

Development of the Bicycle.

A Strange,
Eventful History
1870—1908.

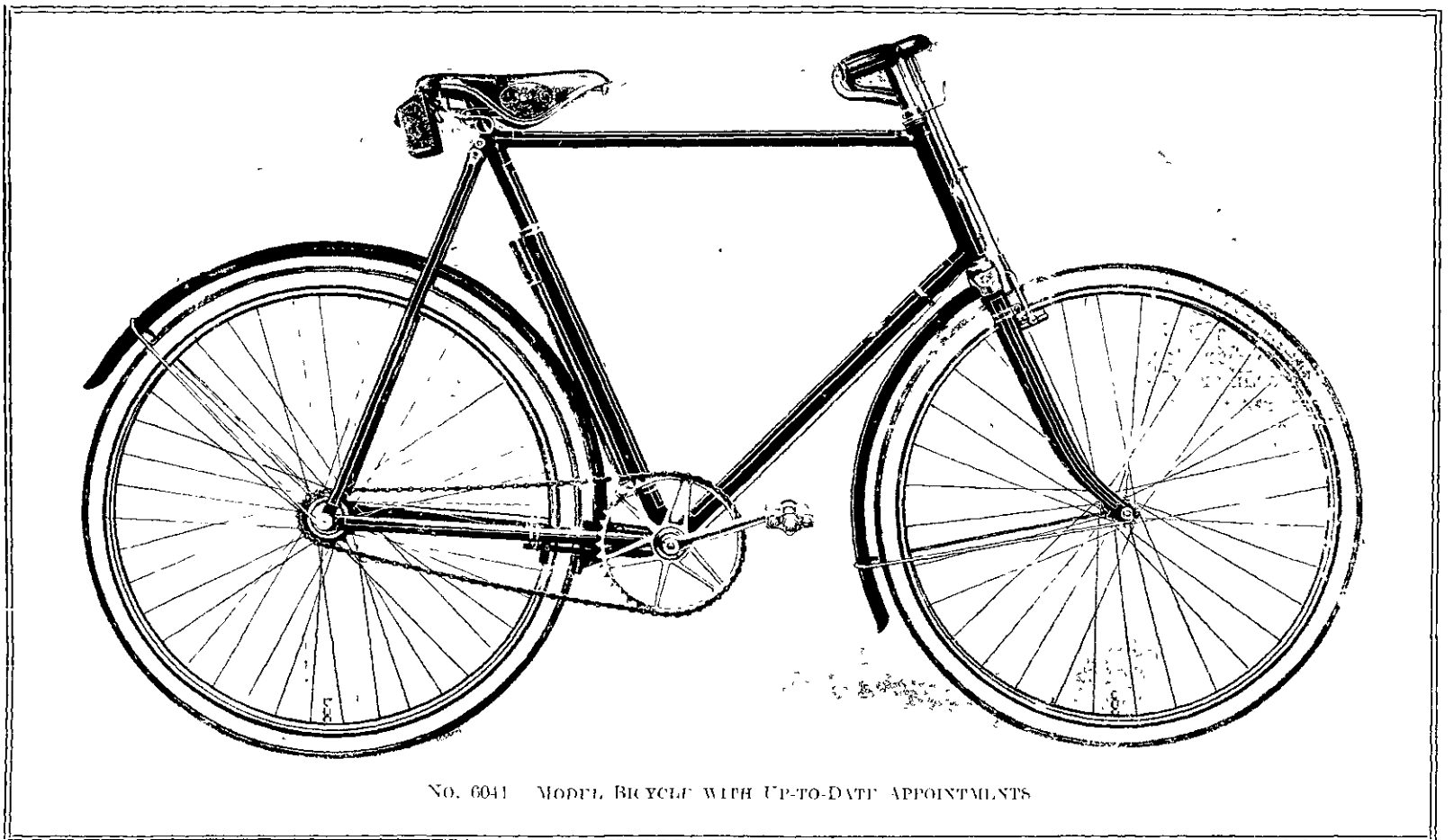
Introduction.

The "Byke" is on the list of things once prohibited by scientific authority. A great mathematician once predicted that as the average of man's walking speed under the best conditions is four miles an hour, and as the machine would be worked by the legs of man, therefore the average speed of the machine would never exceed, under the best conditions, four miles an hour. The machinists exhibited their reverence for scientific prediction by racing the human propelled machine up to nearly the speed of the galloping racehorse. But before this speed was reached, science had very carefully watched developments, and, without

was defended as a deduction from the great principles laid down by Newton himself. But already man has flown with exasperating ease for an hour or two and beaten a flying bird, in the presence of thousands of shouting people. As usual in these cases, science has taken a hold, and bids fair to guide the experimenters of the day into the perfection of bird flight. Indeed, there are men not without scientific knowledge who think that the perfection will be relatively to the birds who carry only themselves as is the perfection to the fishes of the steamship, which, by following the example of the fishes, who support themselves only in the water at great speeds, carry cargoes of tens of thousands of tons, and hundreds of passengers, also at great speeds, against stormy

joining lot was for a long time a personal matter between Boonder and the contractor." Yet, says Boonder's creator, all these works went on. Men quote and they laugh. But they forget the essential difference. The dog resisted blindly, resisted until one day—it was the day of the trial trip of the railway cars—he "barked himself out of all shape in the front, being thrown back several feet by the recoil of each bark," until in one of these intervals he failed to recover quickly enough, and the resister of progress perished a martyr to his conservative notions.

Here we have the fundamental difference. The dog resisted blindly, whereas science merely is slow to accept the first claims of novelty, but maintains that watchful and



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prejudice, quietly took charge and directed the evolution of the machine with happiest results.

The motor car affords another instance, with a moving story of the unholy combination between science law and popular and Parliamentary prejudice, whereby the enterprising motorist was kept back for years; and, what is worse, a contempt for law and constituted authority was fixed in his breast, whence have flowed a terrible list of undesirable consequences, which have made motoring a much hated and very much feared pastime. Still the engineers and the mathematicians and the men of science generally have done wonders for motoring.

Aviation has much to say of the same import, for science was at first committed to the theory that man's weight required a wing spread of a mile or so, and the demand

winds and raging seas.

In this connection, the popular mind has been too scornful of the trained intelligence. The story of the dog "Boonder," who lives now only in the immortal page of Bret Harte, supplies to this school of thought its favourite illustration. "Boonder" said his creator was known as "Boonder the Conservative" because "in matters that did not involve courtesy he was sincere in his likes and his dislikes. He was instinctively opposed to the railroad, and when the track was laid Boonder maintained a defiant attitude towards every rail as it was laid down." In like manner did he resist the introduction of gas into his native town, and spent "one whole day in angry altercation with the workmen." Also when the question of water works had been settled and work begun, "the grading of an ad-

unprejudiced attitude, which alone can command the eventful success of all scientific advance. This is why the development of the cycle has been along the lines of soundness and reliability. Science, having begun by quoting a formula which said the thing could not be done at all, ends by drawing up another formula which explains how easily it is done every day. Your simpler canine can only detect imposture—and there he carries in eye and nostril a veritable bunch of Spears of Ithuriel—but when it comes to rewarding merit, and consolidating and directing achievement, the comparison must cease between your canine and the eternal academy of sciences.

I.—THE BICYCLE.

It was first a velocipede—that is, after a painful experience of many wheels of dubious order and construction. And about the