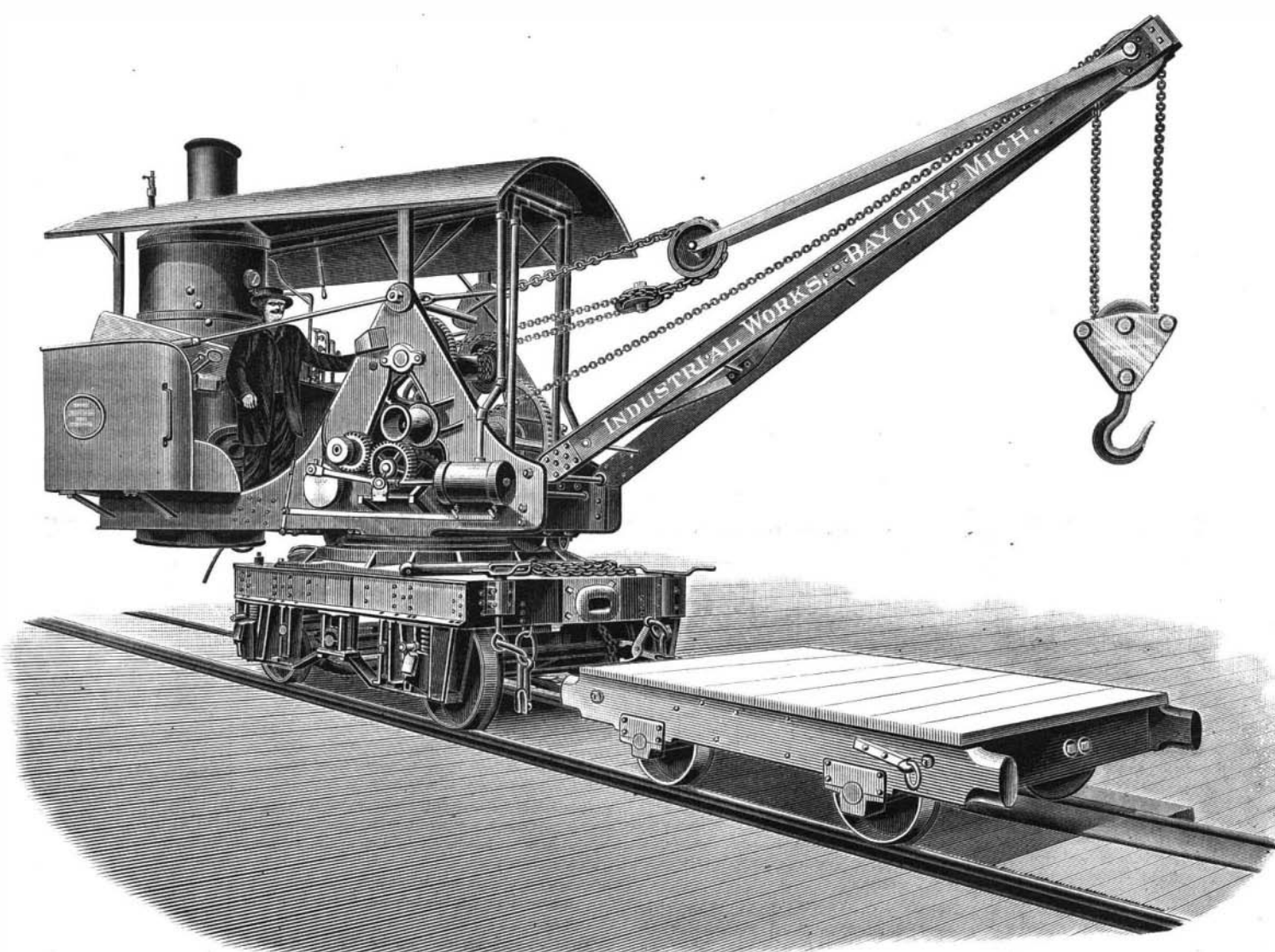
"2. These tracings show what is also evident from a digital examination of the pulse—that the arterial tension is augmented.

"3. Increasing, as cardine does, the heart pressure,

I am not able to give it a place in the nomenclature of organic chemistry, I am sure, from a consideration of the process by which it is obtained, that it is a substance derived from the heart. There is no escape from this conclusion. As to how it acts, I can at present only call attention to the theory that I proposed in my first paper on the subject, and that is briefly:

"That all the organs of the body possess the power, when in a state of health, of secreting from the blood the peculiar substance that they require for their nutrition, and that they take this substance and no other, never making a mistake in the matter. The brain separates brain substance; the heart, heart substance, and so on. If through disease or from derangement of function they lose this power, or if the peculiar pabulum they require be not in the blood in sufficient quantity, their functions cease to be normal. General debility, producing a diminution of nerve force, may cause the loss of this power, or it may result from local disturbance either of structure or function or some profound shock to the organism may so interfere with hæmatosis that the blood no longer contains the material which the organ needs. In either case, if we supply to the blood the peculiar principle which a diseased or disordered organ requires, we do that which nature, unassisted, cannot or does not do.

"Cardine, therefore, if this theory of its action be



THE WORLD'S COLUMBIAN EXHIBITION—TRAVELING CRANE FOR MOVING EXHIBITS.

tures from all the railways, and it was a simple matter, with this machine, to transfer a heavy piece of machinery, a show case, or any bulky article, to the small platform car, and then employ the same power which had effected the lifting to draw the machine and car to the exact point where the exhibit was to be placed, and deposit it where required. The crane platform may be readily swung around and its arm conveniently adjusted to a greater or less angle, as desired, and the work of only one man is required for the operation of the machine.

Cardine—a New Heart Tonic.

Following the remarkable discovery of Brown-Sequard, of testicular elixirs and their sub-cutaneous injection for physical stimulation, comes Dr. William A. Hammond with a new preparation made from the hearts of animals, which he terms cardine. According to his accounts, as given in a recent paper in the *New York Medical Journal*, the new medicine is destined to play an important part in the treatment of all complaints pertaining to heart weakness and some other organs of the body. We make the following abstracts:

"Cardine, as used by me, is prepared as follows: One thousand grammes of the finely minced fresh heart of the ox, previously well washed in a saturated solution of boric acid, are submitted to the action of a menstruum consisting of twelve hundred grammes of glycerine, one thousand grammes of a saturated solution at

the effect upon the kidneys follows as a logical consequence. Many observations, made as far as possible under exactly similar conditions, establish the fact that the amount of urine daily excreted is increased by from ten to eighteen ounces.

"4. The number of red corpuscles in the blood is increased by the use of cardine.

"It is clearly a heart tonic of great power, a diuretic of notable value, and an agent capable of exercising a marked effect over the composition of the blood.

"In cases of cardiac weakness, from whatever cause it may arise, cardine is of inestimable value. It appears to me, from the few cases—in which I have employed it in this connection, to be useful in fatty degeneration of the heart, improving the nutrition of the organ, not only by its action on the blood, to which I have made reference, but by its effects on the nervous organization of the cardiac tissue.

"But I have employed cardine more frequently in those cases of nervous prostration attended with anæmia and sometimes chlorosis. In such patients its action is so prompt and effectual as to excite surprise in all who have witnessed the change. In all these cases I have verified the great improvement in the appearance and apparent condition of the patients by the use of the hæmocytometer and hæmometer. In mild cases, a week or ten days' treatment has been sufficient, but never more than four or five weeks.

"As to the essential characteristics of cardine, while

correct, nourishes the heart. It is the substance which an ill-conditioned heart must have for its well being. It is already in a fit form for assimilation, and it acts with a promptitude, a certainty, and a degree of permanence of which no other heart tonic within my knowledge is capable.

"It follows, also, that in all weak conditions of the system, and especially in those in which the blood is below the normal standard, cardine must prove to be of inestimable value. And in other and more serious affections, such as those in which depurative organs of the body, especially the kidneys, fall below the healthy standard of functioning, cardine, increasing as it does the heart pressure, may augment the bodily comfort and materially prolong life.

"Cardine is not an annihilator of the influence of old age, but my experience convinces me that it lessens the effects of this factor of deterioration so far, at least, as the heart is concerned. This organ, as is well known, is one of the first to fail in physiological power, and this is shown not only by the examination of the pulse and of the heart itself, but by the accumulation of fluid, especially in the lower extremities, owing to a diminution of the heart pressure. Cardine, taken in conjunction with cerebrine, assuredly counteracts this influence, for, owing to the increase of the cardiac pressure, the passive anasarctic condition disappears, and the other indications of heart weakness are either greatly mitigated or altogether abolished."

SCIENTIFIC AMERICAN

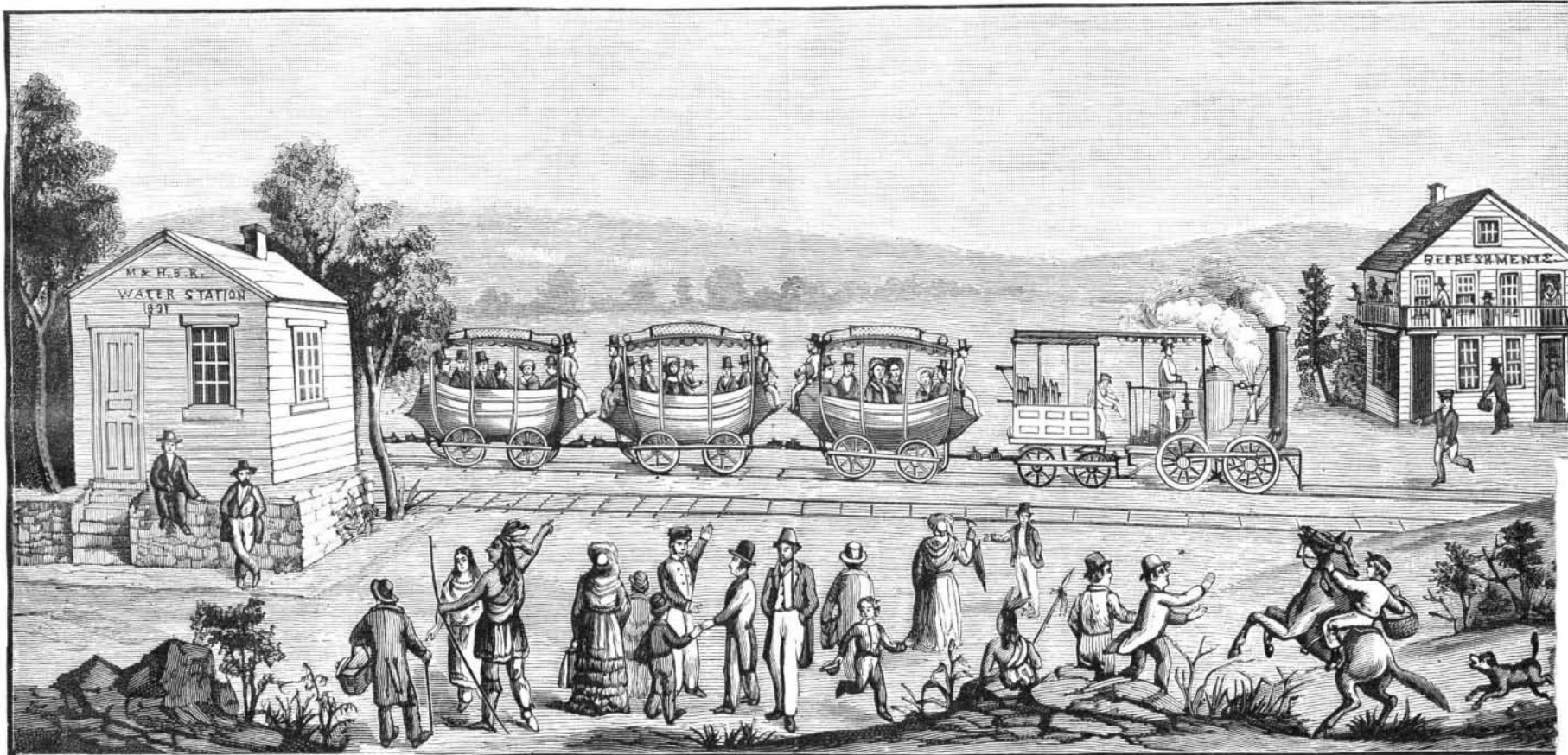
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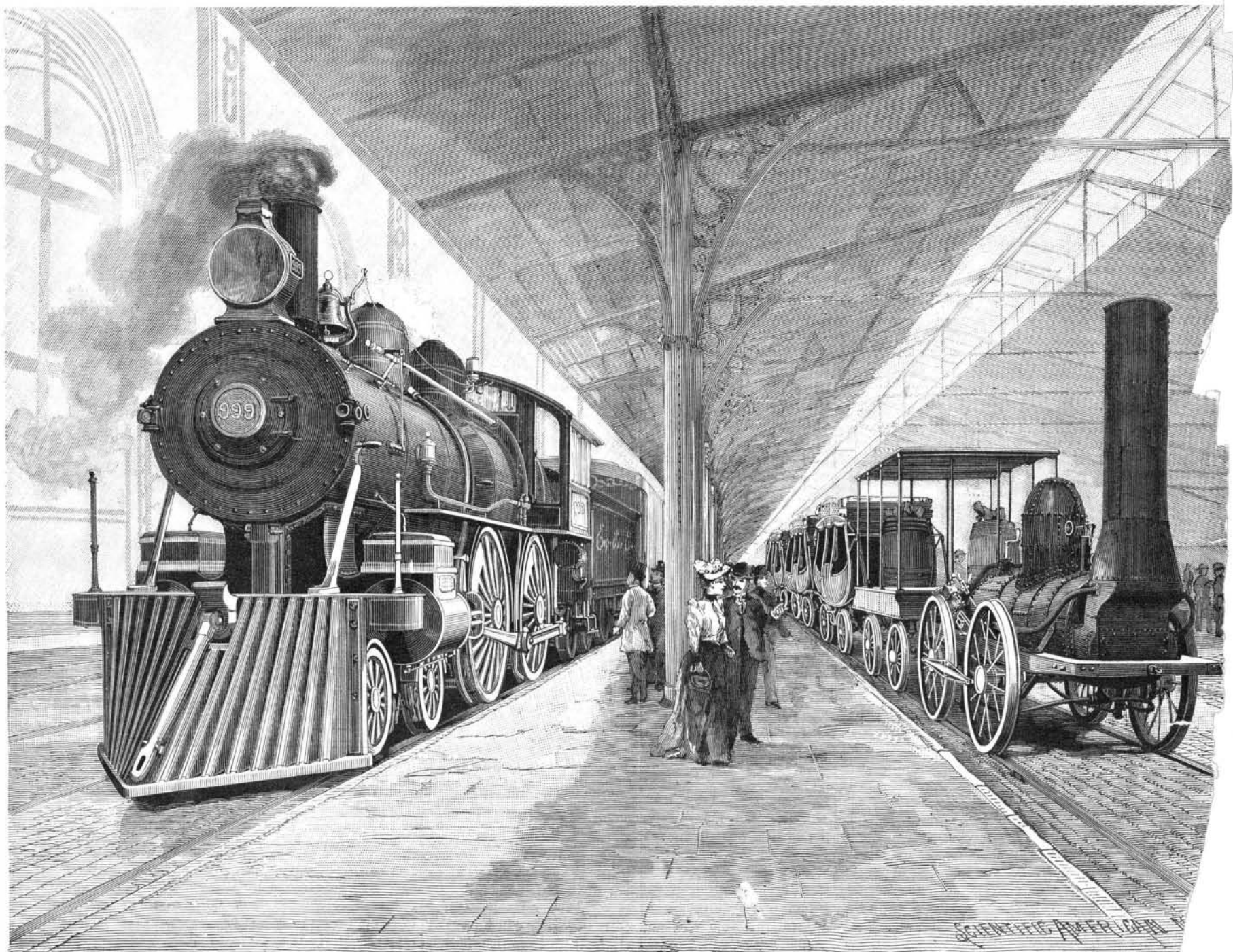
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COLUMBIAN WORLD'S FAIR EXHIBIT OF THE NEW YORK CENTRAL AND HUDSON RIVER RAILROAD.—[See page 2]