THE BICYCLE IN AMERICA TO 1900

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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>History of The Bicycle Era</td>
<td>7</td>
</tr>
<tr>
<td>The Velocipede</td>
<td>9</td>
</tr>
<tr>
<td>High Bicycle Era</td>
<td>13</td>
</tr>
<tr>
<td>Progress Toward The Safety</td>
<td>18</td>
</tr>
<tr>
<td>The &quot;Safety&quot;</td>
<td>21</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>30</td>
</tr>
<tr>
<td>Advertising</td>
<td>40</td>
</tr>
<tr>
<td>Organizations</td>
<td>51</td>
</tr>
<tr>
<td>League of American Wheelmen</td>
<td>52</td>
</tr>
<tr>
<td>L.A.W. and Law</td>
<td>56</td>
</tr>
<tr>
<td>L.A.W. and Good Roads</td>
<td>59</td>
</tr>
<tr>
<td>The Club Movement</td>
<td>61</td>
</tr>
<tr>
<td>Racing</td>
<td>66</td>
</tr>
<tr>
<td>Military Use</td>
<td>69</td>
</tr>
<tr>
<td>Touring</td>
<td>72</td>
</tr>
<tr>
<td>Social and Economic Influence</td>
<td>79</td>
</tr>
<tr>
<td>Uses</td>
<td>79</td>
</tr>
<tr>
<td>Women and the Bicycle</td>
<td>84</td>
</tr>
<tr>
<td>Clothing Reform</td>
<td>87</td>
</tr>
<tr>
<td>Health and the Wheel</td>
<td>92</td>
</tr>
<tr>
<td>Social Effects</td>
<td>99</td>
</tr>
<tr>
<td>Cycling Literature</td>
<td>104</td>
</tr>
<tr>
<td>Economic Effects</td>
<td>109</td>
</tr>
<tr>
<td>Good Roads</td>
<td>114</td>
</tr>
<tr>
<td>The Gasoline Age</td>
<td>128</td>
</tr>
<tr>
<td>Coming of the Horseless Carriage</td>
<td></td>
</tr>
<tr>
<td>Bibliography</td>
<td>139</td>
</tr>
</tbody>
</table>
## LIST OF ILLUSTRATIONS

<table>
<thead>
<tr>
<th>Illustration Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Out over the road while the sun is yet high.&quot;</td>
<td>13</td>
</tr>
<tr>
<td>Half a Century in the Development of the Bicycle</td>
<td>39</td>
</tr>
<tr>
<td>&quot;Countermarching&quot;</td>
<td>63</td>
</tr>
<tr>
<td>&quot;Sew on your own buttons. I'm going for a ride.&quot;</td>
<td>85</td>
</tr>
<tr>
<td>&quot;A June Afternoon.&quot;</td>
<td>102</td>
</tr>
<tr>
<td>&quot;He Sees a New Light.&quot;</td>
<td>114</td>
</tr>
<tr>
<td>The Winton Motor Carriage</td>
<td>128</td>
</tr>
</tbody>
</table>
INTRODUCTION

The trend in American History in recent years has been to put a much-needed emphasis on the social history of the American people. Studies have been made of their habits, customs, reform movements, economic problems—in short, anything that informs us of the way our ancestors lived and behaved has become history. With this new interest in social habits, history has ceased to be the chronicle of a series of revolutions, treaties, elections, and wars. It has become a living, breathing story of the rise and development of America and the people who inhabited it. This change is not meant to exclude the importance of political history; on the contrary, an understanding of political movements is enhanced by a thorough knowledge of the social and economic forces in operation at the time. History was made at the cross-roads general store and in the local machine shop as well as in the stately halls of Congress. Today it is our privilege to study the social scene of America's past and from it gain an insight into the way past Americans lived, acted, and thought.

What has all this to do with the bicycle? At first thought the bicycle seems a very unimportant, every-day object; but in the era that I am discussing its influence was strongly felt in the economic, social, and even political
life of the people. I have divided the subject into four divisions: I. History, II. Organizations, III. Social and Economic Influence, IV. The Gasoline Age. A brief discussion of these four divisions here will be of aid to the reader in following the story of the bicycle and in understanding the thesis which I develop.

I. History. In this section the development of the form or design of the bicycle is traced from its beginning in the early nineteenth century up to 1900, which I have chosen as the logical conclusion of the era. Inventions of the draisine, velocipede, high bicycle, and "safety" are discussed as well as the development of rims, rubber tires, and hollow steel frames. Under this general heading, I have included a discussion of the rise of bicycle manufacturing companies, and the methods used by them to advertise their products. Already we see the influence of the bicycle on modern transportation advertising. Automobile advertisements of today inherit many of their ideas from bicycle advertisements of the 'eighties and 'nineties.

II. Organizations. The rise of the League of American Wheelmen, which is usually called the L.A.W., was one of the most important events in the development of the significance of the bicycle. This great brotherhood of wheelmen organized all devotees of the sport into a federated union. It advocated plans for road improvement, better hotel service
for tourists, control of racing, and carried on an extensive propaganda campaign to get the bicycle legally recognized as a vehicle. This League has become the model for numerous national organizations, among them the Automobile Club of America which started in 1899.

Local clubs were also started with the express purpose of having a good time. They provided recreation for their members in the club rooms, and healthy exercise on the road runs. Tours were carried out by club members through scenic parts of America and Europe. Professional tours, by expert riders, were organized by manufacturers or periodicals desiring publicity. Many of these were round-the-world tours, and did much to spread the gospel of bicycling.

III. Social and Economic Influence. The bicycle industry was one of the first to advocate installment plan buying. In light of the tremendous development of this plan, the bicycle earned a rung on the ladder of fame by this connection alone. The cycle was bought and used by every class in society from the working man to the aristocrat. It was used by teachers, business men and women, artisans, delivery boys, and professional racers as transportation or a means of livelihood. It was used by people in all walks of life as a rational and healthy means of exercise.

The greatest influence of the bicycle came after the introduction of the "safety" in the late 'eighties. From 1890
to 1897 there was a veritable "bicycling craze," and it is during this period that this vehicle made its most important contributions to our heritage. The bicycle era extended from the development of the high bicycle in the late 'seventies, reached its climax in 1896, and was strongly in decline by 1900. During this twenty-year period the bicycle was the most economical means of transportation and it was the only means of individual, mechanical transportation available.

One of the greatest factors in the bicycle's claim to fame was its influence on the American women during the late 'eighties and throughout the decade of the 'nineties. It brought about a remarkable reform in women's clothing which had long been needed. Necessity forced women to abandon the traditional tight skirt in favor of one that would give greater freedom in riding the bicycle. The bicycle was a helping hand towards the emancipation of women from the inferior place they had held in the economic and political life of the country. Women were on a par with men on the two wheels of a bicycle; they soon began to demand equality in other ways. The women's rights movement seized upon the bicycle as an aid to women's emancipation from the drudgery of home life. Women began to feel that they had a right to go out as well as the men, with the result that husbands were left to mind the children while the lady of the house
went on a bicycle run with her local club. This is truly a significant movement in which the bicycle played the leading role.

Women and men rediscovered nature and the benefits of fresh air and sunshine on their wheels. Bicycle riding took them out of the stuffy, poorly ventilated Victorian homes into the clear air of the countryside. The movement toward a greater appreciation of the benefits of exercise and fresh air for both sexes received a stimulus in this bicycle era that is reflected in the sports and outings of the American people today.

In the economic field the bicycle's significant contribution was in the field of good-roads improvement. The bicycle riders all over the country sent up a cry for better road systems. By 1895 their cries were being heeded in many states and the basis for our modern road system had been laid. This is before the time of the automobile, so one is forced to admit that here is one field in which the bicycle has a clear title to its well-deserved praise as the motivating force behind the demands for better road systems.

IV. The Gasoline Age. The bicycle was the direct predecessor of the automobile and really made the early development of the automobile possible. It had created the need for better roads, and it had created a public demand for a horseless vehicle. Experiments in steel tubing, spokes, rims,
and rubber tires for bicycles were directly applied to the new automobile industry. The type of advertising, exhibitions and shows, and club organizations, used in the bicycle era were taken over by the automobile enthusiasts and used to advantage. The demand for bicycles fell off rapidly with the coming of the gasoline motor, but its work was done. It had aroused the interest of the public in the great outdoors and good roads upon which they could ride to health. The automobile capitalized on the work of its predecessor and took its place.

The bicycle was used by rich and poor, male and female, for pleasure, business, and health. It was found in every small village as well as in all the large cities. It was the favorite means of transportation for many people during the 'nineties. It was intimately connected with a movement for better health by means of a rational exercise carried on in the fresh air. It gave a great impetus to reform in women's clothing and to the emancipation of women from age-old traditions. It was a definite part of the economic picture of its era with an effort created on its behalf for better roads. It prepared the way for the modern automobile era. Such a record is not to be ignored. The bicycle was an integral part of the social and economic life of its era; with this in mind I consider it a subject well worth my close attention and study.
"Possibly in the next century...the historian may indicate by the term, the bicycle era, the times we are now living in, as we, in our retrospect, speak of the stone age, or of the era of steam." So an enthusiast wrote in Harpers in 1881; and, while I am not presuming to go so far as to call the last quarter of the nineteenth century the bicycle era, I do insist that it played a very important role in the lives of the American people.

In the eighteenth century there were unfounded rumors of men in France and Germany who were using some type of man-propelled, wheeled contraption to ride upon. However I have been unable to verify any of these vague references, so I shall begin my story in 1815. In that year the Duke of Baden, Germany, employed Carl von Drais as master of his forests. The young man's duties consisted of watching over the game and the timber in the Duke's domain; in order to do this he had to make rounds through the woods every day. He conceived of the idea of having some type of wheeled vehicle to enable him to do his work more easily and quickly. He made a two-wheeled vehicle of wood which he called the draisine. It was designed to promote speed in walking; he evidently had no conception of the machine's being constructed so as to keep one's feet off the ground. His
draisine had two wooden wheels of equal size attached to a wooden frame. The rider bestrode a leather "saddle" hung between the front and back forks, and steered by means of a tiller attached to the front wheel. In order to use it one pushed it in front of him for a way and then hopped on and coasted. Or it could be used, as a child's kiddy-car is today, by extending the legs on either side of it and walking; when enough speed was obtained the vehicle coasted for a short time. Carl von Drais used it during his employ by the Duke and while he had trouble with it in low spots, he reported that it was very handy in hilly country.

The news of this invention spread into France and here it was called the celefire or the celeripede. It was exhibited in a Paris exhibition of 1818 and created quite an impression. In 1819 it was brought to the United States where it received the name of the French dandy-horse. It was used in Boston, Philadelphia, and New York. In New York the adventurous young men rode in the Bowery, coasting from Chatham Square to City Hall Park. The draisine was used by a few young men in America and Europe for a few years, but it soon lost its appeal and dropped from use.

From this time to the end of our Civil War nothing was accomplished towards the progress of the two-wheeled vehicle in the United States. However progress was not stopped in Europe and from time to time we find accounts of new inventions
there. In 1840 a Scot, McMillan, invented a crude driving gear that was to be operated by treadles. In 1845 this was improved on by Dalzell, another Scot. They both used a drive shaft instead of the chain that is used today. Not much attention was paid them and they were soon forgotten. In 1855 a Frenchman, Michaux, invented a crank and pedal to drive a draisine, but he seems never to have gone beyond the initial stage of making one machine. This same Michaux later built a large machine shop in partnership with a certain Jacques Cie, but did nothing further on the draisine until 1863 when Pierre Lallement appears on the scene.

THE VELOCIPEDÉ

Pierre Lallement conceived of the idea of a bicycle while working in Paris in 1862. He was a skilled mechanic in the employ of the firm of Michaux and Cie. He made the plans for his machine and then had to save his earnings until he had enough to buy the necessary parts. His idea was to utilize the ideas of Michaux and von Drais in addition to some ideas of his own concerning the use of iron instead of wood. He first rode his velocipede, as he called it, July, 1863, in Paris. His employers became very interested in his machine and took out a patent on it. It was exhibited in the Paris Exposition of 1865 where it was viewed with interest by the elite of France's capital. Lallement moved to
the United States in 1865 where he thought he could carry on his plans more successfully. He opened a small machine shop in New Haven, Connecticut, where he continued his experiments with his velocipede. In 1866 he demonstrated his machine to an incredulous public. He was put in jail several times for scaring farmers and their horses. He persuaded a Mr. Carroll of New Haven to furnish the money for a patent, but the public was not enthusiastic over his machine. He soon became discouraged and returned to Paris. Here he found his velocipede enjoying great popularity and Michaux and Cie enjoying prosperity which he unfortunately could not share. These velocipedes a pedales were exhibited in the World's Fair of 1867. French society took up the elegant sport and the Prince Imperial often led short tours on the boulevards of Paris. By 1869 there was a veritable craze in the use of this velocipede which was cut short by the Franco-Prussian War of 1870. From France the interest shifts to England and America.

News of the social fad of the velocipede came to New York from Paris and a demand was created for the popular pastime of the elegant French socialites. Calvin Witty, a carriage maker in New York, bought out the Carroll-Lallement patent rights for twenty thousand francs and immediately began to make velocipedes at 638 Broadway. He was a shrewd business man and knew the value of advertising. He got the
famous acrobatic team of the Hanlon Brothers to use his machine in their acts in New York. They put special wheels on one and used it on a tight rope in several vaudeville appearances. They improved the machine and in 1869 started their own business, calling their product a bicycle.

Parisian fashions for men and women were exhibited on bicycles in the style centers and immediately there was a huge demand for the fashionable vehicles. During these years the *Scientific American* carried several accounts of the progress of the velocipede, often accompanied by illustrations. Accompanying a picture of Hanlon in the *Scientific American* for August 19, 1868, we find: "Within a few months the vehicle known as the velocipede has received an unusual degree of attention, especially in Paris, it having become a very fashionable and favorite means of locomotion. To be sure the rider works his passage but the labor is less than that of walking, the time required to traverse a certain distance is not so much, while the exercise of the muscles is healthful and invigorating." Later in the year we find the statement that the "velocipede seems destined to come into use in this country—though perhaps not soon to the extent that it has in France. It is so attractive and fascinating, developing so much strength and skill, and affording so great amusement to the rider, that its votaries and students will be numerous."² How well this prediction was
carried out we see in the same magazine in 1869: "The first serious attack of the velocipede epidemic set in during the closing weeks (of 1868). It raged with great violence during the spring; but the hot weather...threw cold water on this and by the middle of July a velocipede was rarely seen in our streets." In October it began to revive and "once more resumed its sway, though to what extent it may conquer is yet to be recorded in history." This revival was strong in the fall of 1869, and velocipedes were seen in droves on Riverside Drive where young men and women showed off the latest fashions in clothes and hats.

The American inventive genius was not quiet in this field either; improvements were constantly made on Lallement's original model. In 1868 a certain C. K. Bradford suggested the use of rubber tires on the velocipede but his ideas did not materialize. In July, 1869, A. Buell patented his Velocipede Spring; it consisted of four springs attached to the saddle and the frame "thus relieving the body of the rider from the effect of concussions." In December, 1869, E. A. Lewis of St. Charles, Missouri, invented a new type of pedal for the velocipede. It was built on a circle frame of iron and was supposed to give greater leverage. His saddle was very much like the present day one, but was supported by only one spring.

Despite the efforts toward improvement this "bicycle
"Out over the road while the sun is yet high..."

C. E. Pratt, "A Song Of The Wheel", Wheelman, October, Poston, Wheelman Co., 1883.
craze of 1869" soon died out. The machine was heavy and clumsy with its huge, iron-shod wheels, and its hard, uncomfortable seat. Another disadvantage was the fact that it wore out quickly because of poor bearings. It was derisively called a "bone-shaker" by all those who chose to ride a horse in preference to this latest fad. The demand fell off in 1870 as the fashion died out in Paris and in two years not a "bone-shaker" was to be seen in New York or Philadelphia.

HIGH BICYCLE ERA

Let us turn our attention to England now. There was no bicycle craze there as in France and America; instead there was a steady interest in perfecting a two-wheeled vehicle which could be used as a practical means of transportation. Through a slow evolution of successes and failures there evolved the high bicycle; it first was made in its complete form in England in 1876. This high bicycle, or "ordinary" as it later came to be called, was exhibited in the Centennial Exposition in Philadelphia in 1876. Alfred D. Chandler of Philadelphia had the honor of being the first man to ride an ordinary in America; he rode it in January, 1877. Colonel A. A. Pope was the first to start manufacturing this bicycle in 1877; during his first year he sold ninety-two of his Columbias. This early bicycle excited great interest and well it might, for it was a strange looking contraption. It
is said that the first time one was ridden through the streets of Boston people gathered in crowds to view it and comment on it; the consensus of opinion was that it was some type of land-measuring machine. It consisted of one large wheel in front made of either wood or steel with wire spokes running from the hub to the rim. The rim was very narrow and a solid rubber tire had taken the place of the old iron strip. The frame consisted of a curved iron bar running down to the small rear wheel which was made of the same material as the front one. It was steered by means of a straight rod passing perpendicularly through a goose neck which was connected to the front wheel. The rider was perched almost directly over the center of the large front wheel on what looked for all the world like a small postage stamp. The wheels varied in size from forty to sixty inches in diameter. There were no brakes on them and one put his feet on small perches on either side of the front wheel when going down a hill and prayed that no one got in his way. An experienced rider often learned how to back-pedal whereby he could control his speed as long as he could keep his feet on the pedals. From the very beginning this machine was limited to athletic, young men who were not afraid of taking a "header" from their precarious perch of five feet or more from the ground. Tricycles were now made along the same lines as the ordinary, having two wheels in the rear. The
high bicycle appealed to young men and in six years there were close to twenty thousand in use in America. During these early years England kept the lead in production, making over two hundred different types of the high bicycle. These English manufacturers also printed a large amount of literature in an attempt to educate the public to use their product.

In America we find an indication of the trend in the *Scientific American* of January 19, 1878: "The English still seem to be much interested in velocipedes, and the improvements in the construction are very numerous; the excitement quickly died out in this country, though it will probably, before long, be again brought over from England." All the scientific articles in this magazine in 1878 were taken from English magazines, but in 1879 the bicycle entered the lists of the *Scientific American's* illustrations. In 1878 the main center of interest in the bicycle was in England, but there was a distinct shift in 1879.

"The bicycle fervor which pervaded this country and Europe a few years ago has subsided into a solid interest in this means of locomotion, which is much more noticeable in England than in this country, although the bicycle is very popular here and is daily becoming more so...It is of great practical utility as well as a rational means of amusement. It is, in fact, an ever-saddled horse that eats nothing and requires no care."

In this same issue there was a story about the Pope Manufacturing Company of Boston, and the whole impression given is
that Boston was taking the lead in this new means of trans­portation with its Bicycle Club, races, and manufacturing companies. There was still a lot of doubt in the public's mind about the practicability of this bicycle since they re­membered the short-lived popularity of the velocipede in 1869, '70. Magazines now began to carry articles attempting to prove that this new vehicle was really worthwhile and useful; one writer, emphasizing the health angle, said he rode sixteen miles at a good clip and "no fatigue was felt after this run--the exercise manifested itself only in an amazing appetite." These articles plus the real pleasure received from riding this high bicycle increased the public interest not only in the high bicycle but in all types of self-propelled vehicles.

One of the most interesting developments was that of the tricycle, intended mainly for women as it was both Godly and safe. Children were also encouraged to use them as a safe means of exercise. There were many types of these tri­cycles: sociables, tandem tricycles, three-wheeled veloci­pedes, regular tricycles run by either treadle or pedal, and other types that are unclassifiable. Inventors were very busy during the 'eighties trying to bring out some new type of vehicle that would have added appeal. Tricycles had two small wheels in the front and a large one in the rear; or a large one in the front and two in the rear. Some had four
wheels arranged as on a carriage. Another type had a detachable tandem arrangement whereby an additional seat and wheel might be attached to the front or rear of the tricycle. Most of the tricycles were run by foot treadles that worked in an up and down motion; however some types had treadles to be operated by hand, such as the Challenge of 1878. The Humber of 1878 had its two large wheels in the front and one drove and steered by means of a bar connecting them. The Cripper of 1883 was just the reverse in that it had the large drive wheels in the rear operated by foot treadles. One man went so far as to have his machine run by foot and hand treadles; the rider must have looked like an automaton using legs and arms in unison. In 1884 the Rover Tricycle was introduced; this had large wheels in front and was steered by a small one in the rear.

The sociable was an interesting machine, mainly intended for wedding trips. It was a tricycle with a very wide swinging seat on which the bride and groom could sit side by side and pedal off to bliss. This sociable and the tandem tricycle were the direct forerunners of the tandem of the 'nineties. The tandem had appeared in 1869 with two saddles placed on a double velocipede. It was not a success though because the ladies did not trust them, and when they did attempt to ride with a gentleman friend they usually fell off. This idea was revived in the tandem tricycle and
came to full bloom in 1886 with the birth of the modern tandem. In that year several models were brought out; the most practical was that of W. E. Smith of Washington who made his with a very low bar for the lady in the front. These early machines were very clumsy and heavy and soon lost their popularity. This tandem bicycle was in vogue after 1894 when social clubs became so prominent and there was a great attempt to put men and women on a more understanding basis.

PROGRESS TOWARD THE "SAFETY"

Inventions were not limited to the field of three-wheeled vehicles; in fact most of the activity centered about improving the two-wheeled bicycle. By 1890 the bicycle had completely won the field and the tricycle disappeared from advertisements and articles in all the papers and magazines. The main fault found with the high ordinary was the danger of taking "headers." The rider was perched almost directly over the hub of the large wheel and whenever he hit a bad bump or obstruction in his path, he was certain to fly out into space, often with serious consequences. Furthermore the dangers of the "ordinary" restricted its use to the young men and the manufacturers were very desirous of increasing the market of their product to all ages and types of men and women. That there was confidence in the future of the bicycle is shown by a writer as early as 1881 who said
that "unquestionably it bids fair to become as important a factor for enlarging the scope of personal travel as the railroad had become for the rapid collective circulation." With such a spirit as this we find inventors branching out from the "ordinary." The first real departure was G. W. Pressey's American Star invented in 1880. It was designed to stop "headers" and Pressey claimed that one could ride over a six inch log and not be thrown. His bicycle had the small wheel in the front; the rider sat a little forward of the large wheel in the rear and steered by an extension running down to the front wheel. The bicycle was run by treadles that were attached to the rear wheel; these could be adjusted to any length leg. The ratio was stepped up between pedal and wheel and the going was further made easier on the rider by placing him directly over the treadles instead of slightly to the rear as on the "ordinary."

This American Star turned the emphasis toward a safer machine and during the next four years there were many attempts to improve the "ordinary." In August, 1883, Gerard, a mechanic in Quebec, brought out an "ordinary" operated by treadles. It is important to see that the rear wheel is growing much larger and the rider is no longer over the hub of the high wheel but is seated further to the rear. In November 1885 Starbuck of Wilmington, Ohio, invented an adjustable saddle which allowed the rider to place it in the
most advantageous position so as to avoid "headers." Another invention in the interest of safety was a bicycle stand brought out by John Morgan of Lynn, Massachusetts, in 1886. It was just like a pair of crutches, that telescoped when not in use, fastened to each side of the frame alongside the large wheel. This stand was intended primarily to hold the bicycle in place while the rider dismounted. The real progress toward a safer bicycle centered about a certain inventor, Stanley. In 1880 he brought out the first of his Rovers. This reduced the size of the front wheel and enlarged the back wheel; these wheels were far from equal in size but it was a definite turn towards a "safety type" bicycle. This machine was run by a chain on a sprocket attached to pedals and then attached to a gear on the rear wheel. This arrangement allowed gearing up and is very important in the evolution of the bicycle. During each succeeding year Starley brought out an improved model until 1884 when we can see the beginning of the "safety" era. His bicycle for that year had a forty-inch front wheel and a thirty-inch rear wheel; the chain and sprocket combination had also advanced to a fair degree of perfection. In 1885 the Rover came out with equal sized wheels and the "safety" was with us. In this connection it is interesting to note that the original types of bicycles were a safety type but this type was departed from in the 'seventies with the
"ordinary." A glance at Allen's *Digest of Cycles* shows that patents for safeties ran all through the time of the "ordinary," but it was only with the coming of the Rover in 1884 that interest was aroused in a chain-driven "safety."  

**THE "SAFETY"**

Progress was also going on in England; in 1885 a "safety" was invented. This safer type of bicycle indicated to some men that women could also take part in this sport. In 1886 two men working independently produced drop-frame "safeties": Dan Albone and Will Andrews. Albone's *Wiel* came out late in 1886 and was the first drop-frame "safety" made in the world. In the United States the "safety" was patented by E. G. Latta, March 29, 1887; his front wheel was still a little larger than the rear. By 1888 both wheels were of equal size and many other practical patents were listed, as those of Marlan, and W. E. Smith. Latta said his machine was "designed for ease in mounting and safety in dismounting by elderly riders and those who were too clumsy to climb over the rear wheel." A "safety" was described as consisting

"essentially of an iron frame to which are attached two wheels of equal or nearly equal and moderate size, about twenty-eight inches in diameter, and placed one behind the other. At the lower end of the frame is a sprocket-wheel which is driven round by two pedals fastened to cranks so disposed that one is at a distance of one hundred eighty degrees from the other—that is to say, when one is all the way down toward the ground, the other is on the top above the sprocket..."
wheel. From this sprocket-wheel an endless chain goes to a similar but smaller wheel placed at the hub of the posterior riding wheel. The proportion between these two sprocket-wheels varies considerably on different wheels, but is, on an average, such that for every revolution of the sprocket-wheel driven by the pedals, the hind wheel makes about two and one-half revolutions. The saddle is fastened to the frame so as to be situated over the front part of the hind wheel. Over the front wheel is a horizontal and curved handle-bar, by which is turned a perpendicular pivot ending in a fork attached to the centre of the front wheel. The front and rear wheels have thick rubber tires, which counteract the vibrations caused by the inequalities of the road,—so called 'cushion' or 'pneumatic' tires, the former of which has a smaller hollow core than the latter.\[10]

The first safety to appear in the *Scientific American* was in an article on Rudge's Bicyclette, an English machine of the drop-frame variety. The discussion accompanying it is interesting: "Of the various forms of outdoor exercise, it is now generally admitted that 'cycle riding is one of the most beneficial. . . .the mere act of riding in the fresh, open air, amid constant changes of scene and prospect, brings on a peculiar cheerfulness and exhilaration."\[11] The advantages listed for the "safety" were that it was safe, no danger from "headers," easy to mount and dismount, easier going up hills, and one could learn more quickly.

The younger set looked on this "safety" with perfect scorn and termed its riders "Goats." Nevertheless the "safety" quickly came into favor and by 1890 had clinched the arguments in its favor. Women naturally favored the "safety" because it put them on a par with men. The first lady to
ride the drop frame was Mrs. W. E. Smith of Washington, D.C., whose husband had organized a bicycle company in 1887. Mrs. Smith rode her husband's product, The Dart, down Pennsylvania Avenue in the spring of 1888 as an advertisement. She organized a bicycle club for ladies, the ice was broken, and soon the sport was flourishing at the nation's capital. Men soon saw its distinct advantages and the "ordinary" disappeared from the scene. In 1893 a bicycle insurance company was started and it conducted a survey to determine the chance of loss. It was found that there were over one million bicycles in use in the United States at that time.

Having achieved the essential frame and form of the safety efforts were directed toward improvements. By following the issues of the Scientific American through the decade of the 'nineties we can see the important steps in the development of the modern bicycle. Up to 1891 all the machines were made with their frames on curved tubes. In that year Thomas Humber introduced a straight-tubed frame and this was taken up by all the manufacturing companies. In the March 7, 1891, issue of the Scientific American there appeared a discussion of the New Mail Bicycle made by Read and Sons in Boston. Steel ball bearings were used and its brake was the predecessor of the modern automobile's: "a band of steel lined with leather, acting on a drum on the rear wheel axle, entirely away from the chain....It is especially of added
value this year when cushioned tires are to be used, as these are more delicate than solid tires..." June 27, 1891, F. Bigelow's invention of a differential gear was illustrated; it was a great aid in hill climbing. There were no fenders on these bicycles but otherwise they looked much like the average bicycle in use today. In June, 1893, J. Whipple of Chicago invented a bicycle stand for use on the safety. Of necessity this was attached to the frame because there were no fenders; it folded into a straight bar and when in use, was opened into a triangle. These same stands have come into use again, but now they are merely a straight side bar across from the sprocket. In the August 3, 1893, issue there appeared a geared bicycle run by a drive shaft that was invented by E. Taylor of Waterbury, Connecticut. This did away with the sprocket and chain, and it could be adjusted to four different gears. Improvements came in every year: weight was reduced, tires and rims were made better, pedals improved, and new types of brakes brought out.

The brake problem was very acute because the only way to stop these early safeties was by back-pedaling. The most common type was one worked by grips on the handle bars connected to a friction bar on the front wheel, but improvements came fast after 1894. The Scientific American of June 9, 1894, shows an automatic brake constructed to rub against the back tire as the rider started to back pedal. In 1897
there were four large articles on new types of brakes. The best one was invented by J. Bullard of Springfield, Massachusetts. There was no coasting provided for yet; back pedaling forced an outside brake shoe to push backwards on the rear wheel hub and thus a gradual braking action was obtained. This was regulated effectively by a set-screw on the rear hub. In 1898 the Columbia Bicycle was advertised as the best model in existence; it was a chainless bicycle. It was driven by a shaft having teeth on each end. One end was turned by the pedal sprocket, the other end fitted its teeth into a wheel in the rear hub and so turned the drive wheel. This model went back to the use of a brake on the front wheel. By 1899 a coaster brake was in use, allowing the rider to coast on his pedals and brake the rear wheel. The Morrow patent was the first good one, but it was soon surpassed by one put out by the New Departure Bell Company.

Bicycle articles reach a peak in the Scientific American during 1897 and 1898 and after that there is a distinct decline. The horseless vehicle is being discussed more and more. I will discuss exhibitions in another section but here it is interesting to note that in the discussion of the New York Bicycle Show of 1899 all the attention is centered on automobiles and not bicycles. Their tires, rims, and wheels were like those of the bicycle and the body like that of a carriage. A. A. Pope exhibited beside his Columbia
Bicycle his "Dos-A-Dos" automobile. In the Bicycle Show of 1900 there was a collection of bicycles illustrating progress from 1850 - 1900. The article that described it in the Scientific American gives the impression that the bicycle had progressed as far as possible and now the automobile was to take its place. And this is just what happened after 1900, but let us note the important role the bicycle played in the early automobile's development. The horseless vehicle derived its brake-drum idea from the bicycle, its tires, rims, and pneumatic tires, its light, steel frame, and its first type of tiller steering arrangement. If there is any one who doubts the importance of the bicycle in modern mechanical progress, let him view the facts dispassionately and he must see the great contribution this two-wheeled machine has made to our times.

One of the most important and far-reaching developments in the bicycle industry was that of the rubber tire. As early as 1845 a patent was issued to R. W. Thompson in England for a crude type of rubber carriage tire made in the form of a "hollow elastic belt, constructed of India rubber, the same to be inflated with air, thus forming a resilient cushion between the wheel and the ground." This made a very slight impression, and the solid rubber tire came into general use. The "ordinary" bicycle of the 'seventies and 'eighties had a thin, solid rubber tire. In 1884 McIntosh
introduced a cushion type of tire that was a solid tire with a sponge center. This was too hard to push to be very acceptable. In 1888 James B. Dunlap invented the first practical pneumatic tire for bicycles. He first tried the use of springs inside his tires but soon switched to air which gave a more even surface. His first tube was wrapped in linen but the germ of the idea was correct and he soon improved it. He kept the air in the tire by tying a knot in a small tube connected to the tire just as on the footballs then in use. He was laughed at, but soon manufacturers recognized the advantages of his idea, especially when a valve was put in place of the knot. Now, how was the tire to be attached to the rim? Charles Welsh, in 1890, added a casing of rubber and cotton fabric to the Dunlop tire; to the edge of this tire a wire was fastened having small rings attached to it. The steel rim intended for this tire had grooves in it into which the rings fitted. This arrangement was used in Europe but was not popular in America. The next type brought out was the "Clincher," developed by an American, W. Bartlett, living in England. The patent was bought by Jeffry and Gormully of Chicago who had Goodrich make a tire to fit it. The rim was made either in wood or steel, in single or double clinch types. The idea was to fit the tire into these clinches by means of a rubber ridge on it; when it was inflated, it held firmly. The third and most
important type of rim developed was the Crescent, intended for the "hose-pipe" tire. This "hose-pipe" idea was developed by P. W. Tillinghast of Providence, Rhode Island, in 1893. His idea was to have the tube and the outside casing of fabric and rubber all cured together "thereby eliminating tire trouble which was supposed to result from the chafing of the outer casing on the tube of the Jeffry (Clincher) type." This tire could be made very cheaply and so gained immediate recognition in the United States; it was first made by the Hartford Rubber Works in Connecticut. However it was hard to make repairs on this tire; the rubber was not strong and blow outs were frequent. At this time there were no quick-repair outfits or "never-leak" fluids; the tire soon lost favor as a result and went off the market for a number of years. It did make a comeback in the first decade of the twentieth century and today is the most widely used bicycle tire. In 1895 Morgan C. Wright invented a tire like the "hose-pipe" but it differed in that it had a slit about five inches long through which a butt-end tube was inserted. This slit laced up and could easily be unlaced for repairs. This became the most popular type during the 'nineties, only to lose favor when quick-repair kits and stronger fabric made the single-tube tire the most reasonable type to use. Repair shops opened all over the country in order to supply the great demand of the increasing
army of cyclers.

What a change this pneumatic tire made in cycling. As one rider said, "Nothing ever became so antique in so short a time as did the narrow, solid tire of the bicycle. Its aspect now is pitiable 'longside of the sleek, well-fed pneumatic." The bicycle now became more comfortable to ride, it ran more quietly, and not even the doctors could complain over concussions resulting from bicycle bumps. In the early 'nineties all the manufacturing companies made different sized tires and rims for their products. This made a great confusion in brands and types and made replacements a real problem. The Dunlop and Goodrich companies soon emerged as the largest tire producers and gradually they brought standardization in. By 1910 this movement was accomplished and standard sizes of twenty-six inches and twenty-eight inch tires were being made to fit any bicycle.

Tires and rims were very important in the early progress of the "horseless carriage." The "hose-pipe" was first used and then discarded. The Clincher type was found to be the best. Rims were built on the same order as bicycles in the early stages of the industry, but had to be made heavier and stronger as the car's weight increased. The first pneumatic tire ever made for an automobile was made in Cleveland in 1898 by the Winton Company.
MANUFACTURING

In this discussion so far nothing has been said of the role of the manufacturer in the progress of the bicycle and the methods he used to further the sale of his product. As in every tale of modern progress in the United States the manufacturer played a great part in creating wide public interest in the bicycle.

The first manufacturer of bicycles in the United States on a large scale, and the most important man in the whole field, was Colonel A. A. Pope. In 1877 the Pope Manufacturing Company ordered bicycles from England and sold ninety-two during the next year. Pope started a policy of purchasing all patents outright. He issued pamphlets each year to educate the public and this example was followed successfully by all companies who later came into the field. People had to be educated to the advantages of the bicycle and so did the courts. Pope carried cases into court in order to get the bicycle recognized as a legal vehicle; at one time he remarked that in order to get the courts to class the bicycle as a vehicle "we spent $3000 in the Central Park Case alone."15 With Pope laying the foundation, the center of bicycle manufacture in the United States was laid in the Connecticut Valley. The March 20, 1880, issue of the Scientific American carried a full page of pictures of the Weed Sewing Machine Company of Hartford. The Pope Company controlled
the patents on the bicycle and the Weed Company were sole manufacturers for them. The article states that the bicycle had not received great vogue here yet but indications show it is gaining popularity. Up to this time 1200 bicycles had been made and orders held on hand were for 2500 more. All through the 1880’s inventors attempted to change the style of the "ordinary" so other companies could manufacture without infringing on the Pope patents—the success of these we have noted above.

Pope had possession of the first "safety" patents and began manufacturing his "safety" Columbias late in 1886. The first ones weighed one hundred pounds. They had to be reduced in weight and made to run easier; in order to do this ball bearings were put in the wheels, the frames were made of drawn-steel tubing, wooden rims were used, and the spokes were made of fine-tension steel. The price was $150 and there was not much decline in this until the mid 'nineties. Many companies were now started all over the country, putting out products of varied design and quality. We have seen that W. E. Smith started a company in Washington in 1887 and put out the famous Dart for ladies. The Eclipse Bicycle Company was started in Elmira, New York. The Lovell Arms Company of Boston put out their Diamond brand. Read and Sons of Boston put out their New Mail Bicycle. The Overman Company of Chicopee Falls, Massachusetts, put out its Victor
brand; this company was one of the first to offer competition to the Pope Company. The Davis Sewing Machine Company of Dayton, Ohio, put out its Dayton brand. One of the most interesting manufacturers of bicycles in the early 'nineties were Wilbur and Orville Wright in a little shop in Dayton, Ohio. They built the Wright Special and the Van Cleve. Their total output was about one hundred machines a year and in between times they worked on plans for a flying machine. It is reasonably certain the first aeroplane wheels used were exactly like those of a bicycle. Here is just one other example of the vital connection between the bicycle and some of our modern industries. This mentions only a few of the manufacturing companies but it does show the extent to which bicycles were being built.

The demands of the bicycle trade soon made an interchangeable parts industry necessary. The bicycle affected the rubber and the steel industry to a great extent with its demand for tires and for steel tubing. Kaempffert points out that the bicycle taught Americans how to build light vehicles at a cheap price. Steel was developed and bearings were improved. When the demand for bicycles fell off about 1900, the bicycle manufacturers turned to making cars. "This helps to explain why the early automobiles...had so much in common with the bicycle. Their frames were of steel tubing; they had ball bearings; their wheels had wire spokes and
pneumatic tires, and the whole machine was extremely light."\(^{16}\) The growth of the bicycle industry was meteoric; one writer in 1893 said that "The bicycle is coming to be as indispensable as the carriage, simply because the art of bicycle manufacture has made it possible to obtain from the bicycle that which is impossible from the carriage."\(^{17}\) The economic effects of the growth of this industry are connected with the social results but here let us notice that great alarm was spread among carriage makers by the advent of the "safety" and many of them turned to bicycles. In fact during the 'nineties bicycles were made by sewing machine companies, arms manufacturers, machinists, and anyone else who owned a machine shop.

"The wheel took a holiday to join in the sport and recreation of man, but the yoke of business is upon it and it cannot escape the bondage. It took the race untold ages to capture the magic circle and harness it to human need, and it is too precious for man to give it a long tether."\(^{18}\)

That bicycle manufacture was profitable there seems no doubt. There were various figures issued as to the value of the product, and number of people employed. In July, 1896, the Scientific American issued a statement to the effect that there were four million riders in the United States and two hundred thousand in New York alone. There were two hundred fifty reputable manufacturers employing seventy thousand people, and having an investment of $60,000,000.

More accurate figures are gotten from the Thirteenth
Census of the United States. Before 1889 the bicycle did not receive a distinct classification in the census; it was listed under the carriage and wagon industry. These census figures set the hey-day of the bicycle from 1890 - 96, and show a decline setting in late in 1897.

<table>
<thead>
<tr>
<th>Year</th>
<th>Companies</th>
<th>Wage Earners Employed</th>
<th>Total Product</th>
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<tr>
<td>1889</td>
<td>27</td>
<td>1,797</td>
<td>$2,568,326</td>
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<tr>
<td>1899</td>
<td>312</td>
<td>19,768</td>
<td>31,915,908</td>
</tr>
<tr>
<td>1904</td>
<td>101</td>
<td>3,761</td>
<td>5,153,240</td>
</tr>
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In 1899 there were 1,112,880 bicycles built.

In 1904 there were 225,309 bicycles built.19

Other sources refute the charge that there was a decline by 1896 and put the date between 1898 - 1900. One writer in 1896 said:

"This year the United States is more bicycle mad than ever....The bicycle has been discerned to be the most marketable commodity of the hour, and every manufacturer whose plant was adaptable enough to include bicycle construction seems to have adjusted himself and his factory to the work of reaping the most inviting harvest that offers."

The Daily News Almanac for 1896 reported the price of most bicycles reduced from $125 to $100. This plus the added number of riders made such a huge demand that the stocks "especially of ladies' wheels gave out and purchasers were frequently obliged to wait for months before their orders were filled." The writer said, "The outlook for next season is equally bright, as there seems to be no diminution in the
interest taken in cycling either as a sport or form of healthful exercise.

There may have been a slight decline after the boom year of 1896, but it was certainly not of such a nature as to discourage manufacturers. The simplest explanation for any decline in 1896 or 1897 is the fact that the people who had bought bicycles were not trading them in after one year's use as they had before. There was not enough change in one year or even two to make a trade-in worth while. Outing for February, 1896, put out a supplementary edition, entitled Cycling Trade Notes, in which were listed makes, types, prices, specifications, and all other information pertaining to the field. Prices ranged from $85 to $100. Tandems were $150. Columbia and Victor were leading the field. Thirty-two companies were listed here and all of these had shown in the Bicycle Show the month before in New York.

In 1897 Columbia reduced all its prices to $75. The large companies were forced to reduce prices in order to compete with small establishments who often merely assembled parts and so could put out a cheaper product. After 1896 there is a distinct decline in bicycle demand and output. The literature of the time is filled with discussions of the new motorcycles and "horseless carriages," and the bicycle shows became automobile shows in fact and soon in name.
Before I leave the manufacturers we must observe the creation of the largest bicycle corporation in the world. This period was the hey-day of combinations in the form of trusts and later corporations, and it was natural for the bicycle manufacturers to form an organization also. January 10, 1894, the National Board of Trade of Cycle Manufacturers was organized at a meeting in New York. Four hundred representatives of the cycle industry were present and they elected A. A. Pope as chairman. It was decided in assembly to incorporate; this motion was carried out under the leadership of F. S. Stimson on June 8 in full accordance with New York laws. At this first meeting it was decided to organize an annual national bicycle show. This was referred to a committee and work was started in October on the project. This National Board was incorporated with a capital stock of $10,000; one thousand shares were sold at ten dollars per share. Local boards of trade were organized in most important cities in the country to cooperate with the central organization. A Mercantile Agency and Information Bureau was organized to help the members in buying. Accurate information was given on financial reports, good lawyers, state of world markets, and other business items in a pamphlet issued each month to all members.

This National Board performed its most important work in organizing the National Cycle Exhibitions held annually in
New York. It decided to control all national and local exhibits and manufacturing members of the Board would only exhibit at authorized shows. The bicycle had been exhibited in this country in the Exposition of 1876. It was in the Columbian Exposition of 1893 that the first large exhibits were made. Bicycles were exhibited in the Transportation Building and altogether there were forty-three exhibitors. They were arranged in the gallery around the main floor which was filled with carriages. This is very clearly shown in a picture taken inside the building.

"There were artistic and expensive pavilions, the most prominent being that of the Pope Manufacturing Company and the Overman Wheel Company, the lavish expenditure on which made them centers of attraction. The development of the bicycle has been so rapid that it requires a specialist to keep up with it in all its ramifications."21

The bicycle exhibits must have filled the second floor gallery. From pictures of different exhibits on the ground floor one can obtain glimpses of the gallery, and the bicycles can be seen there held up by wires or stands, often with natural scenery surrounding them.

The first National Cycle Show was held in New York, January 19-26, 1895, under the auspices of the National Board. The show was held in Madison Square Garden, it being the only place large enough for it. An article in the Scientific American contained an excellent description of the Show. It was just like the Auto Show of today; all types of
bicycles, tires, rims, pedals, handlebars, brakes, lanterns, and frames were shown.

"The great interest taken in cycling was shown by the very large attendance, and under the improved auspices of modern construction, the cycle is becoming more and more widely used. The industry has attained such dimensions that it has led to new processes, to the invention of special machinery, and many other trades are now tributary to it."22

In the February 9 issue of this same magazine, the front page contains large pictures of the Show. On one end of the large floor was a sign stating that this was the First National Bicycle Show under the auspices of the National Board of Trade. On one side was a stage upon which trick riders were performing. There was a space for people to test bicycles. I noticed one tandem exhibited with a seat in front of the handle bars for a child. There were one hundred sixty-three exhibitors in all at this first National Show. An interesting comment on the people attending is furnished by one writer who states:

"In one respect the bicycle show was peculiar; all classes seemed to be represented. At the horse show, for instance, at the dog show, the mechanic is never seen; at the bicycle show I noticed hundreds of men, evidently prosperous mechanics who had come to see more of a machine that offered them at once economy and recreation, a healthful exercise, and a saving of carfares in getting to and from their daily work."23

This same writer also points out that a great emphasis was being laid on lightness: "Speaking of lightness, aluminum seems likely to achieve wonders for the bicycle in the near future, provided its tendency to corrode under salt air and water can be corrected."
THE BICYCLE AND AUTOMOBILE SHOW—HALF A CENTURY IN THE DEVELOPMENT OF THE BICYCLE.

Scientific American, Feb. 10, N.Y., Munn and Co., 1900.
Another famous event in the bicycling world was held in Springfield, Massachusetts, every September. A tournament was held, called the American Cycling Derby, and grand prizes were given to the winners of all events.

The most exciting event in the 1896 Show was the exhibition of a Rambler Bicycle costing $1000. It was silver embossed, inlaid with amethysts and pearls, and some of the parts were made of gold. It attracted great attention in the show and in the newspapers of the day.

In 1897 the exhibition was held in the Grand Central Palace. Two concerts were given daily by a United States army band for the music lovers. In the official catalog all the space numbers were listed with the name of the company occupying each space. All the cycle clubs of New York exhibited the trophies and prizes won by their members; some of the contributors were the New York Athletic Club, Riverside Wheelmen, Harlem Wheelmen, Century Wheelmen, and the Greenwich Wheelmen.

In 1899 automobiles and motorcycles occupied as much space and received more attention than the bicycles. In 1900 the event had become the Bicycle and Auto Show, which was shortened to the Auto Show in a few years. At the risk of repetition, may I point out again that here is another clear proof of the effect of the bicycle on the progress of the modern automobile. Even the methods of advertising were the
same, for as early as 1895 the strength of the Victor Pneumatic tire was shown on a resilometer that tested the number of miles a tire could run and also the number of times a tire bounced when dropped from a certain height.

ADVERTISING

By following bicycle advertising from the late ’seventies to 1900, we can gain a clear picture of the types of bicycles being sold, the methods manufacturers used to sell their product, and the evolution in the form of the bicycle which we have noted above. Along with the technical knowledge we gain from a survey of advertising, we obtain an insight into the life of the times for advertisements are merely the reflection from the mirror of public interest. In this study I have followed the Scientific American through each issue from 1879 to 1902, and I have attempted to supplement this with additions from other sources in order to give a well-rounded result.

In 1879 Columbia is the only bicycle being advertised; the big heading during spring and summer is "Easy To Learn To Ride." "An ordinary rider can outstrip the best horse in a day’s run over common roads." By December 13, 1879, Pope is laying a new emphasis on cycling: "Columbia—indorsed by the medical profession as the most healthful of outdoor sports." From this day forward the public was subjected to various kinds of testimonials urging cycling as a cure-all
for every type of physical and mental ailment. In 1880, as a reflection of the rising interest in clubs and parades, Columbia's advertisements showed a bugler calling his company to the drill. The medical profession is quoted, and new elements are appearing. The bicycle has come into more general use—"thousands are in use." On November 27, 1880: "The bicycle has proved itself to be a permanent, practicable road vehicle, and the number in daily use is rapidly increasing. Professional and business men, seekers after health or pleasure, all join in bearing witness to its merits." May 28, 1881—Columbia's "graceful model and elegant appearance excite universal admiration...guaranteed as the best value for the money to be obtained in a bicycle." Here is the first sign that Pope is being given competition; true, it is not severe, but it indicates that the final appeal to the public is to convince them that this product is the best for the least amount of money. May 6, 1882—Columbia was "What every boy wants and what every man ought to have." And on September 16 of that year, if there were "Thousands in use by doctors, lawyers, ministers, editors, and merchants," why shouldn't you have one, too?

In 1883 the tricycle enters the list of advertisements in the Scientific American. July 14, Pope advertised bicycles and tricycles of his Columbia brand. September 1, Victor Tricycles were advertised. This is the first appearance of
any competition to the Columbia in these pages. It is a further indication of how well Pope controlled the early patents on the "ordinary."

During 1884, 1885 interest lagged; there are many issues with no advertisements at all. Normally, advertising was most pronounced for three months in the spring, three months in the fall, and during December. This fixes the times of greatest interest and sale, and also shows the bicycle to have been then, as now, a favorite Christmas present. March 21, 1885, Columbia was advertised as "the popular steed of today for ladies and gentlemen." The picture accompanying it showed two men on "ordinaries" and a lady on a tricycle. Evidently Pope saw that the female trade could be developed into a real business also.

Starting in 1886 we find a continuous flow of advertisements; as usual Columbia leads, but competition soon arises. April 17, 1886--Columbia, "Reductions in prices and many improvements for 1886." On May 7, 1887, a newcomer appears: "Before you buy a bicycle" see A. Gump's price list, Dayton, Ohio. "Repairing and Nickeling." And in an attempt to reassure the Columbia's public, Pope says in this same issue: "The test of the roads for ten years proves the Columbia superior to all others."

In contrast to modern advertising, the bicycle companies seemed to hesitate before concentrating all their advertising
energy on a new product in their field. March 17, 1888, the
Columbias shown are an "ordinary," a drop-frame safety, and
a tandem. March 28, 1890, the Columbia pictured is a
"safety," and yet on June 7 of that year the Pope Company's
advertisement was that of an "ordinary" selling at $90. So
we see the typical caution of a large manufacturing concern,
and we also see that the public had not completely accepted
the safety as late as 1890. This same phenomenon is seen
in the advertisements of the Overman Wheel Company's Victor
which reappeared in the Scientific American's lists in the
spring of 1888, after an absence of four years. June 2, 1888,
we find "Victors are the best Bicycles, Tricycles, and Safety
Bicycles in the World." Yet on January 4, 1890 the Victor
advertised is an "ordinary." However by the end of 1890 the
illustrations are all those of "safety" bicycles and the
complete change to this type has taken place. By 1890 the
Pope Company was prospering for the factories are now lo­
cated in New York and Chicago as well as the original Boston.

In 1892 some of the new "safeties" on the market were
the Sylph Bikes of Peoria, Illinois, the Diamond, and the
New Mail. Pneumatic tires were appearing in the magazines
by this time also. In Good Roads for April, 1892, the Pope
Company had a picture of a man riding past a little boy
leaning on a fence staring wistfully at him, and on the side­
walk a lady was looking back over her shoulder at him. The
caption read "Wherever he may appear, the Wheelman on a Columbia Bicycle is an object of admiration." May 21, 1892, in the Scientific American Pope uses all his pleas: "If men and women of all ages knew how easy it is to bicycle—how safe—healthful—joyful—economical—all the world would cycle. As cycling leads exercises of all out-doors, so the Columbia leads the cycles of the world." And on October 22: "The glorious days of open doors—all outside is smiling welcome—here's health and joy all unconfined—the cycler sees everything—he's where everything is—as free as freedom—from the heights of exhilarated happiness he cannot fall—from his Columbia Safety." May 27, 1893, Pope was appealing to the back-to-nature movement; his illustration was that of a young man and woman bicycling through a smiling countryside. "These are days of doubles—two's company—two Columbias are better than one. Let that lady of your's feel as sprightly as you do. Buy her a Columbia Bicycle." In this same number the Victor was advertised as having the best pneumatic (tire) with inner tubes removable through the rim.

Clothing companies realized the money to be made in the bicycle trade. June 9, 1894, the Union Bicycle Clothing Company urged "When on your Wheel wear...one of our Bloomer Bicycle $7.50 Suits;" in Harper's Weekly of June 9, 1894, there appeared eight bicycle advertisements all stressing
different advantages. Eat Bicycles; Stokes; Raleigh ("on which all World's Championships of '92 and '93 were won"); Demon Cycles ("best wheels in the market selling for $70"); Warwick ("The strongest, the lightest, the scorcher's delight, the ladies' favorite"); Columbia ("will wear longer and do better service than the traditional 'one-hoss shay'"); Trusty Ramblers ("every Rambler is guaranteed"); Victor Bicycles ("Victor Resilometer, the only tire-testing machine in existence has proved conclusively that the Victor Pneumatic tire is the most resilient of any..."). Why not ride the best?""). All of which sounds very convincing and very modern. Other types advertised in Harper's were Hartfords, Crescent, Oxford Boss, Lovell Diamond, and Imperial.

In 1896 there was a great emphasis on the social side of bicycling; everyone had to have one to "keep up with the Joneses." The Rambler was illustrated as the $100 Beauty that "moves in Good Society." Bicycle companies also carried out sensational experiments to prove their product more durable than all others. This device is one widely followed today in all types of products. Harper's Weekly of April 18, 1896, contains a large ad by the Eclipse Bicycle Company of Elmira, New York. The large heading was Eclipse Bicycles Stand the Test. Tom Winder rode 21,000 miles around the border of the United States. He started at New Orleans May 14, 1895, and finished there December 10, 1895—"without
a break in any part of the wheel." He wore out ten tires, three cyclometers, five pairs of shoes, two suits of clothing, eighteen pairs of socks; but he could not wear out the Eclipse.

One of the favorite means of advertising was to put out a pamphlet each year illustrating all the new models and their improvements. These were given out at the bicycle shows and by the local dealers. Here, too, the automobile industry followed the same methods and today they are still in use. In 1897 the Dayton was advertised in a very clever little book. The main emphasis was laid on the social utility of the bicycle, and the theme was developed in a pamphlet. The center of interest is a girl who laughed at all her friends using bicycles.

"She visits Saratoga first; ah, here she'll shine the highest star,
And what a jolly time she'll have; the gayest one she'll be by far;
She orders her Victoria, and goes out smiling for a ride,
But soon discovers that the world on bicycles is by her side."

She went to Boston, Newport, Lenox, and Florida, and at each place it was the same story: everyone rode a bicycle.

"Her year is ended, home she goes, and New York sees her once again;
But ah, the friends whom oft she scorned, she meets no more with proud disdain;
Victoria and phaeton and tandem-driving are no more important in my lady's mind; her horses rest as ne'er before.
But all her prejudices gone, her ignorance and fear retreat,
My lady rides a DAYTON wheel, and all the world is at her feet."

Even the mail order houses sold bicycles. In 1905 Sears, Roebuck issued a special bicycle catalog and also devoted six pages of its general catalog to the bicycle. The "star of the stable was 'The Celebrated Three-Crown Nickel Joint Napoleon Bicycle, the Highest of High Grade, Brought Right Up to Date for 1905. Price $13.85.'" Women were advised to buy "Napoleon's Mate, the 'Josephine'"—price $14.85.27

Let us return to the Scientific American and notice the closing stages of the bicycle era that is the subject of my work. July 21, 1900, Pope advertised the bicycle as an "important adjunct to summer travel. Take your wheel with you on your vacation. It will make you independent of slower and less convenient methods of getting about." But by now we find automobiles taking the place of bicycle ads. "For your wife's sake be in the social swim and get the best of modern conveyances, a Winton Motor Carriage." This appeared on August 11, 1900. The automobile has stolen the bicycle's social thunder and the reader can easily hear the end of the bicycle's reign in a wife's plea to her husband to turn in their tandem and get the newest thing on wheels—a horseless carriage. June 7, 1902, the Scientific American carried advertisements of ten automobiles and only three bicycles, two
of which were motorcycles. The Mead Cycle Company advertised bicycles below cost at from $8.75 to $11.75. The manufacturers were trying to reduce their stock before the falling market was gone completely.
2 Scientific American, December 16, 1868, p. 389.
3 Scientific American, October 30, 1869, p. 281.
4 Scientific American, July 17, 1869, p. 37.
8 See J. T. Allen Digest of Cycles or Velocipedes, Washington, United States Patent Office, 1892. He has a complete list of all patents taken out on cycles up to 1892 with drawings and specifications.
12 Best In The Long Run, Goodrich Rubber Company, 1918, p. 4.
13 Best In The Long Run, Goodrich Rubber Company, 1918, p. 8.
14 Outing, Vol. 24, April, 1894, p. 15, Monthly Record.
15 Depew, 100 Years of Commerce, p. 551.
16 Kaempffert, History of Invention, p. 142.
18 Scientific American, July 25, 1896, p. 69.

22 Scientific American, Vol. 72, February 2, 1895, p.66.


24 Official Catalog, 3rd National Cycle Exhibition, February 6-13, 1897.


ORGANIZATIONS

During the first wave of enthusiasm over the velocipede in 1869 the young people got together and rode in groups, but there was no definite organization to their enjoyment. This first movement was restricted to the socially elite and the velocipede was used more to show off stylish clothes than for any real sport. With the advent of the high bicycle, however, a different spirit seemed to pervade all the activities of the riders. High enthusiasm was shown for group outings and activities; bicycle parades, competitive club drills, hill climbing contests, and race meetings became the order of the day. The strains of "Boots and Saddles" on a bugle marked the mounting of the cyclists on their steeds, and a new era was upon us.

The period ushered in by the high "ordinary" is one of the most romantic in the whole bicycle era. The riders were restricted to the young men of the day, as I have pointed out before. These young men were the dare-devils of their day, wore the most dashing costumes, and caused all the ladies' hearts to flutter when they rode up on their sixty-inch high wheels, gave the bell a tinkle, and dismounted with a flourish. These young men were not of the richest families, but rather of the prosperous middle class which is usually called the backbone of any nation. They came to
be looked upon by boys and admiring lady friends as heroes and prophets of a new day—"that is, a class who, infused with the best spirit of the times can naturally be counted upon to make themselves felt as a power in the future, to be counted upon the side of the right in the work before us for the further development of the possibilities of life."\(^1\)

Conscious of the bond existing between all of them as ushers of a new era, it seemed only natural to have bicycle meets and to form clubs and organizations intended to further bicycling and also to provide recreation for the members.

**LEAGUE OF AMERICAN WHEELMEN**

The first real bicycle meet was that which took place September 11, 1879, in Boston. Forty men led by Charles E. Pratt joined together and made their famous "Wheel Around The Hub"—the hub of the universe being Boston, so considered by its inhabitants then as now. During the winter of 1879-'80 the New York Bicycle Club decided to hold another meet on May 31, 1880, in Newport. On May 30, 1880, one hundred and fifty cyclists were in Newport preparing for the meet of the next day. They decided to hold an assembly in a skating rink in Newport, and, spurred on by a few leaders, they organized the League of American Wheelmen. Charles E. Pratt was elected the first president of the League and he led the charter members in a parade through the streets of Newport.
immediately following the meeting. By 1881 the League had 1500 members and its influence was being felt in Canada and Mexico as well as the United States. The officers provided for were president, vice-president, commander, corresponding secretary, recording secretary, treasurer, and two directors for each state organization. These two directors set up a board of eight in each state to carry on all the business of that state, and this board in turn established local offices and representatives. The League was primarily intended for the benefit of amateur cyclists; the amateur status was granted to one who had "never competed in an open competition, or for a stake, or for public money, or for gate money, or under a false name, or with a professional for a prize...nor, has ever personally taught or pursued bicycling or other athletic exercises as a means of livelihood."2

Rules were established for the conduct of the organization. All the officers were to be elected anew each year. Once a year a general parade was to be enjoyed by all bicycle clubs and individual wheelmen, which was to be held on Decoration Day, May 30. A race meeting was to be held every fall. Only members could race, except in one event which was open to all. A cup was to be the prize in each event and was to become the possession of whomever won the event three times. It was provided that the first race meet be held
in New York in September 1881. As in all organizations, it was thought essential to have a written organ to represent the progress of the group. The *L.A.W. Bulletin* was begun and issued to the members once a week. In 1882 the first issue of the *Wheelman* was put out in October, and this was soon filled with articles by leading men in the L.A.W., as it was called, discussing the place of the bicycle in the progress of the times and the current efforts of the League in its many fields of work.

In order to become a member of this League, one had to pay $1.00 per year. In return for this dollar the member received the enjoyment of good fellowship plus several practical advantages: (1) He received the *L.A.W. Bulletin*. (2) His card entitled him to reduced rates in all hotels and inns recognized by the L.A.W. This was a very important work of the League. It inspected all the hotels and inns in which its members might stay while on tours. If they were found satisfactory, they were marked with an L.A.W. sign and were assured of patronage. In return, the innkeeper had to promise a certain reduced rate to all who stayed in his inn on their presentation of the L.A.W. membership card. (3) The members received a roadbook of their state which was a useful present indeed. These roadbooks contained maps of all the roads in the state with information on the best ones to use. Each one was begun with a poem about that particular
state, followed by an account of the history of the League there, and every attempt was made to make them attractive as well as useful. All the hotels recognized by the League were listed. Tours were mapped out for cyclists and an average day’s run was marked from one convenient hotel to another. (4) Members could buy the official uniform of the League at a reduced price. “That every rider who cycles, whatever his age, should wear a cycling costume appropriately cut needs no proof. The rider of a cycle who ventures out in an inappropriate costume is regarded as one who does not know the right thing to do when pursuing the sport, and proclaims himself as either an ignoramus or a novice.”

Each state had its own official color, but the type of suit was the same. All the clothing had to be of wool; even cotton labels were prohibited as they became cold when dampened with perspiration. A jacket or a sweater was used. Breeches were cut very close and reached just below the knee. Either long stockings or leather leggings covered the legs and held the breeches in place with an elastic garter. Shoes were low cut and had a furrow in the sole to enable the rider to grip the pedals more easily. This outfit was crowned by a small cap with a visor, much like the Eton caps used by small boys today. Another favorite hat in warm weather was a pith helmet. A rider often wore a shirt with collar and cuffs when going to visit his best girl. One
writer said celluloid should be used for the cuffs and collar of a shirt as "They will not wilt down with perspiration; they can be washed clean in a moment, and they last a long time." It must have been some sight to see two or three hundred cyclists come wheeling along in formation, each perched on the top of his high wheel, mustaches flying in the breeze and proudly wearing his uniform of bright green or blue or red.

(5) An L.A.W. member enjoyed the full privileges obtained for the bicycle in the eyes of the law. At the very first meeting of the League it was determined to work for the legal recognition of the bicycle and a committee was appointed to educate the public and the courts to the coming era of the bicycle and what it would mean to the progress of the country. The fight for legal rights was started in 1880 and continued for the next twenty years. The manufacturers helped in this battle for they knew that with legal recognition would come increased sales. The main objection to the bicycle arose from the fact that it was noiseless; several cases were brought up by people who were frightened at its noiseless approach from the rear, and they claimed their hearts were injured by the shock. The cyclists worked to have their vehicle put in the same class as horse-drawn carriages. Boston, Providence, Hartford, and Brooklyn early passed restrictions denying the cyclists rights to ride on
the main thoroughfares. The League worked against these restrictions and by 1886 public opinion had forced their repeal.

There was an interesting case in New York. Central Park refused permission to any and all bicycle riders to use its paths in 1880. Its reason was that the pedestrians were being pushed out of the way by hordes of thoughtless cyclists. What the wheelmen wanted were paths of their own in the park. A writer in 1881 suggested that since Central Park was kind enough to make special paths for pedestrians it might perhaps furnish "similar accommodations to the bicyclers" and this "would be only a continuance of the spirit of consideration for the public." The Commissioners of the park did not think it was necessary to make room for bicyclers and the case was brought to the courts in 1881. A. A. Pope was very active in pushing this and claimed he spent $8000 in an attempt to get the bicycle permission to be used. The case dragged from 1881-83, but was finally decided in favor of the bicycle's rights. It is said that the morning after the decision was made official, the park's paths were literally overrun by enthusiastic groups of singing cyclists.

Another interesting conflict was brought up in Ohio by a Mr. Green in the Ohio Legislature in 1882. He attempted to get the legislature to pass a bill prohibiting the use of Ohio highways to wheelmen. Immediately the Ohio branch
of the L.A.W. was up in arms. Speeches were made, a strong lobby was sent to Columbus, petitions were signed, and soon the national board of the L.A.W. took up the fight. This pressure of public opinion was too much for the legislature and the ill-conceived bill was thrown out. After this, the League became conscious of the political weight it carried in its ranks, and used this as an argument to persuade people to join the ranks of an organization that could really accomplish things for them.

In 1889 the Supreme Court of Indiana tried the case of a rider who hurt a pedestrian on the sidewalk. The court found him guilty, saying "If sidewalks are exclusively for the use of footmen, then bicycles, if they are vehicles, must not be ridden along them...we think a bicycle must be regarded as a vehicle within the meaning of the law." Although the rider lost the decision, it really was a victory for the wheelmen. As the bicycle came into wider use, state after state recognized it as a legal vehicle and passed laws giving it full rights on the roads. In 1895 a writer pointed out that the bicycle was no longer a toy but was a very important cog in our transportation system. "The bicyclist is a new element, which has created a new condition of things which must be recognized and provided for, and is destined sooner or later to have its interest conserved." In this same year, 1895, a number of books and
pamphlets came out that showed the legal progress of the bicycle and made it evident that the bicycle had at last gained its goal: recognition by the law of its equal right with other vehicles to share the highways of the country. With this recognition came the Law of the Road intended for all bicycle riders. The rules were very similar to those in effect for automobiles today. Riders had to keep to the right, pass on the left, use arm signals when turning, and travel at a moderate pace.

One other striking advantage enjoyed by all members who paid their dollar was the right to ride on good public roads made possible by their fee and the untiring efforts of the L.A.W. Of all the work carried on by the League, its attempt to bring about a better road system, through educating the public to the real need, was by far the most important. We shall study the good roads movement in detail later, but here, in order to round out the picture of the League’s activities, I should like to briefly sketch some of its work in this field. At the first meeting of the League it was suggested that all members be instructed to work hard for better roads in the United States. Various committees were organized to carry on this work, the most important of these was the National Committee on the Improvement of Highways appointed in 1889. A pamphlet "The Gospel of Good Roads" was issued and 20,000 copies distributed.
Under the leadership of Isaac B. Potter of New York, the matter of good roads was kept constantly in the public eye. The fight was carried on in the Bicycling World, Good Roads, L.A.W. Bulletin, Wheelman, and various other books, magazines and pamphlets. In 1891 the Carriage Builders' National Association held a meeting in which the chairman of the Highway Improvement Committee said:

"Perhaps the most effective, certainly the most systematic work done so far has been that of the L.A.W., consisting now of nearly 20,000 active, young and middle-aged men, well organized in a national body with its state divisions...and it is to no small extent due to them that within the year past this matter of roads has received the unqualified public indorsement of very many of the most prominent men in the country, that it has had the attention of ten or twelve of our State Governors in their annual messages, and that in nearly as many states new bills have been presented intended to provide practical forms and remedies."

That the movement was gaining real power by 1891 can be easily seen. The League continued to exert all its energies in this field; through the 'nineties they bore fruit in the many hard-surfaced roads constructed. With the coming of the automobile, the League joined in a concerted effort with the advocates of this new vehicle. Our modern roads bear witness to the success of this movement which originated in the first L.A.W. meeting in 1880.

With so many promises contained in an honest program, the League grew fast. In 1881 there were one hundred clubs organized under the L.A.W. In 1884 a bicycle club was organized in New York, under the guidance of the L.A.W., to
teach Wall Street bankers to ride. Thirty uniformed masters were in attendance at all times. In 1887 a fair estimate of the number of cyclists in the country was 100,000.

"From the Kennebec River to the Sacramento, from Buffalo to Crescent City, the thread-like tracks of their bicycles are plainly visible. Every town of importance now has its amateur club...; and every year is signalized with meets and tournaments, exhibitions and tours, of throngs of enthusiastic votaries of the wheel. Over all the local clubs presides a great association entitled the L.A.W., having an active membership of 10,000. An organization which now has come into prominence is the Cyclists' Touring Club....This club has a united membership of 30,000 (in England and the United States), and is the largest athletic institution in the world."10

Membership increased at this fast pace until the panic of 1893 when there was a definite falling-off of membership applications. But by 1896 the membership had passed its mark of 1892 and was off to a new record. As late as 1904, which is after the period covered by this work, the L.A.W. was still going strong. In that year it organized a huge national mass meeting of cyclists in Boston. It was estimated that 5,000 of them heard General Nelson A. Miles give a talk and then paraded through the streets of Boston.

THE CLUB MOVEMENT

That the League of American Wheelmen did a remarkably good job of popularizing the bicycle movement is shown by the rapid growth of local clubs which were usually modeled after the large national organization. True, local clubs were started before the League, but by 1884 nearly every club
in the country was associated with its state board of the L.A.W. and so was a part of the whole large fraternity. The first club to be organized in America was the Boston Bicycle Club. This organization was started February 11, 1878, by fourteen men whose stated purpose was to enjoy good fellowship on wheels and to promote the use of the bicycle as a practical vehicle. The official uniform was a

"Gray jacket of shortreefer pattern..., shirt of gray flannel..., with two or more breast pockets, to be worn with a black necktie; breeches of Bedford cord to button around the leg just below the knee; stockings of dark blue wool; yellow gaiters; blue Glengarry Scotch cap with small visor in front, and the club monogram in silver in the centre of the ribbon on the left hand side."

In 1881 the first club was started in New York under the name of the Harlem Wheelmen. Their uniform was dark green with a black trim, and black shoes and stockings were worn. By 1884 this club movement had progressed to a remarkable degree. Every town was clamoring for a local club of wheelmen and the L.A.W. was busy organizing them all under its protective wing. On just one day, July 4, 1884, there was a meet on Boston Common attended by thousands of spectators; a parade of seventy cyclists was held in Portsmouth, New Hampshire; the first run of the Kishwaukee Bicycle Club of Syracuse, Illinois, was held; races for the Georgia championship took place at Columbus; and medal runs were going on in Salt Lake City. The bicycle was no longer restricted to the
The League meet at Chicago, Wheelmen Cc., November, 1882.

COUNTERMARCHING ON PARADE.
eastern seaboard, and its activities were involving all types of social and physical activity.

The club "run" was a very popular part of the club program. At least once a week all the members got together and went out for a spin. On the road strict discipline was kept; the riders kept their steeds in strict military order, and mounted and dismounted to the club bugle. Before starting the run, a general "oiling-up" was carried on. And on the return from a run, the bicycles had to be carefully cleaned and put in their places in the club room. Century runs, one hundred mile runs, were very popular in all these clubs; on these long treks the discipline was relaxed and riders went along in single file or in pairs. There was a very active social program carried on in these early clubs, too, centering about the lavishly-decorated club room. In New York some of the rooms were decorated in the current Victorian style with its huge mirrors, stiff-looking furniture, gilt-edged pictures on the wall, and bric-a-brac in every conceivable place. These rooms were the scenes of stags after the runs, teas on Sunday afternoon, and often dinners and dances were held for the members and their friends. Inter-club rivalry was developed and carried on by means of competitive drills, races, meets, and tournaments. For these meets every member dressed in his uniform and a prize was usually given for the best-looking as well as for the best-
performing club. After the meet the rival club was invited into the club room and a pleasant social affair was enjoyed by all.

In this first period women were excluded from participation in the club life because they could not ride the high wheel. With the coming of the safety, however, their interest was aroused in the club life also. We have seen that Mrs. W. E. Smith of Washington was the first woman to ride in that city. She started a woman's club there in 1888. Members were slow in coming, but by 1892 her club was flourishing and others had started in neighboring cities. Society women in New York were slow to accept the wheel; it was 1894 before the first socially acceptable lady rode in New York, and that was on her physician's advice. Again, as in 1869, it was Paris that gave the bicycle its popularity; it was ridden by all the high society ladies in France's capital during the 'nineties. News of this came to New York, Boston, and Newport and soon our social leaders were copying the latest fashion.

In 1894 many of the old clubs changed their constitutions to allow women full membership privileges. In the summer of 1894 the Michaux Club was started in Newport, Rhode Island, and immediately limited its membership to society's "400" and their families. During that summer the Jays, Beechmans, Rockefellers, Drexels, Duers, Goulds, and many other prominent
families joined. During the winter activity lessened, but was soon renewed in the summer of 1895. Schools to instruct in the use of the cycle were started in Newport, Bar Harbor, and Southampton. With the advent of winter came a demand for indoor riding. The Michaux Club bought an armory in New York and fixed it up with club rooms, dressing rooms, and a huge arena for riding. Several meetings were held each week. "At these meetings a band played, tea and refreshments were served, and society gathered in full force to ride or watch its friends ride--sometimes in graceful cotillon figures, and, shall it be said, to also see, with pleasurable excitement, some of the more inexperienced riders tumble with a crash, but fortunately with no serious results."12 One reason riding was so popular was that it served to neutralize the excessive eating of the gourmets of society. Young society belles loved to do the Virginia Reel on their cycles while their mothers looked on with a proud smile.

In the spring road runs were carried out. Rides were taken to Claremont, the country club in Westchester, and often a hundred cyclists would run down to Coney Island for the day. In 1897 the New York Athletic Club had the largest membership in the city, a total of 4,000 members. Their club was the Mercury-foot Wheeling Club; and while it was not as highly rated in the social columns as the Michaux, it did have some prominent names connected with it. They
enjoyed two club houses also—one in New York and one on Long Island—between which tours and social events were arranged.

The year 1897 marked the height of the bicycle-club movement. The automobile slowly captured the interest of society in 1898, 1899. By 1900 runs were being taken in the new horseless-carriages, and this vehicle had replaced the bicycle as a favorite topic of conversation. The bicycle club flourished in colleges long after it went out of favor in society. The reason for this was that college administrators much preferred to have the students on bicycles than on the dangerous automobiles and so encouraged bicycle club formation. Wellesley had a well organized bicycle club in 1898 that continued for many years. It gave very keen competition to the rowing club which was the most popular in the school.

RACING

A very important work carried on by the L.A.W. was the regulation of the bicycle racing and racers in this country. In its original constitution we found an interest exhibited in amateur racers and their status, and this interest was maintained throughout the League's existence. Early in 1881 a Racing Board was set up by the L.A.W. which controlled the racing meets held every fall. It did everything possible to
encourage clean sportsmanship and to weed out the profession- 
als from the amateur ranks. In the middle 'eighties a 
special class was established for professional racers as 
distinguished from those who had never raced for a purse. 
Manufacturers encouraged racing by putting up prizes and 
cups for winning various events. Often the winner of a race 
was hired by a company to race their bicycle in professional 
competition. High wages were paid to exceptionally fast men, 
and many willingly gave up their amateur standing to earn a 
professional salary. The Wheelman for November 1883 con- 
tained a picture of the prize the Pope Manufacturing Company 
was offering to the outstanding amateur bicycler in the 
country. He had to do twenty miles in less than one hour 
or win the twenty-mile race held by the L.A.W. three times. 
The prize was in the shape of a horn with two dragon's feet 
on the bottom. A bicycle race was carved around the top, 
and the whole was surmounted by a wheel with wings on either 
side.

The first mile race held on a high bicycle in this coun-
try took place in 1878. It was won by W. R. Pitman of New 
York in the time of three minutes and fifty-seven seconds. 
As the League took over racing, it divided the whole field 
into amateurs and professionals. In each of these classes 
the events consisted of various distances up to one hundred 
miles from a standing or a flying start, paced or unpaced,
on a bicycle, tandem, triplet, quadruplet, and quintuplet—these latter three came into vogue in the middle 'nineties and were carried on more for the amusement of the spectators than anything else. By 1887 the racing records had come down by reason of improved equipment:

1 mile -- 2 minutes, 29 4/5 seconds

50 miles -- 2 hours, 33 minutes, 54 seconds
by Frank Ives, Connecticut

100 miles -- 6 hours, 1 minute, 15 seconds
by S.G. Whittaker, New York

In 1892 Howard Raymond became president of the Racing Board and started a firm policy of separation of the amateurs from the "makers' amateurs" who were secretly paid to ride by manufacturers. This type of racer soon had to be recognized however, and the L.A.W. created a Class B that was to include all "makers' amateurs." There was a lot of criticism directed against the League for this action; it was said they were truckling to manufacturers and giving up their honest stand for clean sports. The manufacturers, then as now, attempted to run all sports to suit them and their trade, and the public justly resented it. By 1896 the manufacturers were tired of the expense of supporting so many riders, the public's cry against them was louder than ever so the League yielded and ruled out the Class B. New laws were passed to keep amateurs within one hundred miles of their home except in national championships or college
races. It was at this time that the professionals organized their own races; soon the Six-Day Race held in New York each year became the outstanding professional event in the country. The safety bicycle made a great improvement in racing times: in 1895 E. C. Bald won the competitive mile in 1 minute, 55 1/5 seconds. And the paced mile was won by E. F. Leonert in 1 minute, 35 seconds.

In 1896 the first intercollegiate bicycle race was held on Manhattan Beach, May 27. The event was held on a cement track with banked corners. May 27 proved to be too cold for the riders, so in 1897 the event was moved up to June 5. Columbia won in 1896 and 1897, beating Yale, Harvard, University of Pennsylvania, Princeton, Swarthmore, Cornell, and Illinois.

At the end of the era we are studying the League was still in command of the amateur racing in this country. Despite frequent attacks on its policies, it did a good job of supervision. The final word on an amateur's status was determined in the L.A.W. Assembly held each year, and no amateur was qualified until he had passed under the observation of this critical group.

MILITARY USE

By 1890 the bicycle had become such an important part of modern transportation that experiments were started with the aim of adopting it for the use of the army. By 1889
bicycles were being used in the French and German armies for dispatch riders. In that same year England tried out a multi-cycle ammunition carrier which was an ammunition caisson with a long wagon tongue attached. Bicycles were attached to each side of the tongue, and ten or twelve riders pulled the load. Little success was had with this, and the idea was soon given up. England also equipped a company with safety bicycles to fight enemy cavalry. The soldier's plan of attack was to get down on the ground, turn his bicycle upside down, get down behind it and set "his wheels to spinning round with a touch of his finger. Such a fence...forms an obstacle which few horses, if any, would face; and the men inside, in perfect security, can pick off the advancing horsemen."14

In the United States the bicycle was first adopted by the National Guard of Connecticut in 1891. In 1892 experiments were carried on in the regular army by General Miles. On May 18, 1892, he sent a message by L.A.W. cyclers from Chicago to New York; this distance of 975 miles was covered in four days and thirteen hours through severe rains. Encouraged by this, Miles had a company of his men fully equipped with bicycles in 1893. In the Scientific American he reported a march made by this company on bicycles from Pullman to Chicago, a distance of fifteen miles. The company made it in the marching time of one hour and twenty-five
minutes, and the usual time required was five hours. Miles asked the commanding officer how the men stood the trip and he was told they were "very little fatigued, and would have turned around and gone back over the ground again with pleasure." In 1895 New York’s Seventh Regiment organized a bicycle corps which held its first drill on March 13. An armory was used for training grounds, and the men wheeled about in formation to the commands of the officer in charge.

1896 saw the organization of the United States Military Wheelmen as an addition to the National Guard. Colonel Rice was elected the first president and immediately started an active program of training men to use the wheel in war. In cooperation with the army’s efforts, A. A. Pope made a special bicycle for the army in 1896. One type had a Colt’s machine gun attached to the handle bars. Another type was a tandem which had two rifles, two colt revolvers, two blankets, two coats, and a set of signal flags as a regular part of its equipment.

There was great excitement about the use of bicycles in the Spanish-American War, but the character of the land in Cuba prevented their use and they were somewhat discredited. A folding bicycle was patented in 1900 by Durseley and Pedersen. The frame was collapsible and was fitted with straps to fasten it to a soldier’s back. The trouble with these bicycles was that they usually collapsed at the wrong time.
The United States Army soon tired of the bicycle and gave it up as an adjunct to war by 1905. However in France, Germany and Italy bicycles were used in the first year of the World War, and England had an army of 2000 bicyclists organized as a mobile unit to defend London in case of attack.

TOURING

There is one more phase of organized bicycling that must be considered before we leave this topic and that is touring. Organized tours were carried on by a group, or by a single individual representing a group or concern. We have seen that the social clubs organized century runs, day trips to Coney Island and Long Island, and short runs between club houses; this activity was one of the important functions of the clubs and afforded a great deal of pleasure to the members. The favorite time of the year for tours was the spring and fall, with June and October leading in popularity. The New England states were the favorite places for long group tours, and clubs could obtain a complete itinerary from the road books issued by the L.A.W. Outing also issued maps and complete information on routes, hotels, and roads to all its subscribers. Thus a group could start out and not have to worry about food or shelter since they would stop at an approved L.A.W. hotel each night. This type of service was also extended to the continent and numerous
accounts were given of club tours through all of Europe in which the participants followed a route all planned in advance and stayed at approved hotels. This whole plan was the direct forerunner of the Youth Hostel movement which today conducts bicycle tours through the United States and Europe at very reasonable rates for students and organized club members.

The most romantic episodes in the organized tours were those carried out by individual tourists who went on their tours in the interest of some advertising scheme, or in the pay of a magazine striving to increase its circulation. One of the first of these touring riders was Karl Kron who rode all around the United States on his high wheel. He kept a journal of his experiences as he rode, and in 1887 had it published under the title of Ten Thousand Miles on a Bicycle. He was evidently a much better rider than writer, for his book was dull and not received very well. He soon dropped out of the bicycle scene to be replaced by more glamorous figures.

In 1883 a young Californian, Tom Stevens, decided that he would tour the world on a bicycle; he had heard stories of the wonders of Europe and Asia, and concluded that the ideal way to view them would be from the seat of a high bicycle. Although he had never ridden a bicycle, he soon mastered the art and set out. He left San Francisco in April,
1883, and rode to Boston which he reached in August. Here his funds ran out; he looked about for a financial backer, and finally persuaded Colonel Pope to back him. He was to ride an Expert Columbia and receive financial aid; in return for this he was to advertise the Columbia to all the world. He was also hired by Outing as its special correspondent to send back a complete journal of his activities and the things he saw. He rode through Europe, then into Asia where he travelled through the Holy Land, Persia, India, China, and Japan. He sent back accounts of his travels and adventures, which were many and varied, and Outing increased its circulation to a large degree because of the number of people following his journal. He was called "The Knight of the Nineteenth Century," and a poem was written of his deeds:

"Sir Stevens of the Wheel!
Thy valorous deeds will wake the ancient lyre,
Ten thousand maiden hearts to love inspire,
Who, dreaming day and night,
Will see the silver light,
Streaming in danger lands behind thy tire.

God speed thee, noble knight!
I pray thy safe return from wild, weird lands;
From cold, grim mountains, and the desert sands.
Calm is the Golden Gate,
Where we thy entrance wait,
To deck thy steed and thee with metal bands."
--L. Shuey

He finally returned to San Francisco in January 1887, having covered 20,000 miles on his travels through three continents. He was given a great ovation and hailed as a hero by all the
loyal devotees of the wheel. His return was the signal for a great outpouring of literature on the role of the bicycle in modern American life. Stevens capitalized on his fame by lecturing and writing, and then in a few years retired to his quiet home.

Inspired by Stevens, several other daring riders made or attempted to make the trip around the world. In June, 1890, two young men, W. Sackteben of Alton, Illinois, and T. Allen of Ferguson, Missouri, started from St. Louis to follow Steven's path. They toured England, Europe, and Asia, returning to San Francisco on December 9, 1892. They were acclaimed on their arrival, but the novelty had worn off and they were soon forgotten.

Another admirer of Tom Stevens was Frank G. Lenz of New York. In 1892 he planned a tour of the world, having received the promises of Outing and the Overman Wheel Company to back him. In May he went to Massachusetts to supervise the making of his Victor wheel, and on July 4 he started out for San Francisco. He travelled through China, Burmah, India, Persia, and reached Turkey in June, 1894. While on his way to the Mediterranean Sea, he was murdered by Kurd bandits in a lonely section of Turkey sometime in July. Information that he was missing reached Outing in August and immediately all efforts were put forth to find his whereabouts. An Armenian detective was put on the case, and he discovered
the murderers by tracing down reports of certain villagers using parts of a bicycle in their homes. He caught one of the men when he noticed his saddle girth was made of a piece of bicycle tire; this man involved four others who were also brought to justice. Outing got Secretary Olney to investigate the affair; after much correspondence, the Turkish Government paid an indemnity to Lenz's mother.

This case was the leading topic in most conversations of the fall of 1894, and magazines and papers carrying accounts of it were eagerly bought. This was the last well-known tour of the world on a bicycle in this era. Companies were not willing to put up money for an advertising scheme which they thought the public had had enough of; and foreign countries were not willing to grant passports to such tourists because of all the trouble over the Lenz affair.

In all this organized bicycle activity we have seen that the League of American Wheelmen was not only the first and foremost national organization, but it was the guiding spirit of all the state and local organizations in their attempts to obtain legal recognition for the bicycle and increase the enjoyment of all the devotees of the sport. It encouraged and facilitated group activity with the wheel as the center of interest, performed a great service in educating the public to the necessity of good hard roads, and truly lived up to the pledge that it was organized "to
promote the general interests of bicycling, to ascertain, defend, and protect the rights of wheelmen, and to encourage and facilitate touring.


8. See G. B. Clementson, The Road Rights and Liabilities of Wheelmen, Chicago, Gallagher, 1895. "To the devotees of terrestrial flight in its most exhilarating form, this little book is dedicated." Cases and laws were discussed, and he points out that the bicycle has at last gained legal recognition.


SOCIAL AND ECONOMIC INFLUENCE

USES

An event or a factor in history which leaves a large imprint on the social scene must be widely accepted and used by the members of society living in its era. The bicycle was such a factor in the social scene of the late 'eighties and the decade of the 'nineties in the United States. As one writer said in 1895:

"Wherever one travels in the country...the omnipresent bicycle is found. On country roads, the woman school teacher is met riding home from the district school; in manufacturing places the artisan is seen...going on his wheel to and from work. In road houses and in some stores special provision is made for the care of bicycles. Men go to their business on them, and it is at last proved that a new mode of everyday, practical locomotion has been developed...The lowering of the price of bicycles and the possibility of procuring cheap ones second hand has imparted to the bicycle a most important element in making it the vehicle of the workman as well as the rich."

The "safety" was the important factor in bringing the bicycle into general use. Before 1890 the high bicycle and the tricycle were the only velocipedes available, and they were limited in their use to the adventuresome young men who dared to mount the sixty-inch high wheel, and to those few men and women who were content to amble slowly along working the various pedals and levers of the clumsy tricycle. But with the advent of the "safety" the practical applications of the bicycle were realized and soon put into use. Writers
in the periodicals of the day were quick to catch the socio-
cial significance of the bicycle and comment upon it. One
such commentator, in expressing his views, said that this
vehicle was the culmination of man's search for a thousand
years; at last he had found the means of self-propulsion.
"The winged sandals of Mercury are his henceforward. We have
become a race of Mercurys, in fact, and the joy which is felt
over the new power amounts to a passion." The human race
will never abandon this power which is "the most revolution-
ary social and economic force of recent times." He went on
to say that the bicycle's influence was steadily growing
and soon it would be put out in such quantities as to be
available to all classes. In fact, by 1896 the traffic
problem had become so acute in New York that there was "seri-
ous talk of an elevated roadway for bicycles." As a result
of the great changes it has wrought, we must "look upon the
bicycle as a permanent factor, and upon its sociological and
economic effects not as temporary disturbances but as the
manifestations of a new order of things."²

Bicycles were used in a variety of ways by all classes
of people. Doctors realized the possibilities of the new
vehicle and used them in the cities to visit their patients.
Clergymen soon overcame their first aversion to them and be-
gan to visit their parishioners on a wheel. Travelling
salesmen used them on demonstration tours for their wares.
The street-cleaning departments in several cities mounted their inspectors on bicycles. Merchants used the handy wheel to travel about the city and look for bargains. Some police departments adopted them, "if for nothing else than for the power of overtaking erring bicyclists." Stores used delivery wagons with a three-wheeled safety bicycle arrangement which the delivery boy could easily pedal. We have already seen that the army considered the bicycle useful enough to give it a trial as a regular part of its equipment.

One of the most interesting uses of the bicycle was for commuting to and from work. It was used in this way by professional men, business men, and teachers. Later in the 'nineties, when the price went down, ordinary workmen used it for transportation. Men could live in the suburbs of the large cities and use the bicycle as a cheap means of transportation. It was pointed out in an issue of _Wheelman_ (December, 1882) that it cost $93.60 a year to commute to and from a suburb to work; this was enough to buy a good bicycle. Students attending school in a city could board in the suburbs, ride a bicycle to school, and save money, besides getting some much-needed exercise. Lawyers used the wheel also. One writer, expressing his advice to this profession, said: "If you are a lawyer, buy a bicycle; your briefs will be clearer, and your breath will last longer."
It became quite the fashion for the New York business man from 1894 to about 1899 to ride his bicycle to business. A poem of an earlier day seems to fit those five years very well, and also expresses some of the hurry and bustle that was America in its Gilded Age.

"Away from the office and desk at last
The business-haunted room,
The roar of a city, hurrying past,
The heat, the worry, the gloom.
To the glorious red of the sunset sky,
The sweet, cold wine of the air,
On the frozen road, my wheel and I,
A dirty, rusty pair!"

With the realization of society's adaptation of the bicycle, one writer found cause to say that bicycling was no longer "a mere fashion that may fall into disuse and give way to a new one. It is a wholesome and inspiring exercise, and has proved of practical value as a means of rapid locomotion."6

With the bicycle coming into such general use, there was a demand for information on how to dress for the occasion, how to ride, how to keep and repair the wheel, and in general how to use this new and fascinating vehicle. Books were written on the subject giving detailed instructions in all matters pertaining to the wheel. One of the most interesting of these was L. H. Porter's Cycling For Health and Pleasure, published in 1895. In this he gave illustrated advice on all details including mounting, riding, use of brakes, coasting, back-pedaling, and dismounting. Another book in
1887 listed the average cost of a bicycle and a complete outfit:

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<table>
<thead>
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<tbody>
<tr>
<td>Bicycle</td>
<td>$125 - $150</td>
</tr>
<tr>
<td>Lamp, bell &amp; cyclometer</td>
<td>$15</td>
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<td>Costume</td>
<td>$30</td>
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One of the advantages claimed for the bicycle was that a complete outfit was much cheaper than a good horse, and once bought, "the running expense is small compared with that of feeding and grooming a horse, especially if the latter must always present a good appearance. And there is, in fact, no substitute for horseback-riding, so satisfactory and so economical, as bicycling." 7

Elaborate manuals were issued by manufacturing companies, and the current magazines of the day carried many articles written by kind souls for the welfare of the American public. A writer in *Forum* in 1896 stressed three different positions that were in use: "the upright, the curved, and the bent." The "upright" is the one seen today and is the most natural and the best of the three. His description of the "curved" posture is excellent: "the back is curved, and the spine forms a somewhat acute angle with the saddle; the head hangs forward; the shoulders fall forward and inward; and a great part of the weight of the body is carried over the handle bar." This was a much faster way to ride and adherents of this posture were called "scorchers."
However it compressed the lungs and impeded circulation in the lower limbs. Besides this unhealthful effect, the rider was much more likely to be thrown from the bicycle and land on his head "which may cost him his life, or lead to a bad fracture, not to speak of the loss of nearly all grace in attitude and movement."\(^8\) The "bent" position is that which is still used by racers and was equally as bad as the "curved."

Falling was one of the real problems to be faced by all beginners, and as such was considered by this same author.

"Every beginner will fall frequently, and it is as necessary to learn to fall in the right way as to ride properly. The first rule for a beginner is, therefore, to ride slowly until he has mastered the difficulties of equilibration. Next, in falling, he should never let go his hold on the handle bar, but direct the wheel as best he can; and he should if possible, give the machine time to slow up before he falls."\(^9\)

WOMEN AND THE BICYCLE

Despite all the warnings and involved instructions, the bicycle continued to grow in favor after 1890. The "safety" was more eagerly accepted by the women than by the men because it meant a new freedom for them. In 1882 tri-cycles were used by ladies who wanted to get exercise and see the countryside. One writer giving advice said: "The best possible machine (for ladies) is a Sociable, always provided they can get a companion, who should preferably be a
"Sew on your own buttons. I'm going for a ride."

male cyclist. In this way the lady learns with ease, she is provided with a suitable escort; and, if anything goes wrong, she has assistance at hand. By 1885 the tricycle was advocated as being good for health, strength, and beauty, as well as locomotion. It was predicted that "the time is not far off when a large number of the 'blessed, busy women who support themselves' will adopt the tricycle for daily service." With the invention of the "safety" and its large sale after 1890, this prophecy was borne out.

The bicycle forms a very important link between the women of the nineteenth and the women of the twentieth century. At last woman was given an instrument with which she could perform on equal terms with men. I cannot stress enough the importance this vehicle had in emancipating women from their traditional mouse-like role in society and projecting them on the national scene. Never before had anything taken them away so completely from an overzealous attention to the home and the local sewing circle. The horse took the upper-class lady out into the fresh air, but it took the bicycle to make the middle-class woman conscious of the benefits of fresh air and sunshine. The bicycle also made women conscious of the fact that they had a body which was capable of being made as strong as that of a man's. When Mrs. Smith made her historic pioneering ride in 1888, she was denounced by nearly all the women in
Washington. Yet in a few years, 1894, it was ridden by one of the "400" of New York. During those six years a great change came into the lives of many women. Reform was in the air, and it was expressed in clothing, attitude toward politics, work, and the home. Women were on the move to a different life and many hastened the movement on the two wheels of the "safety" bicycle.

Writers in current magazines began to recognize the great change being wrought in our social scene; countless articles appeared on the bicycle and its relation to women. One magazine reported that the "fair sex has done its share to bring about such desirable, healthful, and generally beneficial results (getting people to exercise and enjoy the fresh air). The bicycle did much in this country to first take women out into the fresh air and the safety should be held in reverence for this, if for nothing else." The spring and autumn months were the great favorites with all cyclists, especially the spring since so few roads were passable during the winter. Women claimed that nothing was so invigorating as a spin over the roads in the spring, and the "healthy glow and stimulated energies bring new life and enthusiasm to the house-moth so long cooped up by the winter. The lungs drink in the pure air and the heart pumps fresh red blood through the veins with new exhilaration." A large amount of opposition to women's using the
bicycle arose along physical, moral, and health lines. The Woman's Rescue League in Washington declared that "within ten years all female cyclists will be invalids," and in the meantime the temptations of the road were daily swelling the class of outcast women. Manufacturers of competing products and owners of establishments that had enjoyed the favor of the public before the advent of cycling, issued blasts against the unwomanly and brazen attempts of American women who were attempting to free themselves from all social conventions. These attacks were carried on most strongly by livery stable owners and by manufacturers of luxuries that were not selling well because of bicycle competition. Strong-voiced defenders of woman and her attempt to emancipate herself from old restrictions were heard from, too. One such defender claimed that the "occasional denunciation of the pastime as unwomanly is fortunately lost in the general approval that a new and wholesome recreation has been found, whose pursuit adds joy and vigor to the dowry of the race."16

CLOTHING REFORM

The most important reform brought about by the bicycle in its effect on women was that of dress reform. Here is a field in which the wheel made a deep and lasting impression on the American scene. During the 1880's women could use a
long skirt to ride the tricycle. Sometimes a dress would insist on immodestly coming up too high with the motion of pedaling, but this was easily remedied by putting lead shot into the dress hems. The large, wide-brimmed hat had to be discarded in favor of one that would catch less wind as the fair rider went speeding along.

The invention of the "safety" was the turning point in this movement of dress reform as it was in so many other fields. The long skirt was naturally used by the first devotees of the "safety" but they found that it was continually being caught in the chain. Men could use steel bands to keep their trousers out of the chain, but what were women to do? The long skirt was definitely an impossibility and it had to go. The skirts were shortened and tightened. In 1893 some women were so daring as to use bloomers, which were described as a "wide, bifurcated garment extending from the waist to the knee. This garment, combined with a waist and leggings, forms a neat, practical dress for the woman rider." Bloomers were ridiculed and called immodest by many at first, but both men and women wrote in their defense. It was pointed out that they were as decent as men's trousers and besides women wore much less when they went swimming. Pioneers in the field, such as Lady Henry Somerset and Frances Willard, kept the issue before the public and gradually they came to be accepted. Writers urged the use of
common sense in solving this problem; many women carried a skirt with them that could be fastened on after the ride. The bloomers were soon called knickerbockers, as this sounded more gentile. An amusing poem of the day describes one of the belles of the 'nineties dressed in her newly-acquired garment:

"She sweeps along so light and gay;  
She traverses each winding way;  
And as she rides she flirts,  
Though she's discarded skirts,  
Because you know she's built that way."

When clothed in fin de siecle dress,  
She's pretty as a picture, I'll confess;  
And though some ancient tabbies scorn her,  
Knickerbockers they adorn her;  
She is up to date, be sure - no less."18

Riverside Drive in New York was a popular place to show off the newest fashions. As early as 1894 one might see every day on Riverside Drive, or on the Boulevard, or even in Central Park, many women wearing regulation bicycling costumes, with baggy trousers, leggings, and Alpine hats. This dress was certainly more becoming to most women than a clumsy skirt which kept getting tangled in the spokes. There was nothing unfeminine about it either; in fact, it added to women's attractiveness while increasing their pleasure.

By 1895 there were several varieties of dress in common use by women cyclists: a regular skirt of walking length was used by a few. A short skirt that came to the top of a
pair of boots, leggings, or gaiters was popular. A detachable skirt was worn with knickerbockers underneath; it was advisable to use a riding corset with this. Divided skirts were designed and found immediate favor. And then, of course, bloomers were used. These looked like a pair of men’s knickers about six sizes too large. They were worn with leggings or long stockings. Sweaters or short jackets were worn over a mannish type shirt and collar. Hats varied from a beret to a skull cap with a little peak. Usually the outfits were in a plain color, but many co-eds went in for loud checks or stripes.

A writer in Scribner's doubted whether "anything has happened to the human race since the first locomotive drew the first train of cars that will affect it so materially as the bicycle." It gave women freedom of dress, "for which reformers have been sighing for generations," within two years. Of course, he says, the "bicycle has not put many women into trousers--nothing will do that in this country--but it has given all women practical liberty to wear trousers if they want to, and indeed, to get themselves into any sort of decent raiment which they find convenient..."¹⁹ The dress reform was brought about very quickly, by reason of necessity. The bicycle was in vogue, women wanted to ride and could not with a long skirt, so the dress designers had to meet public demand with a reformed garment. Not only was this a reform
in outer clothing, but the women had to discard the tight
stays and corsets, that were compressing their waists into
as small a circumference as possible, in favor of a loose-
fitting, more comfortable dress. It was impossible to ride
a bicycle any distance with tight-fitting clothes without
extreme discomfort. As soon as women realized the real need
for a reformed type of dress for bicycling they quickly
adopted it and spread the reform to other activities.

"What years of eloquent preaching from the platforms
of women's suffrage failed to do, the necessities of
this wheel have in a few months brought into pract-
bical use....The woman who dons her knickerbockers
and her gaiters and spins out into the open country
...will become mistress of herself...no longer a
victim to hysterics, no longer seeking for unhealthy
excitement, a rational, useful being restored to
health and sanity." 20

No one seemed to object greatly to this much-needed re-
form in the field of women's dress but Boston; but then
Boston opposed woman's use of the "safety" bicycle for the
first four years of the decade of 1890 to 1900. The Boston
Women's Rescue League reported that "thirty percent of the
unfortunates who come within the field of this organization's
work, have at one time or another of their existence been
bicycle riders, and therefore wheeling has a demoralizing
influence on women." 21 However women continued to use the
shorter skirt and ride their wheels. In the process they
discovered the comforts of short skirts and soon this more
sensible type of dress was used for walking as well as riding.
Near the turn of the century, one writer commenting on the growing spirit of sensibility in women's clothing, said:

"The sensible woman will wear skirts that fit the purpose and the weather for which they are intended. And, nine chances out of ten, she will do this because the bicycle has taught her, in a happily forceful manner, as no amount of fine theorizing ever could have done, the practical beauty and wholesome healthfulness of sensible dress reform."22

HEALTH AND THE WHEEL

With such truly significant gains having been accomplished in the field of dress reform, let us see what was accomplished, or at least claimed, in the field of health improvement. During the 1880's and 1890's there was a real need for some incentive to take people out of the stuffy, poorly-ventilated, Victorian homes of the period. Men and women, especially the latter, led a too inactive and confined existence. There was a need for something to take them out into the fresh air, out into the country from the rapidly-growing industrial cities. One must remember that this was before the time of zoning laws in most cities, and the smoke in the air would make modern Pittsburgh seem clean by comparison. The bicycle answered this need with a cheap and enjoyable means of transporting one from the unhealthy city atmosphere out into "God's Country."

The whole subject of the bicycle and health was a fertile field for the physician to expound upon. Learned opinion
was given for and against the bicycle as a health-producing agent, and in the various articles and announcements made we can clearly catch the spirit of the age. Most doctors proclaimed the moderate use of the wheel as a decided health advantage; they recommended it especially for business men and for ladies who spent too much time in the house. It was remarked that open-air musical concerts were being attended more frequently by people riding bicycles, thus the bicycle rider got health-giving exercise and fresh air at the same time as he enjoyed music which was good for his mind. Doctors expounded on the special benefits derived by women from this exercise in an age when very few did any exercising beyond that of housework. And

"Such exercise! Clad in porous wool, the whole body is as it were swimming through a sea of oxygen, breathing through every pore. A speed of ten miles per hour means augmented atmospheric pressure of three or four pounds on the ventral surface and corresponding decrease of a few pounds below normal pressure on the dorsal surface. The whole spinal tract is thus subjected to pneumatic suction and its circulation thereby stimulated." 23

This sport was especially adaptable for women because it was not too fatiguing, and it was not monotonous for the female mind because one constantly saw new things on a ride. Bicycling took everyone's mind off the daily cares of home and business and left it refreshed. The whole nervous system was toned up as "the rider must constantly use the senses of hearing, seeing, and feeling in order to avoid collisions, direct
his machine, and keep his equilibrium."^24

The bicycle induced many people to exercise who never before could be induced to participate in sports, horseback riding, or any other type of outdoor recreation. The very availability of this vehicle in the 'nineties was a great factor in its favor; and then the fact that one could exercise in his own neighborhood or go for a long ride if he pleased, made it very popular. "Bicycling was held, by one writer, to most closely resemble mountain-climbing as an exercise--

"both have a peculiarly exhilarating effect on the mind. But bicycling has two patent and very noteworthy advantages. One is that it enables you to breathe air at a normal pressure, and hence is permissible for a great number of people for whom mountain climbing would be hazardous; the other is that it is available for pretty nearly everybody. Our door yards are not all supplied with mountains, but more or less passable roads are within reach of everyone."^25

Some doctors claimed that this type of exercise strengthened the womb and all the muscles that aided in childbirth; of course it had to be practiced in moderation. Bicycling was claimed to be a cure for anaemia, nervous prostration, headaches, insomnia, neuralgia, asthma, dyspepsia, constipation, and haemorrhoids. Dr. W. S. Stuart of Philadelphia wrote a testimonial for the Pope Manufacturing Company in Harpers Weekly for June 16, 1894, in which he said that he regarded "the use of the bicycle as a means of physical culture superior to any other means in use at the present time."
The mental exhilaration which accompanies the exercise is perhaps equivalent to one-half the benefit derived, and the two means combined should, in my opinion, bring about physical strength and vigorous mind." Incidentally, this health argument became one of the favorite means of advertising the wheel, and it had a strong effect on the mind of the average American who looked upon a doctor with a feeling akin to awe.

Testimonial writing, in the bicycle era as now, was a prominent part of any book attempting to sell something, prove a point, or indoctrinate the public. L. H. Porter, in *Cycling*, makes use of several letters from enthusiastic female devotees of the sport he was describing. One woman wrote a letter on the benefits of wheeling to her and her friends. She told of a friend who was nervous, "weep quarts in the month," and was generally run down. She was advised by her doctor to try bicycling. She took his advice and the writer continues:

"and I wish I could illustrate this letter with a picture before and after. Though she is not yet as strong as I (for I will yield that palm to no one), she is far beyond the average girl. For example, she rode thirty miles on a dirt road with me yesterday, and came home a little tired; but this morning woke as fresh as a daisy and ready for more. She cries yet sometimes (all girls do); but her nerves give her no more trouble; she has grown fifteen pounds heavier; is bright and jolly, and as enthusiastic a wheel missionary as anyone ever was or will be."

This same writer describes the pleasures of a country
run: "Half a dozen wheels spinning along; the riders all overflowing with laughter and good humor, flying down hill, more like a bird in feeling than anything else; climbing stiffish hills and feeling your muscles swelling. On, there is nothing like it! Try it and see." And then:

"Men can't conceive what a thing this wheeling is to us poor women. How can a woman be strong and well without exercise? Our grandfather's ideas that a woman could get all the exercise she wants about the house are false. Take making beds for example; is not that violent exercise enough for anyone? If you want some exercise, arrange your own room. Making a bed does not in the least hurt me now, but before I rode, it did; it made my back ache and my knees tremble....Now, I can do it without evil effects."

It must not be thought that all doctors were in favor of the bicycle. Wheeling was harmful for people with heart trouble, consumption, and other diseases that demand rest. Pregnant women could not ride because a fall might cause a miscarriage. Some wrote of the dangers of dust and cold air being drawn into the lungs; advice on this matter was to keep the mouth closed and breathe through the nose. Another danger arose from working up perspiration while riding and then catching cold; a bath had to be taken immediately afterwards and all clothing had to be changed. One of the dangers to health was of course the danger from falls or collisions while partaking of this "frivolous" sport. Writers pointed out that these accidents or falls occurred on the streets of populous cities and on crowded suburban roads. It was calculated that a hundred thousand machines were in use in the
in the city of New York alone in 1896, and a proportionately large number were used in other cities throughout the country.

Elaborate arguments were carried on in periodicals during the 'nineties debating the virtues of bicycling. An interesting example was provided in Littell's Living Age in which A. Shadwell wrote his "The Hidden Dangers of Cycling" and F. Pollack penned his reply "Hidden Dangers." Shadwell based his argument on the fact that bicycling not only hurt the muscles by over straining, but also had a "cranial" nervous effect akin to a nervous headache. He claimed very few people had the strength to ride and many of his friends had to go to bed for weeks as a result of over doing it. Pollack caustically refuted these ideas and accused Shadwell of using a few isolated incidents of people who had no business on a bicycle anyway. It was an "alarmist essay" and had no practical value for laymen nor scientific value for doctors. The Scientific American of October 13, 1894, reported a discussion held in the French Academy of Medicine on the dangers of cycling. At this time there were one hundred thousand riders in Paris; one doctor reported three deaths among his patients as a result of heart attacks while riding. The magazine points out that they were isolated instances of people who should not have ridden at all. Within reasonable limits, bicycling "is a
sanitary pastime, bringing health to those who by its means found themselves able to escape from the close and vitiated air of town life into the pure and life-giving air of the meadows and open fields..."28

One other attack was based on the reports of a new disease coming into existence as a result of cycling. Doctor A. Wilson in The Illustrated News, discussed the new disease, "Kyphosis Bicyclistorum," otherwise known as "bicyclists' stoop." This applied mostly to "scorchers," but he stated that the prospect of the "evolution of a round-shouldered, hunch-backed race in the near future is not pleasant to contemplate. Yet this result is approximately what the bicycle mania is tending to produce."29

Despite all these dire warnings, the average medical man approved of bicycling when done moderately. It was decidedly important in waking up Americans to the benefits of the great outdoors. It was an important factor in creating a desire for exercise and a knowledge of its benefits. Above all it took women out of their sheltered, unhealthy home life, reformed the clothing they wore, and gave their life a new meaning. One doctor, after summing up the benefits of cycling, said: "In conclusion I would say ride a cycle; ride in moderation; enjoy the wheel; and all who do so will enjoy better health and be happier; the cares of life will be easier borne, and your life will be lengthened."30
In conclusion, let me state that "cycling is the champagne of recreations, and at the same time it possesses the best qualities of cod-liver oil; but, as in the case of champagne excess is not to be recommended."  

SOCIAL EFFECTS

The social effect of the bicycle was tremendous; it was seen everywhere and at every type of function during the 1890's, and was ridden by every class in society, from the unskilled laborer to the successful banker or socialite. Its significance can be grasped more fully if we realize that it was the only type of transportation available in the suburbs unless one owned a horse. In the city it was much more convenient than a horse, and more reasonable to keep in operation. The bicycle was at first a rich man's toy, but it soon became the useful servant of the working class, as well as a source of increasing pleasure and enjoyment to all classes. Its universal appeal is expressed in the sentence: "On the wheel the grave became gay, the reticent expand and become communicative, and the better and kindlier feelings of our nature are aroused."  

The bicycle had repercussions in the churches of America; especially was this true in the small towns and villages. Before the advent of the bicycle the church had been the social center of the town; all the young people
gathered there for recreation and the minister led the youth as well as the adult congregation. When the bicycle came into general use young people found it hard to choose church in preference to a ride in the country on a lovely spring morning. Churches tried various methods of pleading and threatening to bolster their falling attendance; they appealed to the congregation's sense of Christian duty and even offered storage space for bicycles in the church cellars if the young people wished to ride their bicycles to church—but all to no avail. These scandalous young people were even deaf to the appeals of a minister from New Haven, Connecticut, who drew the terrifying picture of "long columns of Sunday bicycle riders rolling swiftly and helplessly—without brakes of course—down a glittering hill to a place where there is no mud on the streets because of its high temperature." The churches were forced to accept this situation and make the best of it. In fact, before 1900, the bicycle was being used by many clergymen for visits to their parishioners. The forward-looking ministers realized they would have to appeal to youth on its own ground. Bicycle clubs were organized in the churches, and young people were induced to come to the church with the promise of an all-day ride afterwards led by the minister.

The bicycle was a great leveller; it brought the millionaire down to the level of the day labourer. Each was
mounted on two wheels, and, advertisements to the contrary, no marked superiority could be claimed for any one type. Every one dropped formality on the road and hailed all passers-by with a friendly spirit. Despite this lack of formality, the literature of the period contains few accounts of disorderly or boisterous conduct on a bicycle. One reason for the decorous conduct on the road was the fact that a Sunday ride was often a family affair. Mother, father, children, and relatives went out together, and the elders naturally restrained any boisterous actions. The family side of the sport was proclaimed as the most beneficial way of bringing about better understanding between father and son, or husband and wife. The idea of family outings was played up by the bicycle companies in order to bolster their sales from one to three or four bicycles per family.

The bicycle was welcomed by all young men as an excellent means of courting their lady-loves. What an opportunity the wheel offered to get away from crowds to a secluded spot in the country where one could whisper sweet-nothings to his loved one with no danger of being overheard by little brother or observed by an over-careful parent. Young couples were greatly aided by the sport's being regarded as one of good fellowship. Mothers who would not think of their daughter's going out unchaperoned with a young
man to the theatre felt no apprehension at all over a comradely bicycle tour. The tandem gave a great impetus to picnic lunches for two that were packed into a basket on the front of the tandem and eaten in some pleasant spot in the country. It really was a healthy movement for the young people who derived great pleasure and many benefits from this new comradeship. Local gossip often tried to indict the bicycle as the ruination of the morals of the country's youth. Stories were issued about immoral trysts in hidden rendezvous in the country, but few were founded on fact and almost none proved. In truth the bicycle brought about closer understanding between the sexes; they were put on a more equal footing, and mutual admiration sprang up where before there had been curiosity and a sense of strangeness. Men saw women at their best in comfortable clothes, relaxed from the formality of the day, and with their cheeks reddened by healthy exercise. The beauty and benefits of nature were impressed on both sexes, and a more wholesome type of relationship was brought about on the "bicycle built for two."

Nature was praised by the common man as never before in our history. Picnics and club outings were organized to bring groups out into the bountiful wonders of the American countryside. The impression made on many riders is shown by the following passage written immediately upon returning
from a ride in the country:

"Flowery hedges, gay dancing brooks, with the ferns drooping lovingly over the glancing waters, wind-swept mountains, dark mysterious woods, waving corn fields, placid lakes, all afford a never-ending mental feast, and tend to cleanse and purify the mind from its earthly dross, to ennoble and raise it, to dispel bad thoughts and evil passions, and to put to flight 'Black Care' whom--although he may sit close behind the horseman--the flying cycle leaves far in the rear."34

Along with this enjoyment of nature came a desire to keep a permanent record of a day's outing or a picnic with a friend. Photography was associated with the rise of the bicycle, and has kept that association to the present day. Despite the difficulty in carrying them, riders of the high bicycle often took their cameras with them on tours and outings. Women often complained because they could not get out on a bicycle to see the wonderful scenery the men described. The camera was the answer to this problem because the men started taking pictures on their rides and showing them to their lady friends. The bicycle undoubtedly gave a great impetus to photography, especially to picture taking with a small, easily carried apparatus that could be slung over one's shoulder. When the "safety" came into use, women, too, began to take pictures on bicycle trips. More and more there was a demand for smaller cameras until the climax was reached in an advertisement in Harpers Weekly, May 5, 1894, which advertised the "Photoret," a "watch camera
for Bicyclists, Tourists, Sportsmen, Everybody." It was of the size and shape of a pocket watch with the clock numbers painted on the face. The picture was taken by pressing the "watch" stem which opened a small aperture in the center of the face. The price was $2.50 with thirty-six exposures on each film. So we see that although a candid camera was not in use in the 'hinetiea, the idea most certainly was and it was fostered by the demands of a bicycling society.

CYCLING LITERATURE

The literature of a period is always an excellent guide to the thoughts and activities of the day. In the case of the bicycle a study of the current literature helps us to fix the exact dates of the height of the popularity of this vehicle. A study of Poole's Index to Periodical Literature indicates that the bicycle reached the zenith of its popularity about 1896 or 1897; and for the six years from 1894 to 1900 it was one of the leading topics in the periodical literature read by Americans. An outline of the years and number of articles is more illuminating than any amount of words:

<table>
<thead>
<tr>
<th>Year Range</th>
<th>Bicycles</th>
<th>Tricycles</th>
</tr>
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<tbody>
<tr>
<td>1882 - 1887</td>
<td>13</td>
<td>30</td>
</tr>
<tr>
<td>1888 - 1892</td>
<td>33</td>
<td>4</td>
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<td>1893 - 1896</td>
<td>77</td>
<td>0</td>
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<tr>
<td>1897 - 1901</td>
<td>106</td>
<td>0</td>
</tr>
<tr>
<td>1902 - 1907</td>
<td>6</td>
<td>0</td>
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</table>
In 1869 the first bicycling magazine was issued in this country under the appropriate name of the Velocipedist. After a short and stormy history of two years, it followed the path of so many current publications in America's history and went out of business. The next important magazine to enter the field was The Bicycling World founded in 1877. It was a general magazine for bicyclers, keeping abreast of all inventions in the field, club organizations, patents, and other news of interest to the quickly-growing army of cyclists.

After 1880 we come to the period of the growing importance of the bicycle and the growth of its literature along the same lines. We have already discussed several of the magazines in their respective fields, but there is one other that deserves special mention. The Wheelman was started in October, 1882, as an "Illustrated Magazine of Cycling Literature and News." This was one of the first of a long series of sporting magazines devoted to a special field. Its aim was broad: to discuss anything of real interest in the bicycling world. One of its attractions was a Question Drawer in which experts answered all questions and gave advice to sportsmen; Charles E. Pratt was a prominent contributor to this department. The magazine carried poetry and songs of the wheel with illustrations, often colored, to illustrate the passage. Club news, bicycle meets, L. A. W.
affairs, and stories, both true and fiction, made up the rest of the Wheelman's contents. In January, 1884, the Wheelman became Outing and the Wheelman. This changed title is a reflection of the times for sports of all types were receiving attention by this date. Boating, canoeing, and tennis were given a place in the periodical, but the bicycle was still the predominant interest and remained so until 1900. By 1885 the title had been shortened to Outing, "an illustrated monthly magazine of recreation." Football, baseball, and various other sports were now included in addition to those named above. Outing is still in existence today with the same general plan as it had fifty-five years ago. Various other publications appeared in the field, such as Cycling, but none enjoyed the popularity and circulation of Outing. One other interesting publication for cyclists was The Bicyclists' Indispensable Handbook which described all the types on the market, new inventions, and methods of repairing the wheel.

Such a popular social movement as bicycling naturally excited many writers to songs and poetry. Most of the literature thus produced is extremely poor, and I only use examples here to illustrate the type of work produced and the themes that were used. It is interesting to see the song book sold in George Jessel's "Old New York" in the 1939 World's Fair held in New York. The title of the book is Song Hits of
the Gay Nineties, and the cover page is a striking illustration of the fact that the social scene and the bicycle in the 'nineties were inseparable. The picture is of a man and a woman riding a tandem bicycle; the man is wearing a gayly-checked suit, topped by a derby. The girl wears a pancake hat, which is not historically accurate, a huge-sleeved jacket, and a wide flowing skirt which illustrates that skirts were shorter and also more comfortable by the mid 'nineties. The one exception to the fact that most of the bicycle literature of this era has gone out of existence is the song contained in this song book:

Daisy Belle

"Daisy, Daisy, give me your answer do,
I'm half crazy all for the love of you.
It won't be a stylish marriage;
I can't afford the carriage,
But you'll look sweet upon the seat
Of a bicycle built for two."

Various types of songs and poems were produced. Many had love interest fostered by the wheel as a theme, as the following poem well illustrates:

"On, on we sped, swift as the wind,
Till distance dulls and deadens
The din of hamlets left behind;
The sunset softly reddens
The fleecy curtains of the west,
And slender shadows stealing
Across the roadway hint of rest,
And of an end to Wheeling.

We reach the little garden gate
Where once I took a header
And fell in love, most desperate,
While up the path I led her.  
'Tis she who leaves the three wheel now;  
I place the ring, a gold one,  
Upon her finger, kiss her brow;  
You know - the tale's an old one."35

A favorite theme was to make fun of those who did not ride this wonderful new invention of man's:

"Cleave to the earth, ye booted ones;  
Contented kick your native dust!  
While old bicyclers and their sons  
Light-footed tread the wheel they trust."

A type of song sung by groups on an outing was often in praise of the bicycles they rode:

"'Tis a glorious wheel whose praise we sing  
On the B.I., B.I., B.I.,  
Naught in life to us can such pleasure bring  
As the B - I - C - Y - C - L - E.  
On the B.I., Bi,  
On the C.Y, Cy,  
On the C.L.E.  
On the B - I - C - Y - C - L - E."  

The League of American Wheelmen was the outstanding organization in the field and as such received the honor of having many poems and songs dedicated to it.

"Wherever on the wheel you go,  
From Boston to San Francisco,  
You meet a rider you don't know,  
Why, show your badge, and say just so.  
If you're a member of the L.A.W.,  
You're just the man I'm looking for,  
Fortunately to grasp your paw,  
And shake you by the hand.  
So, brothers all, wheres'er you be,  
From pole to pole and sea to sea,  
With perfect unanimity,  
Go join this fraternity."
Of course all the poems could not be in praise of the bicycle, for too often one was thrown or came home tired and with aching muscles. These people wrote poetry about the wheel too:

"Bowed by the drooping handle bars he leans
Upon his bike and gazes at the ground;
His back is humped and crooked and his face
Is strained and agonizing in its look.
Who made him sit upon a wheel like this?"

These are examples of the various types of poetry the bicyclists produced; many variations appeared, but all can be classified under the various headings. All great social movements in our history have produced a literature that is indigenous to its time, place, and those who took part in it. The bicycle is no exception to this rule, for its literature was a clear expression of its existence during the Gilded Age, with all the various activities and interests of its devotees and their relation to the sport elaborated upon in the over-flowing style of the day.

ECONOMIC EFFECTS

A large amount of capital was soon invested in the profitable bicycle manufacturing business, and many small towns became extremely prosperous as a result of the demand for this product. Bicycle accessories became a business in themselves and several small companies came into being designed to make brakes, or lights, or cyclometers for the cycle trade. With a large amount of capital invested and with so many
people engaged in making bicycles the influence of this ma-
chine became a force in the economic scene in the 'nineties.
The economic pressure exerted was reflected in the social
scene so it seems appropriate to speak of the social-
economic influence of the wheel on the people living in the
bicycle era.

Real estate received an upward push as a result of the
increased demand for suburban homes. Real estate agents
advertised homes as being within bicycle-riding distance of
the office. Suburban life lost much of its isolated char-
acter, and families used the bicycle as a means of obtaining
social intercourse with families within bicycling distance
as well as a means of getting to business in the city every
day.

By 1896 a good bicycle could be gotten for $80, so it
was within reach of the average working man who had a steady
job. This was further made possible by the use of the in-
stallment-plan buying just coming into vogue. In fact, the
bicycle is one of the first articles on our markets to be
sold in large quantities along this plan of buying. People
who bought a bicycle often had to cut down on some luxury
in order to meet their payments. The watch and jewelry busi-
ness was hard hit. The complaint was that where formerly a
favorite present for a boy on graduation or Christmas was a
watch now it was a bicycle. Girls, too, saved for a bicycle
instead of buying the usual trinkets. Piano makers cried that people who used to save up for a piano now bought a bicycle instead, insisting that it was a more immediate and a cheaper pleasure. Furniture dealers insisted women were on the road so much that they did not care whether they had new furniture or not. The hardest hit of all were the horse and carriage trades and the livery stables. Many riding academies were turned into bicycle schools in order to keep their doors open.

Many other effects were felt of a more indirect nature than these already mentioned. The consumption of cigars fell off since riders could not conveniently smoke while riding. Cigars either went out, or burned up too fast in the breeze created. In 1896 tailors said their business fell off twenty-five percent because their customers were wearing cheap bicycling suits so much of the time and these suits were bought ready-made. Shoemakers added their complaints to the long list. The hatters tried to band together in order to petition Congress to pass a law requiring bicycle riders to purchase at least two felt hats a year. This plan went no further than the initial stage of the idea. The excursion business of railroads and street cars was diminished; and in the cities, owners of street-car lines said they were running almost without profit.

In the line of educational pleasures there was a marked decrease in the sale of books. This was especially true of
the type that young ladies bought to have a good cry over.

The saloon keepers joined the cry against the bicycle. They said their saloons were empty on nice evenings, and then when a rider did come in he only ordered a soft drink or a beer. This sudden liking was not explained by saying the population had lost its taste for hard liquid refreshment--on the contrary the "bicycle thirst" was a truly formidable thing--but rather because the rider refrained from strong liquor for fear of being hurt while riding. It was also noted that the "whole system is so exhilarated by exercise that it does not crave further stimulant." 36a

There was one other man's institution that suffered from the bicycle "craze" and that was the barber shop. The most touching appeal was made by a New York barber when he said:

"There is nothing in my business any longer; the bicycle has ruined it. Before the bicycle craze struck us the men used to come in on Saturday afternoons and get a shave, and a haircut, and maybe a shampoo in order to take their lady friends to the theatre....Now they go off on a bicycle and do not care whether they are shaved or not. You see where it hurts our business is that when a man skips a shave today, we can't sell him two shaves tomorrow; that shave is gone forever." 36b

All these should be taken with a "grain of salt." The reports of poor business were undoubtedly true, but one must remember that the country was just emerging from a severe economic panic, and business men were eager to seize on any excuse to explain their poor returns. Also much of the damage to business was of a temporary type since people would
eventually buy pianos, carriages, and watches again as soon as the novelty of the bicycle wore off.

An amusing attack on the bicycle was related by a writer in Forum who told of a writer's seeing the following advertisement in a Buffalo newspaper: "Will exchange folding bed, child's white crib, or folding desk for lady's bicycle." Immediately he cited it as evidence of the true bicycle craze since it revealed a "mother who appears willing to sleep on the floor or hang her baby on a hook in order to be in the charmed circle of cyclers."36c

Competition arose between American and English bicycle manufacturers; each tried to break into the other's home trade and get the foreign trade too. Cheap labor was more plentiful in America, and as a result Americans could turn out machines faster and sell cheaper. Despite the rivalry of the manufacturing interests, better international understanding was promoted by the bicycle. American tourists travelled all over Europe, spending their money there and creating a better attitude towards the American nation. Touring was also carried on by Europeans in this country. As a result, a feeling of international brotherhood based on the wheel grew up and was furthered by letters, various courtesy services for travellers in each country, and visiting delegations of bicycle enthusiasts from one country to another.

An interesting development of the bicycle era was the
HE SEES A NEW LIGHT.

The Farmer.—By gum! I'm beginning to think we do need good roads!
revival of the American wayside inn. The advent of the railroads had pushed the stage-coach inn out of the picture. Many went completely out of business, others managed to hang on by depending on local trade at the bar and an occasional rider going past. The bicycle instilled new life into the country cross-roads inn. A system of L.A.W. hotels and inns was picked out for the use of members on their tours and club runs. During the years 1891-'96, five thousand inns were given an official rating by the L.A.W. as a stop-over place. These hotels were listed in the League's guides, and members who stayed in them received a percentage cut in the price. Once again the hospitality and good cheer of the country inns was made known to Americans. The bicycle started this revival of trade; with the coming of the automobile it was increased, until today we recognize it as one of the most prosperous and lucrative of the restaurant and hotel business.

GOOD ROADS

If for nothing else, the bicycle should receive our attention for the important job it did in making the American public conscious of the need for better roads. As early as 1881 observers of the social scene realized the benefits to be gotten from fresh air by people cooped up in a stuffy house or office all day, and they felt the bicycle could confer these benefits with the aid of better roadways.
"The influence of an increasing interest in bicycling will be as powerful in effecting the improvements of the roads all over the country, strengthening the public opinion that they are designed more for the convenience and the pleasure of human beings than for horses as Central Park itself has been in stimulating the public appreciation of pleasure grounds and rational open-air recreation throughout all the chief cities of the country."

The League of American Wheelmen was the outstanding force, from its beginning until the mid 'nineties, in putting the question of good roads before the public and urging that definite action be taken. The roads in existence were either dirt roads that became dusty in dry weather and a sea of mud in rain, or cobble-stone pavements that were extremely hard on the bicycle and its rider. A few macadam roads were built in the 'eighties but they were in the small minority. At the first meeting of the L.A.W. it was suggested that all members work for road reform. Various committees were organized to carry on research looking toward road improvement. In 1887 the L.A.W. Bulletin issued a call for good roads, and L. H. Porter wrote "Macadam Roads and How to Keep Them."

In Baltimore, June, 1888, the L.A.W. was reorganized. In 1889 the National Committee on the Improvement of the Highways was organized with C. S. Butler as its head. He was supported in his ideas by Colonel A. A. Pope, so he had monetary backing as well as the League's support. In 1892 a further step was taken with the organization of the National League for Good Roads. Headquarters were established in
New York under the direction of General Roy Stone, the treasury had collected $12,000 after its first year of existence, to carry on its work. A national convention was held in Washington, January 1893, to discuss plans for a nation-wide program of propaganda and reform.

Another line of approach was suggested by a writer in Wheelman when he said that "the invention of the bicycle is likely to produce changes in our highway laws, that bicycle riders are personally interested in the subject of good roads and pavements, and that their influence is, and will be, in favor of the best roads and pavement and of such legislation as will secure the best." Bicycle riders declared that they would rather pay heavier taxes for good roads than pay less for poor roads and have them replaced every few years. Their wishes were carried out by means of the ballot; cyclists grouped together and voted for men in local elections who stood on a program of good roads. Continuous agitation and petitions were carried on. If the local politicians did not produce the desired results, the pleas were directed to the state or national legislature. The public was assisted in this movement by manufacturers who were interested in seeing improved roads in order to bolster their sales. Outstanding in this movement was Colonel A. A. Pope who manufactured the Columbia bicycle. He presented a petition to Congress, backed by the L.A.W., demanding an investigation of the public road system of the United States.
This bore fruit in 1893 when the Agricultural Bill contained a clause granting $10,000 "to enable the Secretary of Agriculture to make inquiries in regard to the system of road management throughout the United States." An office was set up in the Department of Agriculture for this purpose in 1893. Many states also made allotments for road surveys and investigations.

Another line of attack carried on in the interests of a better road system was that of special literature put out to popularize the movement. Good Roads, a monthly magazine, was put out in place of the L.A.W. Bulletin after 1889 under the editorship of Isaac B. Potter. This magazine's title had a checkered history; it started as the Bulletin, changed to Good Roads, and then it was made a combination of the two in the early 'nineties. This magazine, "devoted to the improvement of the public roads and streets" as each issue stated, was efficiently handled by Potter and made into a significant organ. It made its appeal to business men who would benefit from good roads, all L.A.W. members, and society at large for the benefits they would receive. The magazine discussed various countries and their road building programs. It showed how poor our road systems were, and explained methods and gave prices and the best materials for building satisfactory roads. Articles were printed by famous men of the day. In the back of the
magazine a section was entitled Popular Opinion; here letters from governors and senators, urging the reform of our road system and commending the L.A.W. for its work, were printed. Typical of these letters are those of W. E. Russel, the Governor of Massachusetts, who wrote "The Situation in Massachusetts" in January, 1893; and R. P. Flower, the Governor of New York, who wrote "Road Improvement in New York" in February of the same year.

The Bicycling World was another prominent magazine of the 'eighties; it discussed roads and the economic as well as social necessity of improving them. This was merged into Good Roads, but its policies formed part of the newer magazine's program.

It has been noted already that the manufacturing companies had a deep interest in the good-roads movement. One illustration of this appeared on the back cover of Good Roads for February, 1892. The Pope Manufacturing Company put up one hundred Columbia Bicycles to be given away to "boys and young men" in high schools, preparatory schools, academies, and colleges in the United States for the best essays on the subject of "Good Roads" in any of its various phases. Every student was urged to write to the Road Department of the Pope Company in Boston to get full particulars. So we see that prize essays and modern schemes of advertising really are not so modern after all. It is just
one further illustration of the bicycle's influence on all phases of existence in its era. In 1892 prizes were also offered in Good Roads for pictures of the worst looking roads to be found. The June issue for that year contains some examples of this offer and its results.

Another part of the literature campaign carried on by the League was the issuance of handbooks in each state. These books always started with a dedicatory poem for the particular state, a list of its natural and other resources, and a statement concerning its road policy. A table of contents gives the names of the counties in the state. Under each county's space in the book there was put a map showing towns and roads. Under this followed a description of all the roads, places to stop and rest, and points of major interest.

In 1895 the Handbook for Ohio described the road from Cleveland to Elyria as

"Generally quite passable from June to October, sometimes a little earlier or later according to the season. Being clay soil and no side paths, it is best for a wheelman not to try it for a day or two after rain....This road also runs through an extensive grape growing country, and when grapes are ripe, wheelmen can get what they want by asking for them, or at most by paying a small price; but if they attempt to steal them, beware the farmer's shot-gun and dog."40

Lorain was described by C. K. Whitney of Oberlin as "a lake town with a good harbor and a number of wheelmen."

By 1891 all these efforts began to make their weight
felt. New Jersey was the first state to pass a law to improve the state roads. Its contents are interesting: if two-thirds of the people living on a road over one-half mile long send in a petition to the effect that they want a new road and are willing to pay ten percent of its cost, the state will act. The state will pay one-third of the improvement costs and the county had to pay two-thirds. The state’s expenditures were limited to $150,000 per year, and each county could spend one-fourth of one percent of its assessed valuation. This was figured out by the author as a total of $450,000 per year. At $3,000 per mile, Jersey could build one hundred and fifty miles of new roads each year. In 1892, ten miles were built under this plan; 1893 saw the mileage increased by twenty-five miles; in 1894 sixty miles were added. After 1895 the demands far exceeded the state’s ability to build.

Massachusetts soon followed the example of New Jersey. A Highway Commission was established; three expert civil engineers served on the board of building and repair service. The state granted a certain amount of money to the commission each year and this was spent by the commission as it saw fit. Small roads were built in different parts of the state to show people how much improvement good roads made. Pamphlets, maps, and reports were published by this commission in an effort to educate the public. By 1900
these ideas had been adopted by Connecticut, Rhode Island, New York, and California. The plans varied in each state, but each one had the central idea of state aid to a rebuilding and road-reforming program. Progress was rapidly made under these state commissions; by the turn of the century the nation had been aroused to its needs, and a road-building program was in full swing.

By 1899 the feeling was widespread that all the propaganda and publicity was at last to make its effects visible.

"The agitation which has become so universal will surely result in a well-defined public sentiment that will soon overcome all obstacles. With the new century, the good-roads movement is likely to receive valuable aid from the owners of horseless vehicles, already not uncommon on our thoroughfares. The aid of the new allies, added to that of the farmer,... to say nothing of the great army of wheelmen already enlisted in the cause, promises well for a rapid spread of the movement throughout the country."

Actual building got under way about 1894 in most states, naturally it was a slow process at first. However when the public saw the advantages of a good road system it became enthusiastic and pushed the program. As early as June, 1890, there appeared in Outing a small notice concerning the paving of Eighth Avenue, New York, from Thirteenth to Fifty-ninth Streets. This particular move had been urged by Outing as it would make an artery for cyclists to go to Central Park and also a better route to the Fourteenth Street ferry for New Jersey. By 1895 such articles had become the rule
rather than the exception. Articles appeared in many periodicals discussing the merits of various types of roads. Stone paving was not suitable for bicycles; a compromise type of structure was needed. Asphalt was being used but it broke down under the wheels of heavy wagons. Vitrified bricks were tried with some success. A real problem arose for the civil engineer which would have to be met in a few short years. The problem was more than the bicyclists', as one writer pointed out.

"A street with proper pavement on it, adapted especially for bicyclists, would not be too much to be granted to the ever-increasing army of riders, but it would be far better to devise some form of pavement which would meet all classes of traffic and which would enable the bicyclists to ride about the business portion of the city as comfortably as they now do in the parks and boulevards."

From this date to 1900 almost every issue of the Scientific American contained mention of the good-roads program and the major part played in it by the bicycle. On July 14, 1900, this magazine described a novel road being built in California. It was an elevated roadway running between Pasadena and Los Angeles, a distance of eighteen miles. It was about twelve feet wide, made of wood, with rails on each side, and ranged from three to fifty feet in height. Lights were placed every two hundred feet for night riding. The total cost of $187,500 was to be met by a toll of ten cents per vehicle. Motorcycles were allowed to use it. An automobile had been run on it and the writer who described it
predicted that it would soon become very popular for this type of traffic—"a literal sky-route to Los Angeles for these vehicles."

The coming of the horseless carriage gave a great impetus to good roads in America but the pioneer in the field was the bicycle. Every contribution to the good-roads movement from 1882 to 1898 was either led by some one interested in bicycling, or if not directly led by a bicyclist, there was certainly a good number of advocates to be found in the vanguard of those giving most support to the movement. From its very nature the bicycle demanded a smooth, hard-surfaced road; and the fact that it was so widely used made it the most powerful voice in the public demand for better road systems. No better statement of this view can be found than that of a writer in Harpers Weekly, 1896:

"The relation of the bicycle to good roads is therefore a most direct and important one, and the influence of the bicycle has doubtless been more potent than any other factor in bringing about the results thus far obtained....The relation of the bicycle to good roads will hold its increasing importance for a period of time which no man can now compute. As long as human kind makes use of a vehicle of which the power of the human body is itself the propelling force, the study of the road surface will claim its due share of the riders' attention."

The bicycle was truly an integral part of many of the forward steps of American society during the busy years from 1880 to 1900. It was a familiar sight in the streets of towns and cities and on the country roads. It was used
by all classes of people, from the very poor who could afford only a second-hand model to the richest families of the land who used it in the fashionable summer and winter resorts. It filled a real need for cheap, convenient transportation in those twenty years; it laid the foundations for the gasoline age with its motor-driven vehicles that assumed the place in our social and economic scene formerly held by the bicycle. The historian must recognize and record these contributions; he must agree with the writer in 1896 who said: "When the social and economic history of the Nineteenth Century comes to be written, the historian cannot ignore the invention and development of the bicycle."


9. Ibid., p. 583.


12. See p. 23.


18. Bicycle Scrapbook, compiled by the New York Public Library. It contains various poems, articles, and pamphlets gathered during the 'nineties.


24 H. J. Garrigues, op. cit., p.584.
27 See Vol. 212.
30 L. H. Porter, op. cit., p.16.
35 *Outing* and *The Wheelman*, December, 1884. The songs and poems I have included here are found in *Wheelman*, or *Outing* and *The Wheelman* from 1882 to 1885. They are illustrative of the various types of bicycling poetry. These same types were carried over into the 'nineties.
38 *Wheelman*, November, 1882, p.129.
39 A. A. Pope, "The Bicycle Industry," in C. M. Bepew, *One Hundred Years of American Commerce*, II, New York, 1895, p.552. Pope points out that the automobile will be important in furthering the reform of roads started by the bicycle.
41a Ibid., p.380.
42 Scientific American, Vol. 72, 1895, p.354.
THE WINTON MOTOR CARRIAGE WHICH WILL COMPETE FOR THE GORDON BENNETT CUP IN THE INTERNATIONAL RACE IN FRANCE IN JUNE.

Scientific American, April 14, N.Y., Munn and Co., 1900.
THE GASOLINE AGE

The year 1896 was the boom year for the bicycle trade; people often went from store to store in an effort to buy this popular product. This huge demand caused many new manufacturing companies to come into the field and the old companies to increase their output. There seemed not a cloud on the bicycle horizon; it was the most popular sport of the day, was used as a practical means of transportation, and was held in high esteem by all classes of society. However, a note of alarm was sounded as early as 1897 in many periodicals of the day; the cause for concern was the too rapidly-increasing manufacturers of the bicycle and its accessories. A writer in 1897, having stressed this fact of the supply exceeding the demand, said: "Without question the cycle manufacturing companies will in the near future pass through a severe crisis. I do not propose to discuss them individually; but if the total of the capital invested in such companies in 1894 could be ascertained, and compared with the total capitalisation in 1897, it would be recognized at once that the increase in the total amount was far out of proportion to the increase in demand." He felt that in due time the demand and supply would be readjusted and the market would settle back to its former prosperity. It is interesting to note that there was still no serious thought of any vehicle
taking the place of the bicycle in the near future. He praised the bicycle; and listed the wide appeal it had for all types of people. He claimed that it was "health-giving, a nerve tonic, a rational, reasonable, and convenient exercise, and in fact it only falls short of a well-advertised patent medicine in its claims on the community at large."

By 1899 a real threat to the bicycle's supremacy had appeared in the form of a gasoline engine which was being used to run motorcycles and horseless carriages. Fewer articles appeared praising the bicycle and its high place in the esteem of the American public. Within two years the gasoline age had burst upon the transportation scene; the bicycle was barely holding the ground it had gained, indeed in some places the automobile had captured the interest of the public. In March, 1900, Outing said that the bicycle "craze" was over and the term was already being applied to automobilism. Many other magazines carried articles on the decline of the bicycle and the rising interest in the new automobile. Good Roads, the organ of the League of American Wheelmen, reflected the shift in interest. The covers, advertisements, and pictures are convincing proof that the bicycle era was drawing to a close. But literature was not the only indication that the bicycle was fast losing favor.

The bicycle club activity suffered a sharp decrease after 1896. The Spanish-American War captured the interest
of all patriots: ladies formed patriotic organizations, sewed, and rolled bandages; men enlisted or turned their attention to more pressing matters than bicycle clubs. But the bicycle could have survived this temporary lack of attention if the center of interest had not shifted to gasoline driven vehicles.

Another indication of the trend was the Bicycle Show of 1899. A writer, in 1900, caught the spirit of the time when he said:

"We who are about to die salute you," might have appeared appropriately over the doors of the lately closed Cycle Shows.... The cycle trade, as a trade, is not flourishing. As an industry it is lagging.... Last year (1899) was probably as bad a year as the trade has ever seen. The effects were evident in both the Stanley and the National Shows, with their empty courts and disused halls. Not only this; upon the stand of almost every maker...was a motor, though a year ago the cycle manufacturers felt little but contempt for this form of locomotion.... There is no use shutting our eyes any longer to the fact that the motor is the coming vehicle.... Anyone of sense knows that in ten years the automobile will be as common as the horse is in the streets today."

The rise of the automobile is the closing chapter of the bicycle era in the United States. It is also one more link in the chain of evidence supporting the claim that the bicycle played an important role in the development of many of our modern means of transportation as well as modern social ideas. The early history of the automobile is almost identical with that of the bicycle. The bicycle and its development formed the pattern for automobile structure, club
movement, exhibitions, auto runs, and various other developments peculiar to such a mass movement and radical change in the means of transportation.

We have seen that the early automobile wheels and tires were larger imitations of those used on bicycles. The experiments carried on in the manufacture of steel tubing, rims, and gears for bicycles were of great importance in the early automobile industry. The infant automobile looked to the well-established bicycle manufacturers for guidance; in fact, by 1901, many bicycle manufacturers shifted their interest from bicycles to automobiles. In 1900, the Pope Company put out its Dos-A-Dos automobile as well as the Columbia bicycle; and the managing engineer reported that only slight shifts and additions to the machinery were required.

The club movement caught hold early in the rise of the automobile just as it had twenty years before with the high bicycle. In 1899 the Automobile Club of America was started; it held its first formal meeting on October 16. Already on October 28 the Scientific American prophesied that the club held great promise of becoming a "large and influential body." The organization and tactics of the bicycle clubs were taken over and used to good advantage by the newer organization. Support for the good-roads movement was pledged by the members who were largely recruited from former bicycle clubs. Just as the League of American Wheelmen carried on the fight
for lawful recognition of the bicycle, this Automobile Club carried on the fight for legal rights for the new horseless vehicle. On November 9, 1899, a public hearing was held before the Central Park Commission in New York on the question of allowing automobiles in the park. The arguments were duly heard but no decision was reached. However within a month public pressure forced the commission to grant automobile drivers the right to use certain paved driveways within the park limits.

The automobile manufacturers realized the value of effective advertising. The periodicals of 1899 and 1900 show the determined drive made by these early companies to put their product in the public eye. An important fact to be noticed is that in advertising, as in the rest of its development, the automobile copied its predecessor, the bicycle. The advertisements appealed to the desire for fresh air and sunshine in the great outdoors, the need of a more healthy life, the ease with which one could learn to drive an automobile, and the fact that everyone was getting one. All this is exactly like the advertisements used in the bicycle columns. To this was added one new feature: quiet, safe transportation without the fatiguing exercise which was the inevitable result of a bicycle trip.

One other point of similarity between the two developments is very striking: the automobile, just as the bicycle
before it, was first used by a few rich, adventurous young men who showed the public that the auto really was not dangerous and could be used without any harmful results. On November 4, 1899, an automobile run was held in New York City. About thirty vehicles of various makes took part, among them the Winton and the Dos-A-Dos, in this mass run through the center of New York. Cheering spectators lined the streets as they had a few years before for the bicycle runs. By 1901 the automobile was being used by a few wealthy families in preference to the horse and buggy or bicycle. There were three types of early automobiles: steam, electric, and gas. Each had its advocates and users; slowly the gas engine proved its superiority and by 1912 was in the ascendency. The automobile was too expensive for the common man until the 1920's, but this early movement demonstrated its practical uses and interested far-seeing men who predicted its universal adaptation and began to plan to build automobiles within the price range of the working man.

This discussion of the rise of the automobile has been over-simplified for the sake of contrasting its rise with the bicycle's decline. The development of this important vehicle is a long and complicated story. Let it suffice here to point out that its early development occurred in England and France. It was brought to the United States in the late 'nineties. By 1899 public interest was aroused and in 1901
it was clearly seen by thinkers and close observers that this vehicle would be the transport for Americans in the near future.

The decline of the bicycle is an interesting phenomenon. Were people tired of their two-wheeled vehicle? It seems reasonably certain that they were. Bicycling as a fad was dying out, and the newer and more complicated fad of automobiling had come to take its place. The demand for new bicycles fell off because improvements in structure and mechanism were decreasing every year; those who owned bicycles used them years instead of one as they formerly did. To me the most important reason for the bicycle's sudden decline was the coming of the automobile combined with a peculiarly American social psychology. The automobile was the newest thing on the market; any family that could afford it felt that it had to get one in order to "keep up with the Joneses." This competitive American buying spirit was the force that pushed the bicycle out of its nationally prominent position to make room for the automobile. This same spirit is being appealed to today in the automobile industry's scheme of changing car designs each year and advertising the changes to a gullible public as the "best buy yet."

Some bicyclists were bitter over the sudden decline of their idol; they gave voice to their feelings in bitter tirades against the automobile. Others felt that faults of the
cyclists themselves had caused this decline in their favored sport. One writer in 1901 said that popularity

"has its penalties....Four years ago the bicycle was carried to a dizzy height of popularity. All the world seemed awheel. Old and young, rich and poor, male and female, were alike infected....Men actually bought bicycles who should have bought clothes. The country was 'bicycle mad'....The growth of bicycling was unhealthy; it was too mushroom-like. It required neither seer nor prophet to foretell that the pendulum would swing in the other direction, and that the bicycle would pay the penalty of such unwonted popularity. It has paid it."3

There was still another group of cyclists who, though they acknowledged the decline of the bicycle still believed in its future and worked for it. This section of cyclists advocated reform in the structure of the bicycle, especially centering upon the "three C's." These three reforms were the chainless bicycle, the cushion frame, and the coaster brake. The chainless bicycle was popular for a time, but the chain type was cheaper to make and proved more practical. The cushion frame was composed of tempered springs at all junction points, and air was compressed into the upper part of the rear fork below the seat. This type of frame was a failure and manufacturers abandoned it in a few years. The coaster brake was a much-needed invention. It took hold immediately and is in use today.

This group of enthusiasts wrote articles in support of the bicycle and did everything possible to encourage its continuance. The best expression of this spirit is found in
Outing in 1901:

"...bicycling is a long way from being 'dead'.... The fever which invariably beets any new diversion has passed, and with it have gone that class of people who try everything while it is new, and never continue a supporter of any. The bicycle has become, perhaps, too common in the land to be longer looked upon as a mere vehicle of sport; but certainly it continues to be one of the most dependable and pleasurable aids to the joy of country living and the most health-giving form of rapid transit in escaping the screaming city."4

We take leave of the bicycle era on this hopeful note which in our own day seems to have struck a responsive chord in the hearts of thousands of outdoors-loving Americans. This first bicycle era came to a close about 1900 with the coming of the gasoline age as embodied in the automobile and motorcycle. From 1900 to the 1930's the bicycle enjoyed continued popularity with children, and many working men used it as a cheap means of transportation to and from work. The last decade has seen an interesting and significant revival of bicycling; women especially have taken it up as an intelligent method of exercising. One can see an interesting contrast in the reasons for the rise and fall of the bicycle in its own era with those causing its popularity today. In 1900 the decline was partly caused by a desire to get away from the fatigue arising from this mode of transportation. Today the rise in interest is created because of a mass demand to get away from the soft life created in the gasoline age and get back to a "health-giving form" of transportation.
to get away from "the screaming city." The bicycle is with us again, not as a "craze," but as the expression of the desire of modern Americans for a rational and enjoyable means of healthy exercise.

2Contemporary Review, Vol. 77, 1900, pp.61-64.


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**Contemporary Accounts in Periodicals, Pamphlets, and Papers**


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**Current Periodicals of the Era**

Many articles on the bicycle and its influence are to be found in magazines, pamphlets, and various other publications of this era. Most of these articles are short, many unimportant, nearly all without the author's name listed. I list here these publications, and, if the information obtained merits it, a brief description of the contents. I realize the advantage to be obtained by citing bibliography in connection with the particular field to which it pertains. However I have not found that method possible here; there are too few articles devoted to one subject; nearly all treat the whole field. In the following list, no publications listed above will be repeated.


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**The Dayton 1897**, Dayton, Davis Sewing Machine Company, 1897. An advertising pamphlet put out by this bicycle manufacturing company.
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