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COMBINED RATES

MUNN \& CO., Pubusarrs,

The publishers of Forest and Stream have opened, at their office, 17 Chatham street, in this city, a "Kennel Stud Book," or register for recording the pedigree of thoroughbred dogs. This work will undoubtedly in time occups the same important position among the owners and breeders of pointers, setters, and spaniels that the "Hetd Book" now

## THE COMING EMPEROR.

When the sovereign of a great country visits a sovereign people, not imperially, to conquer or conciliate, but as a private gentleman, to study their works and ways for the benefit of his own subjects, it is obvious that a new order of royal entertainments is called for. The greeting which a barbaric empire like India accords to its future ruler mas fitly be characterized by barbaric shows, parades, illumina tions, and festive entertainments; but from a free people, to an enlightened sovereign like the Emperor of Brazil, such things would be out of place, and utterly distasteful
He comes for information, not to be bored with windy speeches or pretentious dinners. Our local cooks and office holders have few charms for him, compared with the achievements of our explorers and pioneers, our engineers and in therefore, entertain him most royally by furthering to the utmost the real objects of his visit, showing him, in the most unobtrusive and sensible way, our physical and industrial resources, our works of internal improvement, the means by which a great wilderness has been conquered for man. The great region which he is doing so much to im prove is still very largely similar in condition to what the Great West was a few years ago-a land of fertile plain untilled, broad rivers barren of commerce, mountains o precious metals undisturbed. He has railways to build, internal navigation to develop, immigration to foster, and wild country to subdue and make tributary to the needs of men. His expressed desire is to study on the spot the means and methods by which this country has been so rapidly and enormously developed, withal so largely brought under the dominion of science and civilization. And we may be sure that he will not thank us for any attentions which may draw him away from the grand purpose of his visit.
We may be equally sure that he will be royallygrateful fo any proper assistance that may be given to the prosecution o his studies. There is talk of his entering the country by was of the Mississippi. That course would be singularly happy, since it would lead him straight to an engineering enterprise in which he cannot but take the highest interest; and at the same time his visit would give éclat to the completion of a work which may do very much to increase the social and commercial relations of the two countries. It is morally certain that, by May, the Mississippi will be open to navigation by vessels of the highest class, and nothing could be more appropriate than for the ruler of the Amazons to be the first to demonstrate the freedom of the Mississippi to the commerce of the world. It requires no prophet to the largest river of the world and the longest are plainl
destined to furnish each the principal market for the produc, tijns of the other. The one extends, from north to south almost across the temperate zone, draining the heart of the most productive valley-and likely to be the most populousin the temperate regions of the globe. The other drains a vast basin, almost wholly within the tropics, and extending across a tropical belt covering thirty degrees of longitude. Bet ween the two there can be no rivalry, for their products are wholly diverse, yet each produces what the other lacks. Before the next Centennial celebration of our country, the trade between these two
wildest dreams of to-day.
A passage from New Orleans to St. Louis, on one of the floating palaces of the Mississippi river, will show the Emperor, as no other journey can, the future aspect of his own great river when it shall have become the highway of a boundless commerce. How many of the cities of the West he proposes to visit, we cannot say : enough, no doubt, te enable him to study the working of our railway system, and other great works of internal improvement. Compared with these, the Exhibition, great as it promises to be, will be but a secondary attraction.
The termination of his visit may be as happy as the beginning, for he will take his departure from this city just about the time when the Hell Gate improvement will be ready for the finishing stroke, and we venture to say that no ceremony final victory of Science over Nature, in opening up anews the better channel for the commerce of our metropolis. It is to be hoped that obtrusive placemen will respect his wish to travel as a private observer, and leave him free to enjoy a most unconventional "royal" welcome by the scientific and industrial magnates of the land.

## THE FATHER OF WATERS.

We publish, in this week's Scientific American SupPLEmENT, a remarkable document written for our paper by James B. Eads, C. E., of St. Louis, being a review of the Report of the United States Levee Commission, made in 1875. This board was appointed, by authority of Congress, to report a permanent plan for the reclamation of the alluvial lands of the Mississippi river. The subject is one of extraordinary importance, as will be readily understood if it is considered that the area of the lands that might be saved to agriculture, by a proper system of reclamation, is estimated at about 70,000 square miles, of unsurpassed natural fertility, and capable, if peopled as thickly as Belgium of supporting a population of over $300,000,000$.
In this aspect of the subject, the work of reclamation may be justly regarded as perhaps the most useful and importan engineering enterprise now before the civilized world. Its successful accomplishment would vastly add to the prosperity of our own country, and benefit all nations, by enlarg ing the special domain of food supply, besides opening th Father of Waters to the free commerce of the world, float ing the larg
dred miles.

By reference to the review, it will be seen that Engineer Eads and the Levee Commission have arrived at diametrically opposite conclusions, not only as to the best method of execating the work, but as to the results that might be expected from the adoption of their respective plans. The subject is a grand one, but the principles involved are sin. ple, and their relative correctness would seem to be capaible of determination without serious difficulty. The most curious thing is that practical engineers should disagree about the matter.
The Levee Commission aver that the volume of the Mis sissippi is too great; hence the overflow, to prevent which they recommend a reduction of the river volume by means of side channels. These are expected to conduct large portions of the water to the Gulf, and thereby reduce, as they allege, the flood discharge to the limits of the levees. They further advise the raising of the hight of the artificial bank or levees, the cost of which they estimate at forty-six mil lions of dollars $(\$ 46,000,000)$. This expense, although large when eshibited in figures, is as nothing compared with the gain to be derived from a successful reclamation.
The chief questions to be settled are: Is this plan practi cable? Will a reduction of the river's volume diminish the fiood discharge? What has been the experience on the Mis sissippi and on other rivers having analogous bottoms? Is it not a fact that, below the points where side channels have been formed and water drawn off, the river bottom has be come filled up, and the flood level raised? Is it not true, in respect to other rivers, that their flood levels have been owered by increasing rather than by diminishing the rive olume, by stopping up old side channels rather than open ng new ? Is it not plain that, in an alluvial bottom like the Mississippi, the quickest and best way to lower the flood leve is to deepen the bed of the river?
Will not the river deepen its own bed if its volume is in
The weight of evidence, derived from past experience on the subject, clearly gives an affirmative answer to the latter question, and this, substantially, is the position taken by Engineer Eads. He declares that the recommendations of the Levee Commission are founded in error. He avers that the proper way to lower the flood line of the Mississippi is to do the very opposite of that recommended by the Commission. He advises that the side channels be closed, so as to increase the volume of the water; and that, escepting repairs, the levees be not raised, because the increased flow will deepen the river bed, rendering the artificial building up of the levees unnecessary. He adduces an array of practical evidence, in support of his position, that seems unanswerable.
We shall recur to the subject hereafter.

## SOME ANNALS OF A SUCCESSFUL INVENTION.

If we may judge from Punch's frequent cartoons, and from the attention paid to the subject in the English jour nals, all England is undergoing a skating mania, which out rivals the velocipede furore of six years ago. It is not gliding over the ice on glistening steel blades which has captured the British fancy, for frozen lakes and rivers in England are of rare occurrence, and it is now several years since any regular skating club has had its winter carnival. Asphalt floors have replaced the ice; and over their smooth surface John Bull cuts 'spread eagles" and " figure eights," and otherwise disports himself on that ingenious Yankee invention, the roller skate. There is an interesting history connected with that device and its inventor, which may here be reviewed. It is a record of how an enterprising man has managed, and is managing, an invention so as to make it field a fortune, how he has fought and triumphed in protecting his right; and, at the same time, it conveys sugges tive thoughts as to the value of popular devices, not merely at home but abroad, emphasizing in brief our oft-repeated assertion that the inventor's field is not restricted to any one country, but is as wide as the world itself.
It was about eighteen years ago when a then-termed "parlor" skate furore broke out in this vicinity. Halls in various parts of the city were fitted up with smooth floors, and one part of the public flocked thither and hired the skates at so much per hour, while another portion paid for the privilege of viewing the others learn how to manage the new invention. Education in that direction, though vastly amusing to lookers-on, was just the reverse to the learners; for however good skaters on ice the latter might be, they soon iound out that managing roller skates was a very different affair, that gliding straight ahead was easy enough, but to attempt o guide oneself by turning the foot was to invite sudden and painful precipitation to the floor. Perhaps for this reason public interest in the first forms of parlor skate soon waned. Meanwhile, however, Mr. J. L. Plimpton, of this ity, perceiving the difficulty, set to work to remedy it by devising a skate which would keep the floor without referonce to the angle of the body or the sharpness of the curve turned. With remarkable perseverance he labored on for several jears, expending some $\$ 25,000$ in fruitless efforts. Finally, however, he produced a device which a learned English judge has recently pronounced " almost as ingenious as the wonderful adaptation of bones to be found in a horse's pastern and fetlock." In the center of the sole of the skate, he fixed a spherical spring of india rubber, yielding to the slightestinclination of the foot, a mere change of motion by well known mechanical means causing the axles of the roller wheels to converge. This invention was patented in this country, through the Scientific American Patent Agency, in January, 1863, and subsequently in England, in 1866.
His deviee perfected, Mr. Plimpton began its introduction

