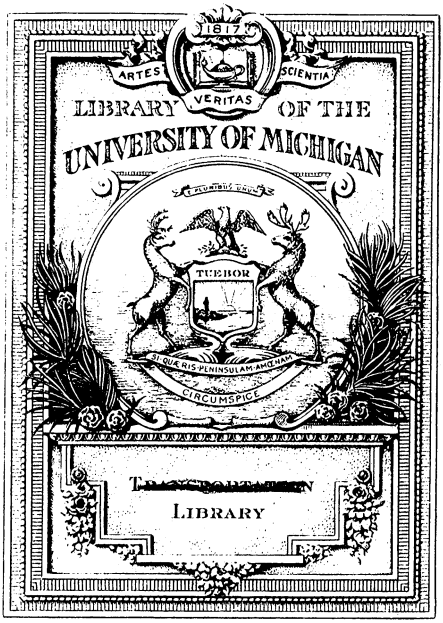
CYCLING



Bicycles.

'CLES AND CYCLING.

BY

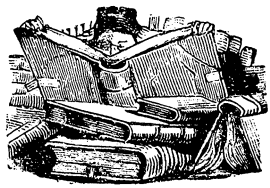
Henry HEWITT GRIFFIN,

LONDON ATHLETIC CLUB, N.C.U., C.T.C., ETC.;
AUTHOR OF "BICYCLES AND TRICYCLES OF THE YEAR."

WITH A CHAPTER FOR LADIES

BY

MISS L. C. DAVIDSON.



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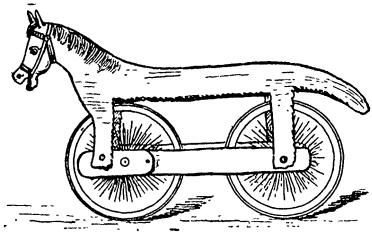
CONTENTS.



Ye Hobby-Horse.

" Though some perhaps will me despise,
Others my charms will highly prize,
(Yet, nevertheless, think themselves wise.)
Sometimes, 'tis true, I am a toy,
Contrived to please some active boy;
But I amuse each Jack O'Dandy,
E'en great men sometimes have me handy!
Who, when on me they get astride,
Think that on Pegasus they ride."

County Magazine, 1787.

CYCLING.

CHAPTER I.

EARLY HISTORY OF THE CYCLE, 1769–1866.

To trace the history of the cycle through all its various forms and endless patents would be a hopeless and unsatisfactory task. At the outset there would be a difficulty in knowing where to begin; at the finish, if the investigator survived, a feeling of bewilderment and sense of incompleteness. Many thousands of pounds have been swallowed up by that Juggernaut of invention, the Patent Office; but the vast majority of those who paid the price of their own brain work, only sowed chaff instead of good seed, and the harvest which can be reaped to-day by the few who benefit by protected articles is limited. Out of the evil has come good, however, and the field being so open, the working of many minds at the one common object has happily resulted in bringing the cycle of to-day to its existing pitch of perfection; but it is the cycle of the past which, for the present, concerns us.

It may be safely assumed that the possibility of man propelling himself by mechanical means, without calling in animal aid, has been considered feasible for centuries, and

no doubt achieved, but the imperfect records of the past furnish but a slight clue to the student who is desirous of tracing manual locomotion to its birth. That something of the kind existed, either in imagination or reality, is evident from—about the most unlikely source it is possible to conceive—a stained-glass window in a remote country church. Strange and startling as this seems, and rough and crude as the drawing is, it shows a figure, mortal or immortal, undoubtedly using means of locomotion other than natural, and it is hardly likely that the artist could have been inspired with prophetic knowledge of centuries ahead had he not had something more substantial than a mere fancy to guide him. If, however, the "hobby-horse," in its wheeled form (not the carnival hobby-horse familiar in masques, processions, and stage plays, by which those who explore old books are sometimes misled) did exist in that period—presumably about 1642, as the window bears that date—all trace of it is lost. The original can be seen at any time in the church of Stoke Poges, four miles from Windsor, and two miles north of Slough, Bucks. The churchyard is famous as being the scene of Gray's "Elegy," and contains the remains of the poet. We, by favour of the author of the interesting description of this relic, T. B. Marsh, a well-known *littérateur*, and member of the Society of Cyclists, reproduce a drawing (see Fig. 1) of this genuine curiosity from the magazine of that most useful and learned association of scientific wheelmen, *The Wayfarer*, for February, 1888, pp. 12–14.

We must pass over the intervening period—about 125 years. Coming to the eighteenth century, it is evident the subject received the attention of inventors, and machines of one sort or another doubtless existed, as is proved by the lines entitled "Ye Hobby Horse," which cannot refer

to the masque monstrosity ; the whole meaning being against that supposition. The imperfect literature of the period does not, however, so far as has been discovered up to the present, afford any clue during the first sixty years. The first public reference to manumotive machines was

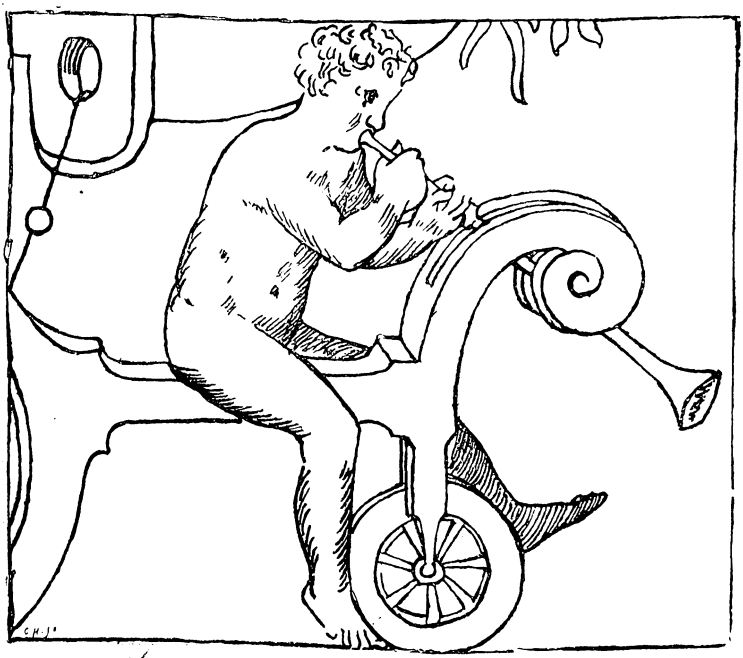


Fig. 1.—The church window cyclist of 1642.

made in 1766, by a professor of Trinity College, Dublin, in the course of a lecture to the students of Ireland's famous University. How long the machine had existed prior to this does not appear, but before anything more was

heard of it, there was a lapse of three years, when, just on a century before the cycle became popularized in this country, there are three contemporary references and illustrations to the machine referred to by the Dublin professor; these are to be found in—August, 1769, *Gentleman's Magazine*, p. 376; August, 1769, *London Magazine*, pp. 468, 469; September, 1769, *Universal Magazine*, pp. 132, 133. The first two each give a couple, and the third three, illustrations, all of the same machine, and the *Gentleman's Magazine* points out that it is the one mentioned by "the professor of Trinity College, Dublin, in the course of his lectures about three years ago." How long the ponderous quadricycle had been before the public does not appear, but the opening remarks of the *London Magazine* amply prove our allegation, that the construction of cycles, or, to be more correct, the making of manumotives, had long received attention. The article commences:—

"The conversation of the public having been so greatly taken up with a machine to move without horses, we are persuaded the preceding plate, with following explanation, will be not a little agreeable to our readers."

The drawings (see Fig. 2) of the invention were described as "Mechanical Projectionf of the Travelling Chaiſe without Horſeſ, *shewing plainly by Inspection the Constitution of these Machines.* By John Veverſ, Maſter of the Boarding-School at Rygate in Surry."

So that, so far as public chronicles go, the honour of invention belongs not only to an Englishman, but a dweller in the Home Counties. His cumbersome machine, apparently weighing several hundredweight, was worked by an unfortunate footman, who stood in a sort of box at the rear, and, by standing on lever planks, alternately depressed each lever, the action not only propelling the vehicle by a rack

and pinion sort of arrangement, but the descending plank also raised the other—an idea which, in a modernized form, was brought out a few years ago as something new. Guiding was left to the occupant in front, who steered by reins, and the most complicated and indirect system ever designed. The description concludes with a saving clause. "The velocity of these carriages depends on the activity of the manager." The old books can be consulted at the British

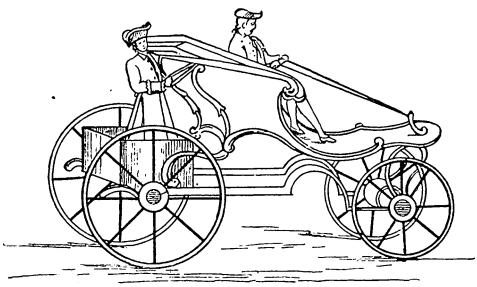


Fig. 2.—A manumotive carriage of 1766.

Museum by looking in the "Periodical" catalogue, under "London."

We next hear of the machine, claimed as an original invention, although there is little doubt that the new exploiters had borrowed their idea from the designs of the Reigate schoolmaster, in the *Journal de Paris*, July 27, 1779. The celebrated aëronaut, M. Blanchard, stood sponsor on the present occasion, aided and abetted by M. Masurier. The new vehicle was exhibited in Paris, and afterwards, by royal command, before the frivolous court of Louis XVI. and Marie Antoinette, on that historic ground, the courtyard of Versailles Palace; tradition, however, does

not state if the machine was ridden or propelled either way from Paris. An improvement was made on this by M. Ricard, a Rochelle doctor. This was still more cumbersome, but was driven in much the same way as the English original, by a flunkey at the back. It had four wheels, the two large drivers behind, and two small pilot wheels in front. There was an enormous canopy, as in the original English machine, through the back of which the servant had a peep-hole. It might have travelled at about three miles an hour on a good road, with a powerful and *heavy* servant to drive it.

Another blank now follows, the French having more serious matters to think of, and we hear nothing of things cycular until Paris was gradually resuming its air of habitual gaiety after the departure of the Allies, and the declaration of peace had time to take definite shape. Fashionable frequenters of the Luxemburg Gardens in 1816 were surprised by a curious machine (see Fig. 3), having two wheels in line connected by a beam, on which sat M. Niepice, of Chalons (better known as "the father of photography"), who managed his machine with great skill and showed startling speed. This contrivance was originally termed Célérípère, then Célérípède, or in English, Celeripede. Its appearance was welcomed: the Parisians were glad of any new excitement at that time. That the machine was in use is proved by reference to it in letters dated Nov. 19, 1818, Dec. 21, 1818, and Aug. 24, 1819, between the brothers Nicéphore Niepice in Paris and Claudelle in Hammersmith—in which the machines in both places are referred to. These letters were reproduced in the *Moniteur de la Photographie*, when the "bone-shakers" came in half a century later.

The Celeripede was quickly improved upon in the land of its birth, if, indeed, it was not anticipated, by Baron

Drais de Saverbrun, of Mannheim on the Rhine (who died on Dec. 12, 1851). He made practical use of it when attending to his duties as Master of the Woods and Forests, and accomplished some remarkable journeys and feats in hill climbing. One of the first beneficial additions was a rest for the arms whilst holding the steering rod. The machine was known as the Drasienne, Draisine, Drasina, and, in the country, Drais Saufmashin. Many drawings

Fig. 3.—The French Célérifère of 1816.

still exist, including the patent specification, dated Feb. 17, 1818, obtained by Louis Joseph Dineur, of 47, Quai de l'Horlage, Paris, protection being for five years.

It was also in 1818 that Londoners first saw the new wonder. Dennis Johnson, carrying on the business of a coachmaker at 75, Long Acre, made hay while the sun shone, and patented the idea in December of that year. With this came yet another change of name. It was

re-christened—an oft-recurring ceremony—the Pedestrian Curricle. The notion pleased the young bloods of the period, and the Curricle became the fashionable rage. It is next known as the Hobby-horse, then as the Dandy-horse (see Fig. 4). Hundreds were made and sold, and it became a familiar sight to see dandies—for the price was prohibitive—madly striding through the mud, as so far there had been no improvement in the mode of progression, and the rider had still to strike the ground with his toes. So destructive did this prove to shoe leather, that an enterprising bootmaker advertised a special shoe, with iron-shod sole, to withstand

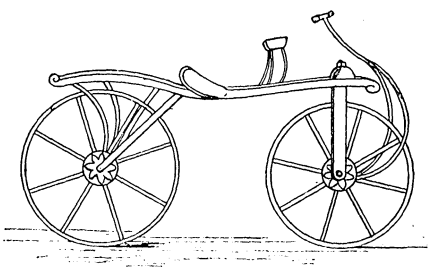


Fig. 4.—The English dandy-horse of 1820.

the pit-pat on the roads. The new sport naturally offered a splendid field for that age of caricaturists. The facile pencils of Cruikshank, Rowlands, and their contemporaries, were kept busy ridiculing the new sport, and after a flash in the pan it died out. A large number of original drawings, however, remain. A very valuable collection, brought together at considerable cost and research, is owned by Mr. Blackwell, of the Canonbury Cycling Club. One of these, by reason of its prophetic foresight, deserves to rank with the prehistoric window in Stoke Poges Church. It shows

the stout Prince Regent lying lengthwise on a hobby-horse, face downwards, and on his back a still stouter dame is seated. The curious part of the drawing is to be found in the front wheel, which is *provided with cranks* (see Fig. 5). Of these the Prince has hold, and is evidently propelling the machine, and his fair burden, by them. Here again the artist was ahead of the designer, and a chance of fame and fortune was missed, as, had cranks been applied, the modern bicycle would at once have been created, and the already flagging interest revived.

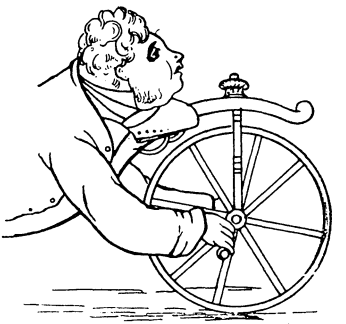


Fig. 5. - Cranks on a hobby-horse wheel.

America was not far behind England. The Drasina, or dandy-horse, reached New York, and on June 26, 1819, W. K. Clarkson was granted protection by the United States Patent Office for "an improvement in velocipedes," but it did not meet with a very cordial reception in the New World. At home an important improvement came from Surrey, in the patent of Lewis Gompertz, already well known by reason of his improvements in carriages. His aim was to supplement the leg action by bringing the arms into play to drive the front wheel. He accomplished this by an ⌐-shaped lever, the legs of which were pivoted to the front forks. Below this there was, on the left side, a fan-shaped quadrant with toothed rack, acting on a small pinion on the hub of the wheel, which was thus propelled by rotation on pulling back the top cross-bar. To give the rider a better purchase there was above the saddle a padded rest, like the

back of an old-fashioned arm-chair, to support his chest and shoulders. The whole scheme was clumsy and badly carried out.

Anterior to either Johnson or Gompertz came the invention of a working cutler in Leeds, John Baynes (patent No. 4,398, Sept., 1819). He made a bold attempt to lift the feet from terra-firma, and make them work a set of levers, treadles, crutches, and so forth. This love for complication was the besetting sin of all early inventors. They would not have the simple winze-crank at any price, and any out-of-the-way multiplication of levers, cogs, etc., was better in their eyes than the simple direct-action crank. Various attempts were made in this direction, but little definite was accomplished. In 1824 a Mr. Jameson brought out an improved edition of the velocipede of M. Ricard, already referred to, but it was of no account. In 1830 the Von Drais, as it had now come to be called, was improved by M. Dreuye, who showed such good results that the machines were officially recognized by the French Government, and several rural postmen were mounted thereon, and did very well until winter set in, when, amid the snow, the machines proved worse than useless, and were abandoned.

The hobby-horse was now out of fashion, and was only used in a few parts of the country. Some of them survived a long time, and even in the "fifties" one of the most primitive type was regularly ridden, or paddled, into Northampton market by a farmer residing at Yardley Hastings, but before the "thirties" the doom of the dandy-horse had been pronounced by the leading lights of the fashionable and medical world, and it practically died the death of cold neglect. Few—very few—of these genuine relics of the past have survived, but doubtless some still lie forgotten in vaults or lofts. One was unearthed a few years ago

in the cellars of the Polytechnic. An excellent specimen used to be shown by Messrs. Goy, 21, Leadenhall Street, E.C.; and in 1869 I remember hearing of one, at Doncaster, being converted into a bone-shaker by the addition of cranks and pedals. If this had only been taken care of, it would have formed one of the most interesting relics in the history of cycling antiquities.

For the next few years there is positively nothing worth noting; but 1835 marks a new epoch in cycle chronicles. In that year Gavin Dalzell (born Aug. 29, 1811, died June 14, 1863) commenced business as a cooper in Lesmahagon, Lanarkshire, Scotland. He came of an inventive family, and, either having seen, or being in possession of, an old dandy-horse, turned his talents to improving that vehicle. Striking out a new line for himself, he set about—what had, apparently, been thought impossible—propelling the machine without having to balance and acquire motive power by pit-patting the ground. Even he had to succumb to the besetting sin of all contemporary inventors—a complex connection of rods—but in a much simpler form than usual, by only using a single rod, connecting the swing lever in front and the cranks of the driving wheel in the rear. Fortunately we have something more than supposition to go upon, as the actual machine is still in existence, and the following illustration gives a very good idea of its general details (see Fig. 6), being a reduction from a drawing, made by Geo. Moore, in *Bicycling News* of April, 1889. It seems to have dropped out of memory, but interest was re-awakened about 1879 by a cycle maker in Coventry (trading as the Lion Cycle Co., and afterwards proprietor of the chief music hall in Wolverhampton) publishing, on the back of his price list, a description of the machine. By degrees other details were brought to light. In the *Bicycling News*

of Jan. 7, 1881, C. Wheaton, a very old cyclist, expressed a hope that this machine might be shown at the Stanley Show. His wish was not gratified for eight years, until January, 1889, when he was, alas! dead.

The machine is indeed a wonderful one, and carries its years remarkably, more especially as parts of it had previously done service in a tricycle Dalzell had made. In many respects it is marvellously like the dwarf safeties of to-day. The pilot wheel had a rake given to the fork, and the turned-back, low-down handles are, with the exception

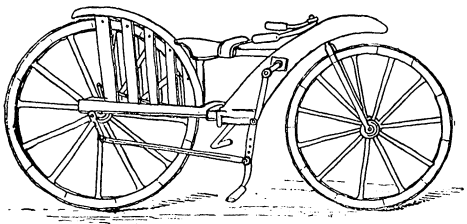


Fig. 6.—Dalzell's rear-driving dwarf-safety bicycle (1836).

of being too near together, exactly as in the most fashionable types in 1890. The curved-down frame also reminds one of the framework of a modern ladies' bicycle. "Light and delicate" mudguards were fixed over the driving wheel. On these he sometimes carried three boys who, in a measure, helped in propulsion by pushing down the side rods, and held on to him and each other. It was before the days of technical terms, for parts of such machines at least, and the handle bars were called "reins," and the pedals "stirrups," owing to their position, directly below the rider, at the bottom of swing levers: the upper ends of these pivot on to the frame below the cross-piece carrying the saddle. From the middle of these levers iron rods run to the cranked axle,

or rather cranks on the axle of the rear wheel. He also, by holes in the swing lever, had an effective adjustable power gear.

Thus it was that Dalzell solved the problem, hitherto considered impossible, of balancing and propelling a bicycle without touching the ground with his feet. Dalzell soon became an expert, and must have travelled at a very respectable rate. His "wooden-horse"—as it was christened by the local blacksmith, John Leslie—became noted far and wide, and he vindicated its speed in various competitions, the most remarkable of which was when he defeated the King's Mail Coach, which was compelled by statute to cover ten miles within the hour. Not only did he easily beat it at this distance, ten miles, but played with it *en route*, by riding round it three times, to the chagrin of the passengers, and disgust of the driver and guard, who had backed their "cattle" pretty heavily. It seems, therefore, that Dalzell was equal to twelve miles in the hour. He did not patent his invention, but freely sent drawings and details to numerous inquirers. It is, therefore, almost certain that other machines were made, and as a younger brother, John Dalzell, a practical engineer, travelled a good deal in the west of Europe, dying in Sweden in 1851, it is probable that the design became known on the continent, and ultimately bore fruit.

After this comes another long blank. Manumotives, generally with four wheels, were in use; but in 1839 Mr. Merryweather invented a three-in-hand tricycle with two six-feet driving wheels, connected by a three-throw cranked axle. The writer very clearly recollects trying several fearful and wonderful machines, which are still extant, at the Crystal Palace in 1862–63, where they have apparently been ever since, like the stone animals at the lower lake "before the

Flood." On a machine of this kind the noted pedestrian, Charles Westhall, rode for a wager against time, but particulars have been forgotten. The early "fifties" produced nothing, except a rumour that a Lyons manufacturer, in 1850, had made a bicycle with cranks. Between 1855 and 1860, Henry Clarke of Wolverhampton, and a man named Panter, made a front-steering tandem tricycle, nearly all of wood, on which they used to propel themselves about the district; but there is little to be gleaned from this period, and even the World's Fair of 1862 failed to bring forward anything startling, although G. Massley, of Antwerp, produced a spring frame machine, and a Chelsea firm—Mahen & Co.—showed a tricycle *said* to be driven by cranks, but there does not appear to be any reliable record of it. In America, in 1862, P. W. Mackenzie patented the Cantering Propeller, a horse resting on a framework supported by wheels, and so attached to the cranked axle, between the front wheels, that the action of cantering, or rocking, imparted a progressive action. Unless I am mistaken, a young friend in Kingston, Canada, had one of these machines about 1865, and I sometimes used it. The reason it is here alluded to is, that the inventors claimed that it covered the vital points of cycle crank construction, when the latter was introduced a few years later. We must go back to France for the birth of what alone can be recognized as the modern bicycle—a machine propelled by cranks on the front wheel. This was very nearly attained in the patent of M. Mareschal and MM. Woosin and Leconade, in March, 1865, the specification of which shows a tricycle having each of the three wheels fitted with cranks and pedals.

In 1865 a mechanic, named Pierre Lallement, a workman in the employ of M. Michaux, appeared on a wooden

bicycle, driven by cranks and pedals on the front wheel, generally accompanied by an attendant on wheeled skates, in the Place de la Concorde, and other parts of Paris, where he created nearly as much excitement as Niepice and his celeripede had done nearly half a century earlier. Not having capital, he sold his patent to his master, who exhibited the machines in the 1867 Exhibition. Lallement shortly after emigrated to the States, little thinking of the mine of wealth he had opened up. There he constructed a machine which was at once recognized as something novel and likely to be valuable, by J. Carrol, of New Haven, Conn., who, jointly with Lallement, was granted a U.S. patent, dated Nov. 20, 1866. This was the first regular bicycle with cranks, the pioneer of thousands of successors, on the American patent books. After this, trace is lost of Lallement; it would be interesting to know if he is still alive, and if so, where he is. He richly deserves either a testimonial—or monument.

England was, however, before America, the first specification for the two-wheeled crank-driven velocipede having been granted on August 1, 1866, to Edward Gilman —another name of which nothing more is known. It is said that the word "bicycle" first appears in a patent of J. I. Stassen (whose son is even now a maker of considerable note), dated April 8, 1869, whereas "tricycle" is said to occur in a French patent so far back as June 8, 1828.

CHAPTER II.

BIRTH OF THE BICYCLE.

MANUMOTIVE making was at its zenith in the early "sixties;" but inventors were handicapped by not having any means of ready intercommunication. This barrier was removed by the establishment of the *English Mechanic*, which first appeared on March 31, 1865. It was a success from the outset, and the thanks of cycle constructors and riders, all the world over, are due to this journal for having acted as foster-mother to countless "germs of thought," many of which, by illustration and discussion, were brought to maturity, bore fruit, and finally developed into some of the leading improvements in the machines of to-day. In fact, this interesting and useful paper gave a fillip to the idea, and carefully prepared the public mind, so that it was ripe for the regular bicycle when introduced. It was some months, however, before discussion was actually started, the velocipede question being set rolling by "N. J. W.," in the issue for Oct. 13, 1865. Many would be glad to know if this semi-anonymous writer still lives. His letter fanned the latent interest into flame, and letters were so numerous that in the issue for Nov. 29, 1865, a special article and page of drawings appeared, with scale diagrams for a hand and foot tricycle—drivers, 36 in.; pilot, 20 in. Correspondence and designs were asked for, and mechanical readers quickly availed themselves of the privilege; and among the first points dealt with were several schemes for change of power, in order to accommodate the strength of the man to the varying conditions of the road.

Early in 1866 the controversy was renewed, and on April

6, p. 33, a letter appeared from "J. V. B.," of West Bromwich. In this he showed a drawing of a tricycle, driven by cranked handles and wheel gear connections, exactly as introduced with the "One-Two-Three" Excelsior of 1879–84. He claimed that it "could be propelled with little exertion at the rate of ten miles an hour." In this number appears one of the first "second-hand" advertisements—"A velocipede for sale, 4 ft. wheels, price £4." A fortnight later, April 20, p. 74, cols. 1–3, "H. P.," of Ludlow, in giving information to Mr. Tonkes, refers to "J. V. B.'s" letter, and joins the majority in arguing against cranks and levers, but says:—"*I think an endless chain the best means yet adopted for giving motion to the driving wheels.*" This, therefore, fixes the introduction of chain-bands at a much earlier date than has hitherto been supposed.

Fearful and wonderful fads continued to be suggested; one of these, a dicycle (the word, however, was not then invented, tricycle being, as yet, the only cycle word), a forerunner of the Otto. There were two wheels, ten feet high, running free on an axle, having a loop in the centre with shoulder supports (see Fig. 7), in which the unfortunate man stood holding on to two T-shaped supports by his hands or with smaller wheels using them as rests for his arm-pits, and striking the ground with his feet.

A sketch in the *English Mechanic* of May 18, 1866, becomes historical as it is the first known illustration of a tricycle driven by means of cranks and independent endless chains. The machine (see Fig. 8) is open fronted, with a footboard, and a small castor-wheel at the rear steered by a knee-lever, very much like an invalid tricycle made by the Manchester Tricycle Co. in 1883. The inventor, "W. J. S.," had the same charming disregard for time and distance as the others, and claimed "twelve miles an hour easily;"

but all the same it was a wonderful machine for its time, and marks a distinct era in cycle history. In the same

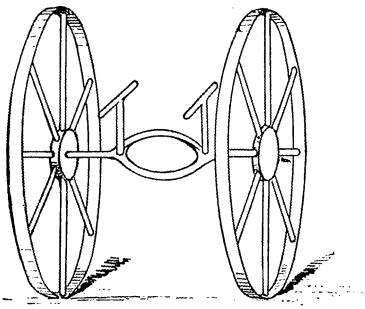


Fig. 7.—The pre-Otto, or first dicycle (1866).

issue, J. Hastings suggests a practical plan for speed and power gear.

On May 25, 1866, p. 173, appears a resurrected "hobby-

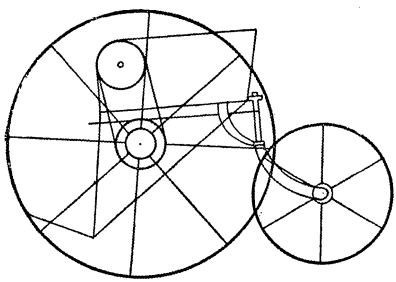


Fig. 8.—The first tricycle driven by rotary cranks and endless chain (1866).

horse," improved to date, and just constructed by S. Maddison. It contains all the original points, but the saddle is

on a spring, and there are very modern foot-rests a little below the front axle, and a guard to prevent the toes catching on the spokes. Thus the celeripede of M. Niepece lasted exactly half a century, 1816–1866.

Drawings, designs, and descriptions now followed fast on each other; but few are worthy of note, and we must push on, only stopping to note a novel power gear (see *English Mechanic*, June 22) for two sets of speeds. For ordinary driving there are two 60-inch level geared wheels propelled by long levers; for hills these are raised from the ground and two 30-inch ones used, the large ones acting as fly-wheels. Again we must halt—July 27. At this time the wheels were all of wood, with flat iron tyres; but H. W. Carrol gives instructions for making a modern velocipede wheel, and, but for the absence of rubber and the dimensions of the materials, it would do for a much later period. "The rim or tyre to be half-round iron, an inch wide;" axle, hubs, etc., nearly as at present; "spokes, quarter-inch steel rods, screwed into hub and headed into rim." At this time the formation of clubs and a publicly subscribed purse to reward the inventor of the best velocipede were advocated. The last notable feature in 1866 wheel-history, is the FIRST SOCIABLE (Oct. 19), by "K. U. B.," who guided by means of a rod and screw—the subject of a Coventry patent about twenty years later. Indeed, recent inventors seem to have drawn largely on the *English Mechanic* of this period for "original" inspirations.

The early part of 1867 is, although its printed history is dull, notable as the date of the first bicycle built in England, *i.e.* in the modern interpretation of the word. We have always taken a keen interest in endeavouring to fix this date; and early in 1879 discussed the event with a bicycle maker, T. Johnson, then carrying on business

at 18, Peel Street, Wolverhampton, who claimed to have made "the first bicycle in England" just ten years before. Metal was employed in its construction, and, if we remember aright, with hollow spokes (at that period, 1879, there was considerable talk about Cavers' recently introduced "hollow spokes"). Mr. Johnson promised to look up and send "the original receipt for money paid for material" to construct the same. His letter, dated March 31, 1879, and the bill now lie before the present writer. The bill is from "Temple and Co. (late John Bradley), Ironmongers, High Street, Stratford, E.," and the bill quotes:—

	12 March, '67.
	s. *d.*
40 ft. ¼ in. Barrel	5 0
2 Bars, 1⅛—½ R. S. C. 26^{tr}	3 6
	8 6

Paid. B. R. W.

Of course these materials *might* have been used for other purposes. Perhaps some reader may be able to get on the track of this machine. At any rate, it is a claim; but unfortunately we cannot now trace Mr. Johnson, so that it must be taken for what it is worth. A more reliable claimant was the late H. Clarke, of Wolverhampton. In 1867–8 he was a maker of wood wheels for carriages, perambulators, etc., and exported a number of bicycle wheels to France as soon as the demand sprang up; he also made bicycles and tricycles on his own account, and turned out wire-wheeled machines at a very early date. One of these is still in existence. The firm—now known as Henry Clarke's Exors.—is the oldest in the trade.

The first illustration, in any English publication, so far as an exhaustive search has been able to discover, of the bicycle—that is to say, the front driving and steering two-

wheel machine—is that in the *English Mechanic*, June 28, 1867, p. 247, in which "T. B. E." gives outline sketches which we reproduce (see Fig. 9) of the Paris bicycle shown at the Exhibition of that year, where also was shown a dandy-horse without any means of steering except by the swaying of the rider's body; but the daring absurdity of this was cast in the shade by a design, given on Dec. 6, of a bicycle with cranks to the front wheel, but no steering bar of any kind

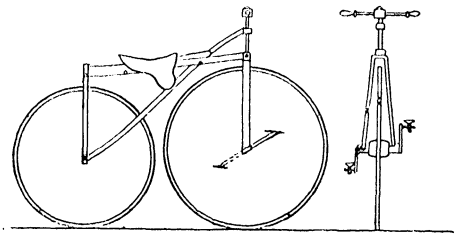


Fig. 9.—The first bicycle illustrated in England (1867).

whatsoever, or any means of guiding except by the feet and weight.

Old inventors still clung to three or four-wheeled machines, and one, dubbed a "Manupede," was brought forward in which the riders sat, in the then favourite position, *dos-a-dos*, and with quadruple driving, arms and legs, a speed of "twenty-seven miles an hour" (on paper) was calculated.

In the early part of 1868, the bicycle was practically unknown in this country, but in all probability a few machines were made by ingenious mechanics from the drawings already referred to. During the year, Charles Spencer, a noted gymnast, was on a visit to Paris, and being struck with the evolutions of a smart rider, Henri Pascaud, in the Luxemburg Gardens, purchased a machine and

brought it over to London. His companion at the time was Rowley B. Turner, agent in Paris for the sewing-machines made by the Coventry Sewing Machine Co. In London a mutual friend, M. J. Maynall, son of the well-known photographer of Regent Street, became interested, and to these three riders fairly belongs the honour of introducing and popularizing, by proving its practical utility, the use of the bicycle in this country.

If English inventors were slow, those in America were the reverse, and many improvements were made in construction, the famous troupe of travelling acrobats, the Hanlon Brothers, being responsible for some of these; and the Hanlon bicycle was the most popular type in the States. They simplified the frame, made a sliding slot in the crank for the pedal, the first adjustable throw, and increased the size of the driving wheel, but made the handle-bar very high. Proverbially smart, the Yankees soon improved the machine in all ways.

A new era may be said to have commenced by the publication of a large drawing in the *English Mechanic*, Sept. 4, 1868, of the Hanlon bicycle—a veritable bone-shaker, but one of the first opportunities the general public had of judging what the bicycle was like. This led to an immediate and great increase in the correspondence. Riders now began to think of their comfort, and rubber tyres came into use. On Dec. 11, 1868, J. Hastings gave an improved method of fixing the same. They were, however, merely belts of rubber stretched over, cemented, and nailed to the ordinary tyre and rim. He also described how he had ridden thirty miles through snow, on Nov. 7, 1868, on a machine so fitted. Thus we fix another much disputed date; but how long before that Mr. Hastings, or others, had used rubber tyres, still remains an open question.

The year's record closes with a bit of interesting written history. In the Directors' minute book of the Coventry Sewing Machine Co., Limited, at the end of 1868, there is a memorandum to the effect that the company had received a large order from Mr. Rowley B. Turner, for a number of bicycles to be made for him to sell in France. It was discovered that the "articles of association" were not equal to the demand, and as the sewing machine trade was slack, it was resolved to reconstruct the company. This was promptly done, and it became "The Coventry Machinists Co., Limited."

CHAPTER III.

PROGRESS OF THE MODERN CYCLE, 1869—1889.

So far, although we have, for more than a century, followed the history of the cycle through its stages of manumotive, "carriage without horses," celeripede, draisden, hobby-horse, dandy-horse, Dalzell's daring design, the comparatively recent velocipede, and last of all the bicycle, all we have written is a mere prelude to the introduction of the bicycle, which cannot be said to have found a resting-place in this country until 1869. Early in that year (Feb. 25), the Coventry Machinists Co., Limited, of Cheylesmore, Coventry, proud in its new title, commenced to carry out the first large order ever given in the trade, and so sowed the seed which has led to such vast results, rescuing the ancient city from commercial depression, and eventually making it the capital of the world's wheel industry. It was after all an "ill wind" which first filled the sails of

the barque—cycle industry—on home waters. When only a small portion of the order had been completed—we believe it was for five hundred machines—that disastrous continental conflict—the Franco-German War—broke out; trade in cycles, or anything else, in France was paralyzed, and it is an interesting feature in connection with this very order, that Rowley Turner, who gave it, made his escape, later on, from Paris on (we believe) one of these very machines, and was fired at by the Prussians. Faced with a heavy loss, the rejuvenated Coventry Machinists Co. determined to push the home trade in bicycles; the demand was soon created, and how the great firm met that demand, and gained a fame which fairly belts the globe—is it not an honourable history known to every one interested in cycles? Had they stuck to sewing-machines they would have been dead long ago; now the output is enormous, a good dividend is paid on the £100,000 capital, and over five hundred men find regular employment in their workshops, where, by-the-by, most of the present leading Coventry makers graduated before embarking on their own account as manufacturers. But once more we have raced ahead of the times, and must retrace our steps.

Very few had the temerity to enter the lists against "the big house at Coventry," and those who did have been relegated to the limbo of the past, with one exception, and he had commenced making in the previous year. We refer to Clarke, of Darlington Street, Wolverhampton. The originator of the firm, Clarke, sen., who, by the way, was on active service in the Crimea, died a couple of years ago. The firm always made an honest, good, but not flashy article. Sewing-machine makers were among the first to encourage the new industry. Chief among these was Newton Wilson and Co., of whom more anon. Wheel-

makers found it worth while to make a special feature of supplying "hickory wheels for velocipedes."

Two days after the eventful ride to Brighton by Messrs. Spencer, Turner, and Maynall, on February 19, 1869, the first advertisements and prices appeared, Messrs. Spencer and Snoxell coming out with a full page, and the cost of a bicycle, "on the Parisian model," was from £10 for a 32-inch to £14 for a 48-inch. The latter was, however, an unheard-of size, except on paper. The Rantoone Co. and French Velocipede Co. also began advertising at this date, and the machines attracted general attention.

Despite the fact that the bicycle—it had by now received its proper name—was the most successful solution of the problem of manumotive locomotion, ill-advised inventors did not stay their hand. Three preposterous proposals need only be quoted: (*a*) (Jan. 15, 1869), a single wheel, twelve feet high, over which the rider sat, having only forks, handle-bar, and saddle; with nothing whatsoever to preserve the balance. (*b*) (*ibid.*, July 16, 1869), "The bicycle to be held upright by being attached to two balloons, each fifteen feet high." On a par with this was, ten years later, (*c*) a suggestion to increase the speed: "A man should have wings fixed to his arms, and steer by his chin!"

The first radical change in cycle construction came with the Phantom, which appeared first, either in a race at the "Velo. Derby" at the Crystal Palace, on May 27, 1869, or was exhibited at the Horse Show in the following month. It was introduced by Reynolds and May. Wood was abandoned, and instead of the axle being *supported* by thick wooden spokes, it was *suspended* by light wire spokes looped through the inside of the iron rim, and carried back to the hubs. Thick rubber tyres were cemented on, and the machine was grace and elegance compared to the

wooden bicycles of the day. It also introduced a new system of steering, by employing both wheels for guiding. The frame (see illustration, Fig. 10) is strikingly like, but in a slightly different position to, the most approved model of divided-diamond in 1889–90. The seat-pillar was really a pivot on which the rear wheel worked, and the independent motion of the wheels made it extremely difficult to steer. Thus the effect was exactly opposite to anticipations, and this prevented it from becoming popular; but it paved the way for many future improvements, and dealt the death-blow to wooden-wheeled machines. They continued to be made, however, until 1872, and by one firm, Beck and Co., London, who turned out a very superior article, to a still later period, 1874–75.

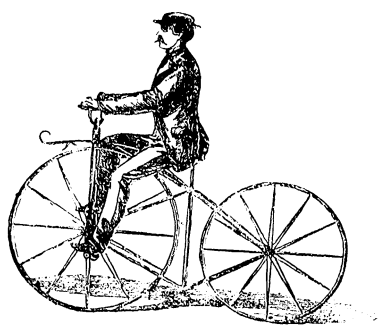


Fig. 10.—The Phantom double-steering bicycle.

Owing to the great interest felt in the new-fashioned sport, a grand exhibition and race-meeting of "velocipedes" was arranged and duly held in Studley Royal Park, and within the shade of that famous and most beautiful of all monastic ruins, Fountains Abbey, Yorkshire. There, on the grass close to the high tower, on Saturday, June 26, 1869, was brought together the finest display of cycles ever seen up to that date. One of the most interested spectators, and an eager inquirer into details, was the present writer. Our recollection of that memorable afternoon is clear and vivid as if it only happened twenty weeks instead

of over twenty years ago. A prize of £4 was offered for the best bicycle. This was won by J. Richardson, junior, Parliament Street, Harrogate, who exhibited for Newton Wilson and Co. The second prize, £1 10s., went to Brindle, of Blackburn, who was much disgusted, and poured out a tale of woe that he had lost because he had taken off, or forgotten to attach, his leg-guard. The points by which the judges officially announced the superiority of the Newton-Wilson machine were; 1, Leg-guard; 2, double-bearing spring (it bowed out round the socket-head); 3, self-acting lubricators. The Phantom had not penetrated so far north. Brindle's bicycle was beautifully polished, and being of light wood and bright steel, was really very pretty to the uneducated eye of the period. Another loquacious loser was the venerable J. Crossley, a veteran of fifty, with flowing gray beard, and a wonderful kind of bath-chair-like tricycle, on the merits of which he held forth excitedly. Later on he beat a lot of younger men in the tricycle race. The first prize for three-wheelers was only £2, and was won by W. Younghusband, of Darlington; Pearson and Co., of Leeds, taking the second of £1. Here the points of vantage were: 1, cyclometer (termed pedometer); 2, adjustable steering-bar. Thus was the Stanley Show anticipated, and a considerable impetus was given to the trade.

At the Crystal Palace, during the latter part of the year, several makers had stalls and showed machines. Prominent among these was the Velociman, the invention of the Rev. R. H. Charsley, Oriel College, Oxford. A full description and illustration appeared in the *Field* of Oct. 9, p. 306, of this, the first cycle that paper ever described. This machine may fairly claim honours for "survival of the fittest." It is the only machine which has retained its name and continued in the market ever since, and now—1890—it has no

superior as a hand-driven machine, and figures prominently in the price list of Singer and Co.

One of the improved "bone-shakers" was that made by Charles Pomeroy Button, 142 and 143, Cheapside. He claimed that they were much easier to learn and safer to ride than others. No doubt they were, but the maker himself did not seem to know the reason. It was simply this: the handle-bars were extra long, and the rider was

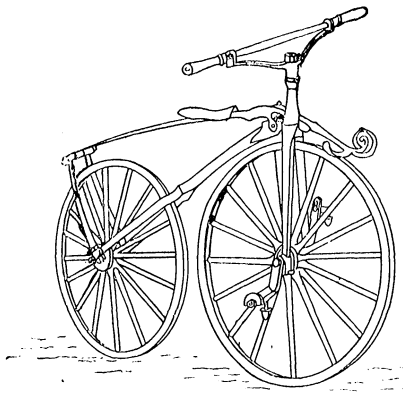


Fig. 11.—The Improved Boneshaker, 1870 (with long handle bar).

also more over his work. It may be taken as sample of the perfected "timber-truck" (see Fig. 11).

We have dealt too much in detail already, but the birth of the bicycle is too interesting a subject to be hurriedly skimmed. The next few years, however, are not of so much consequence. Wire wheels and rubber tyres slowly made their way, but the original types still held their own, and their manifest discomfort almost throttled the new sport in its infancy. A wonderful increase in the number of riders

had taken place in 1870, and at Bridlington, Yorkshire, where the writer was learning, in July of that year, the roads fairly swarmed with riders. The high, or, as it was known, German, tricycle was also used a good deal. It had a bicycle front and two small rear wheels, and was warranted to give a maximum of spills in a minimum of time. In the spring of 1871, when the writer became the proud possessor of a bicycle, it was a 38-inch wooden-wheeled machine, with a sort of semi-socket head, containing an anti-vibration spring, and with a handle-bar twenty inches above the wheel! But he got a vast amount of solid enjoyment out of the machine. In 1870–71 several more makers entered the trade. John Keen, afterwards professional champion, began to make in a small workshop near the top of Surbiton Hill, and put tyres fully two inches thick to the machines, which still retained the ungainly shape of the original wooden ones. It was on one of this description that Whiting won the first championship. In the north of London the name of W. H. J. Grout began to be heard of. His specification, dated June 2, 1871, is the earliest mention of toe-driving we have. Hitherto bicyclists used the middle of the foot to push away the pedal, but Grout proposed to make this important portion "flat or oval, covered with india-rubber, so as to admit of the rider using the front part or toes instead of the waist of the foot." A little later he introduced a system of vulcanising red rubber tyres into crescent steel rims in such a manner that it was impossible for them to come off. He has, however, for some years discontinued business on his own account—a great pity, as he was one of the pioneers in early improvements—but is now connected with the Winallie Cycle Co. Seniority in the London district, therefore, fairly belongs to Stassen and Son, of Euston Road, N.W., who, commencing in 1870, still carry on the

business, and have ever been noted for roadsters of sterling strength, long lasting and reliable under all conditions, the firm never having given way to the cry for lightness, and, too often, consequent weakness.

At this time the bicycle had a hard fight to live at all. Men were getting tired of the "bone-shakers," "timber-trucks," and "tread-mills," as they were variously termed; the exertion and misery were great, the reward and pleasure small, the excessive vibration of iron rims made itself painfully felt, and hundreds of men gave up, or thought of giving up, the exercise. Improvements in construction came to the rescue. M. Magee, of Paris, produced machines entirely of iron, steel, and rubber, increasing the size of the driving-wheel to 48 inches, and decreasing the trailer to 24 inches or thereabouts. English contemporary makers followed, if they did not lead, and machines of a new order were the consequence. The Coventry Machinists Co. were firmly established as makers of reputation; Smith and Starley started making at St. Agnes' Works, also in Coventry, and the elder Starley quickly gained the title of "Father of the Bicycle." No man introduced more improvements. This was in 1872. Starley was one of the first to add the much-needed step, and he invented the Ariel wheel, which was practically the old Phantom with a lever bar and cross-tension spokes added (see Fig. 12), to take the strain off the spokes, and convey it direct from the axle to the rim. Another improvement (?) was that the forks were taken right up to the all-too-short handle-bar. The Lady's Ariel Bicycle, with lever pedals on the left side and forkless backbone, was also introduced. The Coventry Machinists Co. were now (1873) turning out the Spider (see Fig. 13). At Wolverhampton, in addition to Clarke, and some makers long ago extinct, Dan Rudge, landlord of the Tiger's Head Inn, but a wonder-

fully smart mechanic, made about the best machine in use. It was, however, but little known, save among local racing

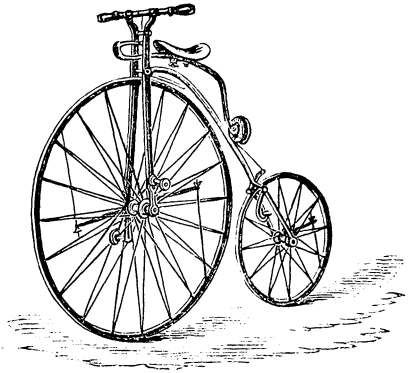


Fig. 12.—The Ariel Bicycle (1873).

men, by whom it was held in high estimation. Keen, at Surbiton, built machines lighter and higher than any one

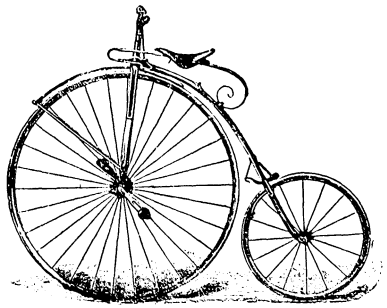


Fig. 13.—The Spider.

had previously thought possible. In Nottingham, Thomas Humber was producing the Humber, already winning

fame in races, but little thinking that his small workshop in Stretton Street, Union Road, would ever grow into the present vast premises at Beeston. In Sheffield, Hydes and Wigful, Stanley Works, agricultural implement manufacturers on a large scale, were turning their attention to the production of high-class bicycles; and the bone-shaker, now relegated to learners, began to get rare. A little later, the famous ride from London to John o' Groats proved the bicycle to be capable of great things.

With these transformations—they were more than improvements—in force, the season of 1874 looked promising. High wheels were now the rage, and the writer was the proud owner of a 54-in. Ariel, weighing *only* 64 lbs., and the knowledge that it was the biggest bicycle in Ireland. At that time, 50 inches was rarely exceeded; the Hon. Keith Falconer, however, rode a 57-inch, and at the close of the year bestrode a 60-inch. In the summer of 1874, the present writer was commissioned by the *Bazaar, Exchange, and Mart* to write a series of articles on "Bicycles of the Year." With considerable trouble, particulars of machines made by twenty firms were got together. Few people imagined there were so many in the country. Out of these only five or six are now known. The articles commenced on February 17, 1875, and the *sixteenth* annual series are now (1890) running in the *Bazaar*. But to get back to our subject. Bicycles were alone thought of in 1874–6; tricycles were scarcely heard of, the longest to survive being one named the Edinbro', but it had slipper foot-plates on long levers, and belonged to the 1860 or so period; but the general design, with a few exceptions, is that of the Phantom, Olympia, etc. About this time, the Surrey Machinists Co. added the front wheel bicycle brake-spoon, which at first had to be applied by pushing out the upper

arm-lever; the fulcrum on the handle-bar was soon added, and the rear wheel brake disappeared.

In 1876 Keen produced a machine with the backbone continued down to the rear axle, called, Irish-like, "a single fork," without any attempt to explain how a *fork* could be *single*. He had, however, been anticipated, as in 1870 the Coventry Machinists Co. made a wooden machine on this principle, and by the Lady's Ariel in 1874. Bicycles had now reached their maximum of height, and an idea, the Stanley Head, introduced by Hydes and Wigful in 1875, was by some gross carelessness not patented, whereby the inventors lost a certain fortune, as it later on came into almost universal use, driving the old-style socket out of the market. Handle-bars were lengthened and lowered, and with the socket-head disappeared the old long bow spring; but, as the front wheel grew up, the rear wheel grew down to 16 or 18 inches.

Early in 1877, Starley thought there was scope for a tricycle, and, striking out on altogether original lines, produced, through Haynes and Jefferies, what was known as the Coventry Lever Tricycle. We had the good fortune to be in Coventry in the January of that year, just after the experimental machine had been completed. It was apart in the work-shop, but was put together, taken out, and, on a neighbouring road, the present writer had the satisfaction of being the first to try it, except three or four belonging to the firm who had been on it. We have already said the machine was different from any other. On the left side there was a wheel of 50 inches; on the right, two 20-inch wheels connected by a long steel tube, both being steered by a ball-chain handle. Driving was accomplished by long (and horridly awkward) levers; the seat was supported by springs over the cross-piece above the cranked axle (see

Fig. 14). This set the ball rolling in a new direction. The long-continued demand for a tricycle was at last met; but, instead of the makers trying to bring them up level with bicycles of the day, they were years behind, and continued so until quite recently. The Coventry Lever was first advertised in the *Bicycling News*, March 9, 1877, but attention had been called to it in the *Bazaar*, on February 3.

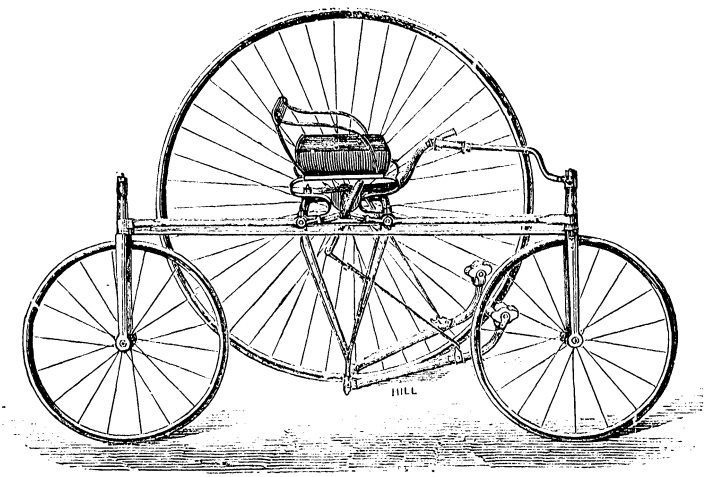


Fig. 14.—The Coventry lever tricycle (the first modern tricycle, 1877).

Other types soon followed, nearly every maker having a design of his own. Singer, at this time, was very keen on a new type of Safety, with 50 to 60-inch rear wheel, and 24-inch front, the former being driven by levers. It was not a success, and a large number were ultimately converted into tricycles. In this year, 1877, there was a vigorous attempt to reintroduce manumotives by R. L. Burkett, of Wolver-

hampton, who sank a lot of money in the enterprise. Had he carried out certain suggested improvements, it might have been otherwise. The machines were constructed to carry from one to eight, or more. The Beaconsfield, for five, had the front man riding the pilot-wheel, as on a bicycle; behind him, in a conveyance of ample proportions, supported by two large wheels, sat four men, who were working, by hand-power, a swinging bar. The result

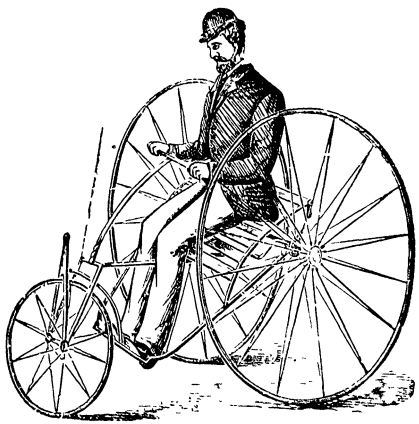


Fig. 15.—A manumotive of 1877-8.

was akin to trying to eat a bantam's egg with a soup-ladle. There was a vast waste of power; the bar did not require five per cent. of the force applied, and the pace was painfully slow. In a trial against time, five of us working, we occupied over seven minutes in riding a mile on a cinder path. Had the machine been geared up highly, a good pace could have been got out of it; the single (see Fig. 15) was worked by pushing in and out a bath-chair-like

handle. The rumours of a hollow-spoke bicycle created a good deal of sensation; and, introduced by Carver, of Nottingham, proved practicable but useless.

There was little of note early in 1878, but later on in the year advantage was taken by several makers to exhibit at the Paris Exhibition. The French makers were not impressive. One was, however, startling; he showed a bicycle with a 98-inch wheel, of a very old type, like the stilted Ariel. On translating the catalogue we found the dreams of early correspondents in the *English Mechanic* realized (?), for with it "the average speed of travelling is twenty-five miles an hour; or, for a short distance, a mile in about one minute forty seconds."

CHAPTER IV.

DEVELOPMENT OF THE CYCLE OF TO-DAY.

TEN years had now, 1879, passed since the introduction of the wooden bicycle, an eventful period. The "bone-shakers" gave way to "iron horses," these in turn succumbing to modern light and graceful "steel-steeds," as the bicycles had now come to be called; and by contrast the three generations of cycle construction seemed to be more than a century apart. Certainly the next ten years did not produce anything like the same change. There were perhaps, at this period, more makers than at any other time, even the present, but many were of minor—very minor—importance, and the total production was about one-quarter of what it is now. There were several makers in Leicester, five or six in Nottingham, and about thirty in Wolverhampton. Very few of these are even remembered now. Ball bearings, introduced in 1877, had

now become general. Bown's Æolus were being rapidly taken up by the trade, but Dan Rudge, of Wolverhampton, had some equally good, and he was the undoubted inventor of ball-pedals. Safety bicycles, both in their high form, such as Singer's 'Xtra and the Facile (see Figs. 16 and 17), continued to find increased favour. A Birmingham firm about this time sought to establish their right to the crescent-shaped rim, and instead of taking as an opponent a big firm, selected a small maker named Hill, of Sheffield, who proved that it had been in use a long time, and won, thereby saving

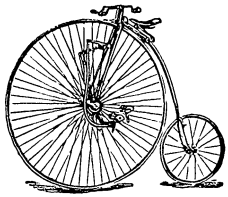


Fig. 16.—Singer's 'Xtra (high safety).

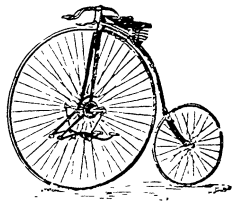


Fig 17.—The Facile (high safety).

the trade thousands a year on royalties, but it practically ruined Hill, who was not supported as he ought to have been. Up to this, John Keen had almost a monopoly in racing machines, but he began to be pushed on one side by firms with greater capital. Dan Rudge suffered in like manner, although he made the most perfect machine of the time. Little change was made in the general outline of machines, but many improvements in detail. Direct spokes became more general, but Coventry makers still clung to the ugly and unnecessary lock-nuts. Bate, of Wolverhampton, brought out a spring wheel, very like one put on the market in 1889.

Tricycles were now making great headway. Starley, the original Starley, put on the market the Salvo-Quadricycle

invented the preceding year. This was the first application of double driving power distributing gear, and it revolutionized tricycle making. At first the machines were made with a small steering wheel at the back, and a tip or balance safety wheel in front. This was soon reversed, and the steering wheel put in its proper place; but the safety wheel was retained at the back, to prevent back-falls, necessary, as nearly all the weight was on the big (50 to 60 inch) wheels. The driving chain was on the left side, running round the gear box and pulley on the end of the crank

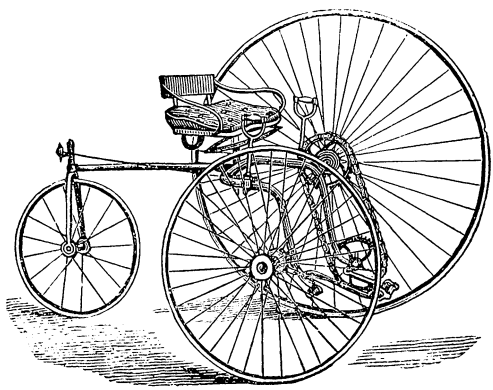


Fig. 18.—The "One-two-three" tricycle of 1879.

shaft; steering was effected from the right handle. The machine weighed about 120 lbs., but was the best on the market, and a number of races were won on it. A Salvo was supplied to H.R.H. the Prince of Wales in May. Eighty per cent. of the machines then made were of the primitive open-fronted single driving rear steerer pattern. The Excelsior was put forward as a "One-two-three," all wheels being different sized and driven by wheel gear, in lieu of chain, as shown on Fig. 18. A tandem pattern of the

Coventry was made on the old *dos-a-dos* lines, and condemned as unsafe. Ball bearings were first applied to the head in this year, by Bate, of Wolverhampton, and a machine so fitted was shown in London, the centres of the Stanley Head working on balls, top and bottom.

Up to this time tricycles were looked on more as vehicles whereon the non-active might disport themselves, and generally had large seats (sometimes with a draw underneath), with backs, which placed the rider in a most uncomfortable position, and rendered it quite impossible for him to put forth anything like full power. A dangerous form of machine was also introduced, the rider sitting very high, and driving, directly, a cranked axle. It succeeded in killing a city accountant near Croydon, and soon disappeared.

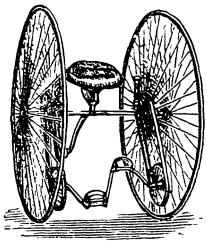


Fig. 19.—The Otto dicycle (1879).

Tricycling continued to make great progress (in 1879); new types were continually introduced. Some excitement was caused at this time by reports of the Otto dicycle, which was to "supersede all bicycles and tricycles," and accomplish things altogether too marvellous. For a long time it was difficult to find out anything about it, but at last we ran it to earth at Ipswich, on October 23, 1879, where an engineer, a Mr. Bugg, had taken it up. As it forms a distinct chapter on cycling, we illustrate it. From the sketch (see Fig. 19) it will be seen that the rider sits between the wheels, above and behind the axle. It was the most ingenious cycle ever invented, and quite practicable, but it required a good deal of skill, and although it had several advantages it never became popular, and after struggling for eight years or so died out.

Inventors were not so busy as usual this year. In 1880–81 changes were less frequent, but improvements were more decided. In tricycles the lever action was almost universally replaced by the rotary, the Coventry Lever changing its name into the Coventry Rotary in consequence. Direct spokes were pushing the hideously ugly lock-nutted spokes—dearly beloved in Coventry, however—out of the market. In this connection we remember a curious incident, one of the leading makers in the trade actually declining an order because the rider insisted on direct spokes, and declaring, "I will not take an order for a direct spokes in *ten years*." In three years he was making nothing else. A new fashion was set in tricycles by the introduction of the Humber (see Fig. 20). It was an original departure from existing models, and after its practicability was proved it became the favourite type for years, and was universally copied by the trade. It was, compared with other tricycles, practically a bi-tricycle, having bicycle handles, pedals, position, saddle, etc. We saw the first machine which arrived in London, a few minutes after it was taken from the packing-case. It had two 60-inch wheels, and weighed over 100 lbs., the wheels were soon reduced to 50-inch, and it was greatly lightened : it was always rather difficult to steer. Before passing on, two other machines deserve a word. The Omnicycle, the first modern machine with hill-climbing gear, was ingeniously designed, and was propelled by straps passing over expanding fan-shaped segments on the axle, and with clutch action to the wheels. The foot action was up and down, and any length of stroke could be taken, or the feet kept at rest on the

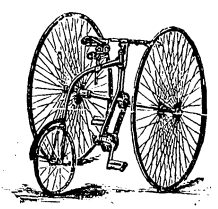


Fig. 20.—Humber type tricycle.

pedals when running downhill. It had, however, antiquated steering, and was very heavy, but was fast; indeed, in 1881, P. G. Hebblethwaite won the 100 miles captaincy of the London T. C., in the then fastest time on record. The other machine was the Gnat, by Garrard, of Uxbridge. This was something like Singer's No. 2, but was the first to popularize the system of having a single rear driver and two front or pilot wheels, like the original Edinbro'. He was also the first to make all three wheels nearly the same size, in this case 27-inch rear driver and 22-inch side, the difference at the time being almost as great as in the bicycle. It is a pity, therefore, the maker did not remain in the trade to reap the benefit of his good judgment. Another contribution to the already long list of "mad" makes came out about this time. It was called the Ideal, but was better known as the Octopus, or Hen and Chickens, as it consisted of one central wheel with four small ones around it, thus  , so that a fall was difficult, but the rider wanted the best part of the road. The idea was that when travelling the four wheels were off the ground, and therefore the machine was practically a unicycle. Sometimes the reverse was the case; the four wheels would jamb, raising the central one so that the rider was left pedalling in space. Carrier tricycles for the conveyance of parcels came in. Bayliss and Thomas secured the first Post-office contract for these machines, and gave so much satisfaction that they still supply a good number. On June 17, 1881, James Starley, "father of the modern bicycle," and inventor of double driving gear as applied to tricycles, died at Coventry. So highly was he esteemed that a very handsome memorial was erected by public subscription to his memory, and forms an ornament to the city. A year before (June 26, 1880) another important figure passed away. Dan Rudge, of Wolverhampton,

inventor of ball pedals and the Rudge bearing, had earned a name for high-class workmanship second to none. Of such value was this "good name" that the trade interest was purchased by a wealthy Coventry solicitor, Mr. Woodcock, who also bought out the successors of Haynes and Jefferies, the Tangent and Coventry Tricycle Co., and combined the whole under the title of Rudge Cycle Co., Limited, which by good management has grown into the present gigantic concern with £120,000 capital. One more incident of 1881, and we have done with that year. On Friday, April 8, Sir Thomas Parkyns, Bart., appeared at Greenwich Police Court, in answer to five summonses against the Locomotives Act, for using the steam tricycle, which he had invented, on the highway.

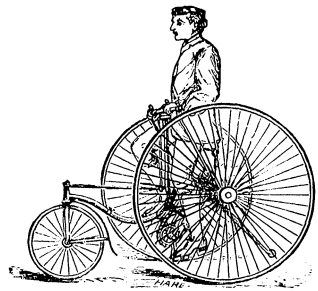


Fig. 21.—The Leicester Safety, 1881–2 (first bicycle front-steering tricycle).

Many important and permanent improvements were introduced early this year, 1882. A firm, "The Leicester Safety Tricycle Co.," introduced a tricycle (see Fig. 21) late in 1881, and put it on the market in January, 1882, which paved the way to the greatest and most enduring revolution in steering. It was the first machine with a pilot wheel steered by a bicycle-like handle bar, and had somewhat the appearance of a Humber turned round (see Fig. 20), steering being effected by reins from the pillar supporting the cross handle, running parallel with the main connecting tube, astride of which the rider sat. The National Arms and Ammunition Co., Limited, brought out the National Tricycle, with the double driving gear placed in the centre

of the (divided) axle. This gear was of a novel type, and is at present used in all the Premier (Hillman, Herbert and Cooper) machines. Another notable machine brought out was the Merlin, driven by levers and straps, but with independent action, and, as in the Omnicycle, permitting any length of stroke to be taken. These machines have never had a fair chance, and if one of the leading makers would now apply this action to a good rear-driving Safety, it would make a machine second to none. Tandems now began to catch the fancy. Bayliss and Thomas were the first to produce a good machine, publicly shown in February, 1882 (see Fig. 22). At the same time Harrison, of Manchester, brought out a triplet, and the Centaur Cycle Co. a tandem-sociable or four-in-hand; Rudge and Co. following with one somewhat similar a year or so later. Sociables were in considerable demand, but were always slow, heavy, and awkward, and their doom was sealed as soon as the tandem was improved sufficiently to make it really attractive. A hand power machine was brought out by the Manchester Tricycle Co. exactly on the lines illustrated and described on page 18, except that it had modern wheels, etc. Racing had a wonderful beneficent effect on the weight of tricycles, as makers were compelled, much against their wish, to build light machines. In the end of 1882 we weighed a 42-inch racing Humber, and found it to be only 50¼ lbs., marvellously light for the times.

Fig. 22.—An early Tandem (1882).

Another advancement was made with the Greyhound tricycle, in 1883. This machine (made by a firm now extinct) improved upon the Leicester, but it might have died out had not the Coventry Machinists Co. produced the

Ranelagh on similar lines. Tandems increased greatly in number, and with the exception of the Coventry Rotary, which deservedly enjoyed a large share of popularity, single drivers ceased to attract attention, and two track double drivers, of which there were several, were never popular. Another revolution was caused by the Quadrant Machines, the invention of Lloyd Brothers, Harbone, Birmingham (now the Quadrant Tricycle Co.). These also made their *debut* in 1883, with 34-inch steering to 40-inch driving wheels (see Fig. 23), and finally put an end to the rage for absurdly small steering wheels. In 1884 it was made with an equally large pilot.

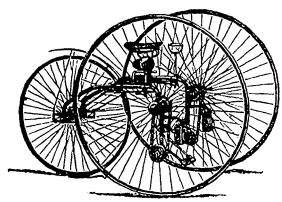


Fig. 23.—The Quadrant, 1882–3 (first large steering wheel).

The Ordinary bicycle may be said to have reached its zenith at this period. It was practically as light as now. Andrews built a 54¾-inch, scaling a few ounces under 19 lbs., and the outline was even more graceful than at any future era (see Fig. 24). Dwarf bicycles had not, as yet, attracted much notice, and Singer's 'Xtra almost monopolized "Safety" work. John Keen tried to reappear as a maker, but his fame was almost forgotten; with better management he ought to have amassed a comfortable fortune and been at the head of one of the chief firms in the trade. An excellent Rowing machine, the Remicycle, was brought out, but it disappeared soon after. Preposterous propositions were not quite played out; there was a return of the thirty-five miles an hour in the "Dutton," also Scantlebury's weighted wheel (44 per cent. increase in speed), and other ideas which met with the usual fate.

The year 1884 was a busy one all round, and the

patterns and varieties of tricycles were never so numerous; as a proof of which, there were two editions of "Tricycles of the year," and 220 distinct machines were described. The Humber type continued *the* favourite, and was made by nearly every one in the trade. It was also (by the original

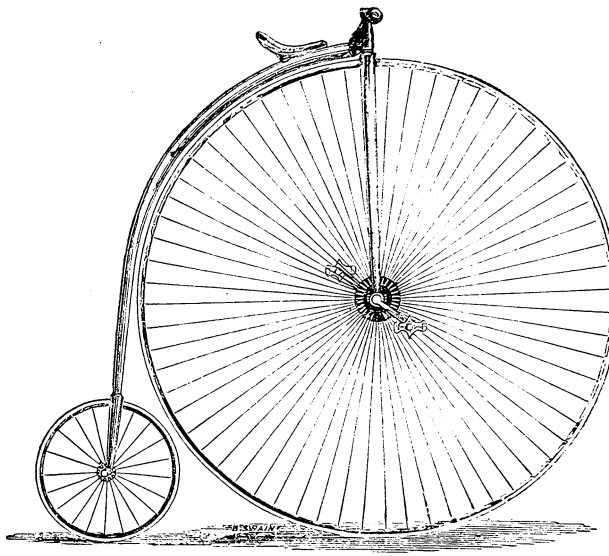


Fig. 24.—The Racing Ordinary (1883).

makers) brought out as a tandem, and obtained thereby for itself a new lease of life, and this pattern is still popular. The rider in front is not shut in in the slightest, and has neither brake nor steering to attend to. "Whatton" handles are used, coming out at each side from the back. The Surrey Machinists Co. put a splendid machine on the market with their Invincible Racing Tandem, an open-fronted double-

driving rear-steerer, weighing, with 44-inch wheels, 81 lbs., and almost identical with the pattern now made. Dwarf machines were regarded with greater favour; and Hillman and Herberts' Kangaroo (see Fig. 25) rapidly made its way to the front, and, as the Humber Tricycle had been, was universally copied. It had a short but merry life of two seasons; but even an improvement by Bayliss and Thomas

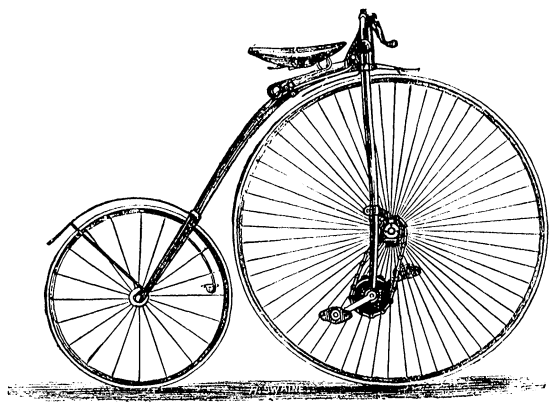


Fig. 25.—The Kangaroo dwarf.

to make the same machine suitable to riders of different heights failed to make it remain a favourite.

The types of tricycle most in vogue now were the Loop-frame (see Fig. 26) and an improvement thereon, the Central Gear (see Fig. 27).

In July, 1884, the Quadrant Tricycle Co. (formerly Lloyd Brothers) produced the No. 8 Quadrant—even now their leading machine. It had 40-inch drivers, and 26-inch pilot, but with the "Quadrant" system of steering, the axle ends having small grooved rollers working in quadrants

about 12 inches apart. This was a distinct advance on the Greyhound, and really years before its time, as the merits of its design with large frontal wheel (see Fig. 28) did not meet

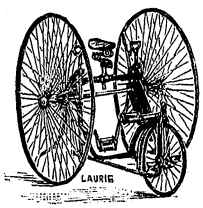


Fig. 26.—The loop-framed tricycle.

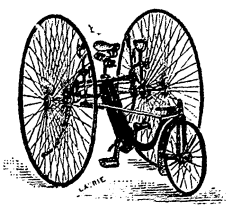


Fig. 27.—The central geared tricycle.

universal approval until 1888 or so. Bicycle steering having proved practical, when applied to small front wheels, Humber and Co. designed a tricycle with a 20-inch pilot, over which was a long, slanting back, pillar and bicycle handle-bar. The

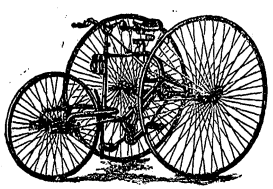


Fig. 28.—The Quadrant (1884).

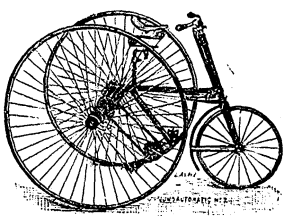


Fig. 29.—High-frame Cripper (1884).

first machine was ridden by R. Cripps, who won a large number of amateur races on it; so much was it identified with him, that it got to be known as the Cripper, and the term is even now applied by those who have so slight a knowledge of cycle construction that they cannot distinguish between the Cripper (see Fig. 29) and the machine of to-

day, the Direct Steerer (see Fig. 30) The former had, generally, 46 to 50 inch rear, and an 18 or 20 inch front wheel, controlled by a strong spring, in order to keep it straight. The chain was in the middle, but the driving gear was at the side, and the axle had only a narrow bracket support in the centre (see Fig. 29). We have elsewhere declared the points of the modern machine. Later on in the year, a Humber Safety bicycle, almost on the same lines, was also brought out by Cripps, with a satisfactory result. The Birmingham Small Arms Co. had also a rear-driving dwarf-Safety, but these were all difficult to steer, and the Kangaroo was in general use. A small East London maker brought out a tandem attachment to connect two ordinary bicycles, after removing the backbones, but it met with deserved failure.

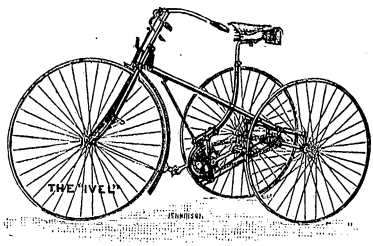


Fig. 30.—The direct steerer.

At the Stanley Show, January, 1885, Starley and Sutton showed the new Rover Dwarf-Safety, which revolutionized cycle construction throughout the world. At this time there were numerous patterns of dwarfs, all very small, and those which did drive from the rear had pilot wheels of 20 inches or less. The Rover had 30-inch rear (driving), and 36-inch front, and the appearance, owing to the long wheel base, was more imposing than attractive. The rider was well above his work, and steering was controlled by reins from the stem of the steering rod; and this being another "red-letter" chapter in cycle history, we illustrate it (see Fig. 32).

The present writer was about the only critic who was able to see any good in it, and his original remarks may now be quoted, more than five years afterwards.

"We are very glad to see that some firm has had the courage and good sense to oppose the fancy for tiny 'Safeties,' now so prevalent. With the Rover we are introduced to a commendable departure from the common lines." *Bazaar*, February 2, 1885.

The marked success of the Cripper tricycle was the feature of the year. It rapidly displaced the Humber both in 1885 and 1886. In the summer of the former year, the Rover was greatly improved; the front wheel was lowered to 30 inches, and the forks were slanted back so that the rider had direct control over the steering. This clinched the argument in its favour, further emphasised by a remarkable performance in a road race in October, which proved this type to be second to none in point of speed. Thus vanished the last remaining doubt, and since then, the trade generally, both at home and abroad, has never turned back. The old (high) bicycle has been allowed to sink into comparative obscurity, and the attention of the trade has been focussed on perfecting the rear-driving dwarf-safety bicycle.

Tricycle makers were not idle during 1885, but, recognizing the new departure, they were chiefly engaged in working off the old patterns which, owing to their number and variety, had long been the bugbear of their existence, greatly curtailing profits. Under these circumstances, developments were not very brisk with the new machines; rear-driving safeties were pushing front-driving safeties out of the market, and becoming more and more of the improved Rover type. Cripper tricycles were not only ousting Humbers, but were themselves growing out of their old shape and name into Direct Steerers. One of the first firms to

complete a perfect model of the latter was Hillman, Herbert and Cooper. They abolished the spring-controlled 20-inch pilot, and substituted a 28-inch free wheel; the old bracket-supported axle with side gear box was banished, and its place taken by a stout cross tube supporting the axle on four places, at each side close to the wheel-hubs, and in the middle on either side of the central gear box (see Fig. 30). This proved so successful on the racing path, that it in turn became the generally accepted model, and the old Cripper vanished from the scene, leaving the Direct Steerer the first favourite, which it still remains. Nearly all have the same salient points, but differ slightly in the detail of the connecting framework or minor points. We illustrate typical machines (see Figs. 29 and 30), so that points of difference between the opposite machines can be seen at a glance, and every reader saved from committing himself (or herself, as ladies are special offenders, even amongst those who have risen into authorities on the subject) into confusing the two types. Only one other pattern of tricycle commands favour with the riders of to-day. This is the modern development of the Edinbro' (1865–1875), Singer's No. 2 Challenge, and Garrard's Gnat. These had, however, been almost forgotten; but the latter still finds a place in the list of the Metropolitan Machine Co., Limited, of Bishopsgate Street Without. It was re-introduced by G. J. H. Dearlove, the well-known Islington agent, plus bicycle steering, at the Stanley Show, January, 1886, as the Phantom, and it is by this name the type ought to be known, and not that generally bestowed upon it. A little later it made its *debut* in the racing world, by being the first tricycle home in the North Road Cycling Club's fifty miles contest, on June 18, 1886. After this practical demonstration of its merits, other makers were not slow to avail themselves of

the experiment which they were not original enough to make for themselves; and so several varieties of the Phantom type are now to be met with. Thus the Phantom, which is not in existence now, fulfilled its mission and set a new fashion; just as the Leicester and Greyhound came into the world to give bicycle steering to pilot-wheel tricycles, and then sank into oblivion.

There are thus, to all intents and purposes, only two patterns of single tricycles. This is of immense benefit to the trade and riders. No longer are the numerous and costly list of different kinds necessary; they are simpler, easier, and cheaper to make. Indeed, the wheels, bearings, forks, etc., answer the purpose for either bicycles or tricycles; so there is an absence of the multiplicity of parts and patterns which, a few years ago, produced cost and confusion as the chief results.

CHAPTER V.

MAKES AND MAKERS OF 1890.

HISTORY has repeated itself in the matter of the most popular form of cycle extant—the rear-driving Safety. In it we have returned very nearly to the old bone-shaker model, two wheels of 30 inches; but here the resemblance ceases. In outline, the machines may be closely allied; in detail, they are as far asunder as the poles. There have been sudden changes in the past, preconceived notions have been upset, and popular taste diverted into many different channels; but the time has at last arrived when we can speak with some confidence as to the future. The many conflicting ideas have been drawn together, and, as we stated in a previous

chapter, the attention of trade and cyclists is jointly focussed on a few patterns, which long experience has proved to be practical, profitable, and pleasing. Furthermore, they are not likely to be seriously interfered with by improvements, alterations, or fancies. Therefore, with the scheme of construction universally approved and decided upon, nothing remains but to perfect the machines in detail. In the old days (five years back means "old days," in the brief spans of cycling chronological eras) each one of the many (and generally useless) varieties of machines required a separate and special set of parts, patterns, tools, fitters, etc. Now the general limit of varying size is only, say, from 28 to 32 inches for nine-tenths of the machines made, Safeties and tricycles. The same pattern spokes, rims, rubbers, in some cases nearly the whole of the framework, do for all. Owing to this and attendant advantages, the prices for first-class machines ought to be much cheaper than at present; but, seemingly, the chief makers have never forgiven themselves for fixing too low a price on tricycles when they first came out, before they had properly studied the comparative cost, and feel bound to take it out of customers for all time.

This work being a permanent history of, and handbook of reference to, "Cycles and Cycling," we do not intend to commit the mistake of going into elaborate technical details of machines which happen to be in vogue at the time of its being written, but which may be out of date in a year or two. Such details belong to current literature, such as the pages of the *Cyclist*, *Wheeling*, *Bicycling News*, or annuals, and those who desire a compact guide will find a complete and continuous chronicle of cycle construction in "Bicycles and Tricycles of the Year," published in the spring of each year by the *Bazaar* Press, 170, Strand, W.C.

We will therefore only deal here with what may be described as standard types.

The Ordinary Bicycle, as it has come to be called, is our original friend, the high two-wheeler. Here there has been small scope for originality, as the shape and framework had to be adhered to, so that there has been little change for the last six or seven years. The early faults of construction, such as narrow handle-bar and wide tread, have been improved out of existence ; lightness has reached, or is very near, its minimum ; height outgrew itself fifteen years ago, and general details have improved but little, except that ball pedals are now always considered an essential part of every cycle, and not an extra, save in the very common varieties. Of late, there has been a call for Rational Bicycles. These are practically a return to the style of 1874, but with all modern improvements, and are useful, but ugly. The driving wheel is some inches less than the rider can stretch, the spring and backbone are built open instead of close, the tyres are full inch (instead of ¾-inch), the rear wheel is 24 or 26 inches high, and the forks are given a 2-inch or 3-inch rake. The machine will stand any amount of rough work, and may be ridden safely over rough roads which would bring an ordinary Ordinary to grief at once. Those riders who prefer to be up in the world, and yet require safety, cannot do better than invest in a Rational. Several of the leading firms now make a special line of these machines, which, by combined comfort and safety, have given a new lease of life to the Ordinary. Some of the most essential improvements in the bicycle were invented by N. Salamon, formerly chairman of the Coventry Machinist Co., who did an immensity to aid and develop the bicycle in its early days, by, in the Club and Matchless machines, completely insulating the rider from vibration by

metallic contact, by interposing buffers of rubber. This was very skilfully carried out; but its great value was never sufficiently appreciated.

Dwarf and Safety Bicycles may be divided into three sub-classes: (a) *Safeties*, a generic term, which covers all bicycles which aim at safety, whether high or low; (b) *Dwarfs*, which can be applied to small (or "pony") machines, not of course juvenile Ordinaries; but is generally understood to refer to front-driving machines, such as the Kangaroo, Sun and Planet, etc., *i.e.* machines dwarfed, but not necessarily safe; (c) *Dwarf-Safeties*—otherwise the present popular pet—the rear-driving dwarf-Safety, to give it its full and correct title, but the common wrong has converted its cognomen into simply SAFETY, a term that would, when applied to a race, permit the rider of a 60-inch 'Xtra or Devon, etc., to enter, although no one is likely to handicap himself by so doing. The best known of all the dwarf machines, the Facile (see Fig. 17), partakes of all three; although not a rear-driver (it is also made in this pattern however), it is practically as safe as a dwarf-Safety. One of *the* secrets of its success is the very close tread of the pedals. We have, further on, explained the importance of this. The high Safeties are now seldom seen; for instance, at the 1890 Stanley Show, out of a total exhibit of 1238 bicycles, 1081 were dwarf-Safeties, and only 11 high-Safeties. So, with a reference to the 'Xtra, illustrated on page 37, and the dwarf or Kangaroo, now extinct, illustrated on page 46, we can pass on to a consideration of the most important mount of to-day, the

Rear-Driving Dwarf-Safety, or Safety, which suffers (?) from the battle of the frames. At first, when the trade followed in the wake of the Rover revolution, the simple plan was a frame of cross-tubes —+ without stay of any kind.

This soon proved insufficient, and lower stays from the rear fork ends to the bracket, carrying the crank axle, were added (see Fig. 31); then the Rover double frame (see Fig. 32) appeared, and ingenious makers took full advantage of the facility with which various shapes of frame could be adapted to Safeties, and proceeded to ring the changes thereon.

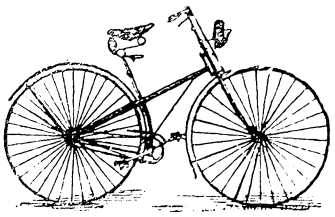


Fig. 31.—The cross single-frame Safety.

Shape only does not give excellence, and it is mere conjecture as to which is the best; but, roughly speaking, the worst of all, next to the primitive unsupported cross, is the

Open or Single Diamond, without any central support; and, whatever is chosen, this ought to be avoided. It stands to reason that a frame shaped thus <> is least of all calculated to bear a strain, the tendency being to open and close it like the joints of lazy-tongs, or bit of trellis-work. On the other hand, perhaps the best of any are to be found amongst the many varieties of the

Fig. 32.—The Rover Safety (double frame).

Divided or Double Diamond, which is well stayed throughout, and the weight and strain so distributed that

they do not tend to pull asunder or injuriously affect any particular part, besides being much neater and more finished in appearance. We give a sample illustration (see Fig. 33) of a typical specimen; but this type is so pronounced a

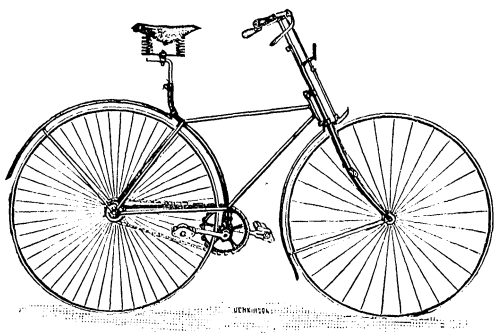


Fig. 33.—The divided diamond frame.

favourite, that it finds a place in the *répertoire*, in a more or less perfect form, of nearly every maker. Another very good pattern is the

Success Model, first made popular by the Success, shown in a portrait of that noted machine (see Fig. 34); or it is also known as the Leachman frame, from its inventor, a smart young engineer connected with the Success Cycle Co. A somewhat similar frame is to be found in the Special Singer, Rover No. 2, and others. Then there is the

Fig. 34.—The Success frame.

Stayed Single frame, of rather effective appearance, as carried out in the Demon, Racer, Sunbeam (see Fig. 35), and others. The R. & P. has an improvement, the stays running

direct to the neck, thus taking the strain off the backbone—a capital plan. This machine is generally made with the pilot wheel larger than the driver. It has an extra long spoon to the direct link, plunger, brake, and other good points.

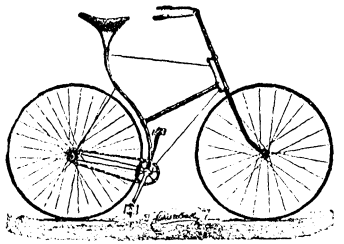


Fig. 35.—Sunbeam.

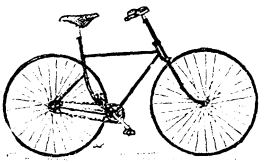


Fig. 36.—The Mohawk—Racer.

There are many varieties not coming within those mentioned. Of these we illustrate the Mohawk (Fig. 36), which has features peculiarly its own.

Spring frames form a distinct and now large class. The first modern one to make its mark was the Whippet (see Fig. 37). The appearance gives one the idea of greater complication than is actually the case. Vibration is almost entirely annulled by the rider's weight being supported by the spring below the main tube; but the distance between the saddle, handles, and pedals is always preserved. This is the point which must always be observed; but is not by all makers, hence the worse than worthless character of some of the spring frames. Riders who suffer from the

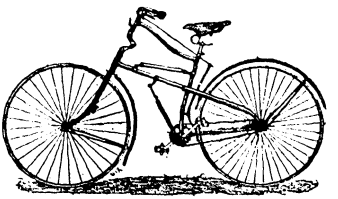


Fig. 37.—A spring frame Safety (the Whippet).

effects of jolting and jarring, incidental to rough roads—vibration in short, the greatest of the many evils that the cyclist is subject to—will experience much benefit and comfort from this type of machine. They form the pleasantest mount for the middle-aged, nervous, or "take-it-easy" rider, who prefers to plod along pleasantly, at peace with people generally, and happy in himself. That there is no loss of power is proved by the fact that more hill-climbing contests have been won on the Whippet than on any other machine. Among the chief machines are the Whippet (Linley and Biggs), British Star (Guest and Barrow), Weston (D. G. Weston), etc. There are also the excellent spring forks of the Coventry Machinists Co., Humber and Co., and others.

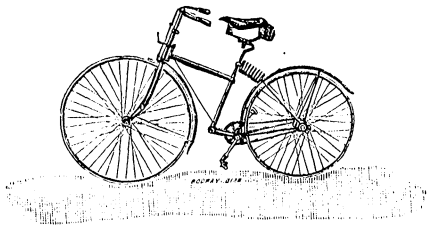


Fig. 38.—A spring frame Safety (British Star).

Pneumatic Tyres.—This, the latest improvement, consists of a three-skin inflated tyre forming an air belt round the wheel two to three inches in diameter. It absolutely abolishes vibration and makes riding over cobble stones feel like a smooth road; it is also 100 to 200 yards per mile faster than a small tyre for grass racing. Most makers supply it to Safeties.

Ladies' Safeties.—At the first blush, the idea of bicycling for the fair sex seems suggestive of the coloured prints which were common a few years ago; of scenes in certain lively quarters in Paris, during the early days (1868–69) of "la velocipede," or of something altogether too *outré* to be considered by any well-regulated girl of to-day.

It is neither of these things. The ladies' dwarf-Safety bicycle sweeps away another grievance, and places within the reach of any fairly active woman another "right," or rather, throws open the best form of cycling, so long denied her. There are now a very large and ever-increasing number of pretty-petticoat-pedal-pushers who prefer this form of cycling to all others; and those who take the trouble to master its very slight difficulties, are likely to be of the same opinion. With the exception of the connecting frame-work, it is the same as the usual Safety, and now finds a place in almost every maker's list. We annex a drawing of the ladies' Swift (see Fig. 39), one of the prettiest mounts extant —a fair sample of the others. In this case there is an additional attraction; the front forks are hinged, so that the weight rests on coil-springs, which "give" with any jolt, and thereby absorb the bulk of the vibration, greatly adding to the pleasure of riding, by saving the arms and hands from the disagreeable jarring. A little—easily acquired—expertness in mounting and dismounting (N.B.—Learn to fall gracefully) is all that is required, and that is fully dealt with in Chapter IX. by my very able colleague, Miss Davidson, who is universally recognized as the most competent authority of the day on the subject. I must strongly caution every lady against taking a seat on a tandem, bicycle or tricycle, in which there is a high connecting-rod between the handle-bars; it is absolutely dangerous to do so, and a lady who is asked to share the danger of an imperfectly constructed machine of this kind, can form her own opinion of the gentleman (?) who would put her in such

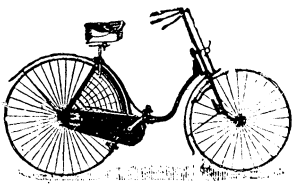


Fig. 39.—The ladies' Swift Safety (Coventry Machinists Co.).

a position. Both riders ought to be perfectly free, as in the typical tandem tricycle on p. 64, and bicycle, p. 65.

The Single Tricycle has now been brought into such close alliance with the Safety bicycle, that the two machines can easily be made interchangeable. This is very well carried out in the Ivel, and one or two other machines; the former we illustrate (see Fig. 30, p. 48). It is a good specimen of the almost universal direct-steerer—drivers, 30 inches; pilot, 32 inches; the backbone, or main connecting-tube, is made with a fork, the ends of which bolt to the bearing-cases on either side of the central driving-gear on the rear axle. When a conversion is desired merely, these balls have to be slacked, the axle taken off, one of the wheels removed, and a spare axle, etc. (easily carried in the M. I. P. bag), placed in its hub, where it is secured in the fork (backbone) ends, the chain placed in position, when a Safety bicycle is the result. The great bulk of single tricycles are built on the lines we have already described; but most makers have their own ideas as to the frame-work. In most cases, the machines are alike suitable for either ladies or gentlemen, such as the Juno (see Fig. 40). Others have high connecting frame-work, thereby confining their use to the male sex. One of these is the Humber direct-steerer, "No. 1 Gent's Roadster," to quote the catalogue; but, although we are rather hazy as to the exact qualification necessary to claim rank as a "No. 1 Gent," it is suitable for a much wider circle of clients than its ambiguous title points to. It is a remarkably well-designed *direct-steerer;* there is no trace of the old "Cripper" in its scheme of

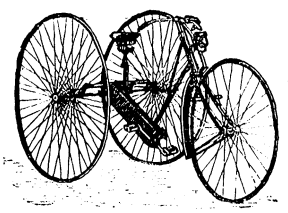


Fig. 40.—The Juno.

construction (see Fig. 41). A very good system of anti-vibration springs can be put to the front socket-head; a small slide tube in front of the main socket (over the pilot-wheel) contains a strong coil-spring, on which the weight rests, and which gives to the inequalities of the road, and, as we have already explained, lessens the vibration, and this is accomplished with very little addition to the frame-work. It necessitates, however, what is known as a rear band-brake, applied by the ordinary handle-lever, but brought into action by a connecting rod, which tightens a band on a drum fixed to the pulley of the driving-gear.

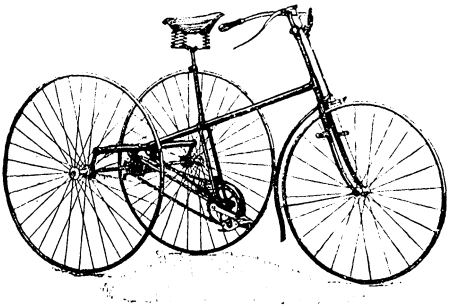


Fig. 41.—The Humber (high frame) direct steerer.

With a rigid frame, the brake is applied by a direct plunger, or, as in the Humber, a link-plunger. In a lady's tricycle, the chain, pulleys, gear, etc., ought to be always efficiently protected by wire-netting or guards, or the consequences to her drapery will be most disastrous, if the results are not more serious. Ladies' machines are also much lighter, with low framing (see Fig. 40); but otherwise the same.

The Edinburgh-Guat-Phantom-Olympia has already been dealt with (see p. 41). The chief representatives of this class are, the Wasp (Success Cycle Co.), the Whippet No. 2

(Linley and Biggs), and a few others, including the Olympia (Marriott and Cooper). This type is sometimes termed "Double-steerer," owing to both the front wheels being employed to steer, and it has some advantages over the Direct Steerer, and, of course, some drawbacks. As a rule, it is steadier, and it lacks the complication of balance driving-gear.

Frame-steerers are confined to two patterns—the Quadrant (Quadrant Tricycle Co.), and the Crescent (Rudge Cycle Co., Limited). In these the direct steering is broken, and the pilot wheel is guided by the frame-work carrying it (see Fig. 28, p. 47). This gives the front wheel, owing to the absence of upright forks, rather a run-away look, and the steering is not so sensitive as the free wheel of a Direct to the disturbing influence of the road, although the machines can be guided to a nicety, and the rudder requires less attention. A luggage-frame, capable of carrying a good load, can be fixed over the front wheel; in other details the Frame-steerer is identical with the Direct Steerer.

The Quadricycle, or four-wheeler—a once familiar name owing to the original title of Starley's Salvo—promises to be heard of in the future, and is likely to be attractive to the eyes of some—especially nervous—riders. A four-wheeler with rigid frame-work would be about the most dangerous of all cycles; but this objection is removed in the chief type at present before the public—Rudge's Quadricycle—by a compensating balance to the connecting frame of the front wheels, which permits them to assume a considerable angle without affecting the equilibrium of the rest of the machine. It has—like the old Coventry Rotary—only two tracks; we anticipate a far greater success than it has hitherto met with. It is also presented as a

Tandem Triplet Quadricycle, for three riders. The

idea of putting three riders, tandem-wise, was first shown by Harrison, of Manchester, at the 1882 Stanley-Sportsman's Show, but in a crude form—whereas the present machine is on a wonderfully perfect principle; the general details are as in the double machine. The front seat can be used by a lady; the central rider does all the steering and braking. Some wonderfully fast times have been done on it, and with three riders like Lee, Allard, and Oxborrow, all records for fifty miles on the road ought to be pulverized.

Tandem Tricycles have never obtained any great degree of popularity; and, although dating back from the "fifties," or earlier, they are not so much patronized as they were four years ago. Bad designing proved a serious check on their earlier development. Apparently the makers aimed at—at any rate, they achieved—the undesirable object of getting the riders as close together as possible; this gave tandems an obnoxious appearance, and prevented large numbers from having anything to do with them.

From the time they introduced the Four-in-hand—already referred to—the Centaur Cycle Co. have borne a reputation second to none. Instead of wasting time and money on racing machines, they have devoted their energies to the production of tandems, built for touring and genuine road-work. The prevailing type of tandem has the front portion like an ordinary direct-steerer, with an added seat at the back for the second rider. In the great majority there is a dangerous and unnecessary high connecting bar between the steering-rods; this should be carried *below* the frame so that it is, although equally effective, quite out of the way. Either or both ought to be able to steer, and either saddle suitable to a lady; all these good points are to be found in the machine shown in Fig. 42. Purchasers should always make this a *sine quâ non*, and absolutely refuse to purchase,

or hire, a machine fitted with this most dangerous bar. These remarks apply with double force to tandem bicycles. Both riders ought to be perfectly free to dismount at either side. With a bar shutting in one side, it is impossible to do so, and serious accidents have arisen from this cause; a Liverpool lady had her leg fractured owing to being shut in in this manner. Turn a deaf ear to whatever may be said, and either insist on the connecting-bar being below the frame—patronize a maker who carries out this properly—or do without a tandem altogether.

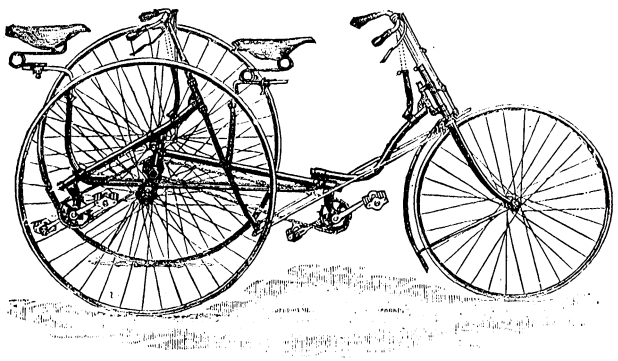


Fig. 42.—The Invincible tandem tricycle.

Tandem-Safeties. The brilliant future anticipated for these has not yet been realised, and very few satisfactory machines have been constructed. Amongst these are the Ivel, Premier, Humber, Raleigh, Singer, etc. We illustrate, as a typical specimen, the Singer, as it shows low (connected) steering, and the front seat may be occupied by a lady (see Fig. 43), who can mount or dismount from either side—either has perfect control over the steering and

brake-power—while every required part is adjustable,—all points which must be looked for when buying a machine. Neither makers nor riders have yet quite mastered the intricacies of Safety-tandems; when they do, better results will be produced on both sides; but, for the present, a tandem on these lines is tolerably perfect. Another notable machine is the *Invincible* (Surrey Machinists Co.), with nearly all the commendable features of their tandem tri-

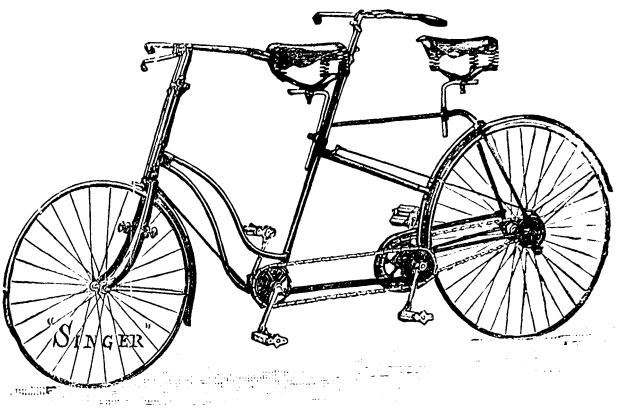


Fig. 43.—The Singer Tandem Bicycle.

cycle. Other well-known representative machines are the Ivel (Dan Albone), Lightning (Lightning Cycle Co.). Both these are, however, confined to gentlemen, owing to the shape of the frame-work; but the former, and one type (there are several) of the latter carry the steering connection parallel with the main tube, so that there is no high bar.

Sociables seem out of date in 1890. They would have been in 1888; but at the Stanley Show of 1889, two or

three, on a new and improved plan, were shown, and attracted much attention. They reminded one very much of a machine by Markham, at a Stanley Show of many years ago, as a skit on the prevailing craze, as it was then considered, for small wheels. The joke has become earnest, and there is likely to be a good deal heard of the new Sociables, which are rapidly taken up by a number of makers. Instead of sitting, as on the old-time machines, between the wheels, the riders sit *over* the wheels. This permits a much

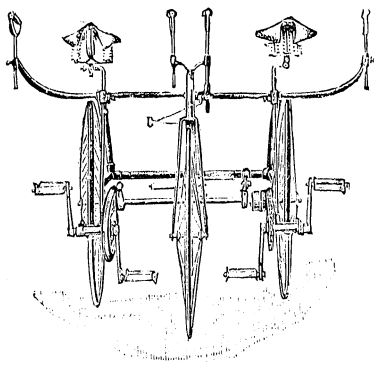


Fig. 44.—The Sociable of 1890.

narrower wheel base, and the machines are barely as wide as a single tricycle. That of J. K. Starley and Co., Limited (see Fig. 44) is perhaps best known; it is a tricycle suitable for ladies or gentlemen—the machines are joined by a framework having one central pilot-wheel. Rudge has one with four wheels, 28-inch drivers, 20-inch front, suitable for two ladies; Aston Brothers make an excellent one by joining two Safeties by a simple but efficient frame, and call it the Twins. It is the four-wheeler form that is most likely

to meet with general approval, but it requires a more carefully arranged frame-work. The machine gives the advantages of sociability of the old Sociable, without the fatal objection of great width, excessive weight, or slow speed inseparable from that most unwieldy of machines. The Carrier

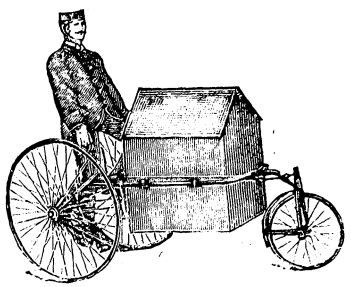


Fig. 45.—The Carrier.

(see Fig. 45) concludes the long list of types; it is most useful for trade purposes, and puts within the reach of the small tradesman a cheap, quick, and self-advertising way of conducting the distributing portion of his business. Nearly every cycle-maker turns out one; Singer and Co. being the largest and best known makers.

CHAPTER VI.

LEARNING TO RIDE.

NEVER learn to ride on a new cycle, as the strainings, twistings, and tumblings incidental to acquiring a knowledge of active cycling do more harm to a machine than a year's riding by an expert. Before, therefore, the novice purchases a machine, he ought to be able to ride it, and understand something about it. If he dwell in the Metropolis, by all means let him go to a cycle school, there are very few of these left, and all are of circumscribed extent. A few years ago, Keen used to teach at Lillie Bridge Grounds; but now the schools are under cover, and naturally small. Among the best are:—Goy, 2, Praed Street, W.; Professor Hunt, 15, Bishopsgate Street Without, E.C., and Cycledom, 55, Blackfriars Road, S.E., about a quarter of a mile from the Bridge, where lessons till perfect are given for 10*s.* to non-customers. The Coventry Machinists' Co., 17, Holborn Viaduct; Singer and Co., 16, Holborn Viaduct, and most of the Viaduct firms have sufficient space to impart the rudiments of the art to purchasers.

The best plan is for a purchaser to bargain that he shall be taught without charge, as an extra discount, and, after he has learned the balance in the basement of the depôt, a lesson by one of the firm's men on a quiet road in his own neighbourhood, will give the finishing touches. But these remarks only apply to the complete novice, "friendless and alone;" nearly every one has friends who ride, and who will gladly impart the necessary information,

and to any one a little practical help is worth a ton of theory and advice.

Supposing, however, our friend whom we will designate the "novice," dwells in the country, far from anywhere, and is in the nowadays rare and novel position of being without cycling acquaintances, he must proceed rather differently, although he should endeavour to get somehow or another the first lesson from a practical man. In any case it is almost impossible to learn absolutely alone. If an old direct (bicycle) steering tricycle can be loaned or hired, it will be a step in the right direction, and prove a royal road to learning, by teaching, in an easy manner, the first steps in guiding and pedalling. These accomplishments ought to be mastered to some extent before the bicycle is tackled seriously. If the complete novice flies at the higher game at first, he has to combat the difficulty of keeping his feet on the pedals and the novelty of position, in addition to the most important acquirement of all—balance. By all means, therefore, try a tricycle first, it will educate the legs, feet, and *ankles*, into the crank action, and teach the rider how to hold the handle bar—master these, and the battle is nearly won.

However, our novice is willing to ride, but he has not the advantage of a school or crowd of friends to help him. The first thing is, "What to learn on?" The answer must be—the type of machine he is going to ride. Perhaps the easiest is an old-fashioned Ordinary, considerably under the rider's size, and very open built; but there is no use wasting time, trouble, and tumbles from and on it if, as is most likely the case, a dwarf-Safety will be the chosen mount. Let him, when he has got his machine—or better still a hired one—accustom himself, when it is at rest, to the saddle, pedals, position of handle-bar, etc., by sitting on

the saddle, mounting, standing on step, holding steering-rod, etc., indoors or anywhere. Any neighbouring cyclist, friend, acquaintance, or stranger, is always happy to initiate a new member into the brotherhood, and may be safely asked, even if not personally known to the novice.

Presuming that even this resource fails, and that he is absolutely the only wheelman, embryo or accomplished, in the neighbourhood, let him found a new sect by getting a friend to help him. Before this, however, he ought to accustom himself to leading the machine, until he has thorough command over it, with one hand on the handle-bar. Another very good move is to go to some moderate incline, take your place a few yards from the bottom, choosing a smooth spot where there is sufficient drop to give the machine momentum. Stand with the rear wheel between the legs, and the left foot on the step, and a hand on each handle; then, after a hop or two, raise the right foot from the ground, let the weight rest on the left leg, *not* on the hands. The machine is now under way, and now the golden rule, soon to become second nature, must be obeyed. Turn the steering-wheel *slightly* in the direction in which the machine is inclined to fall. This will recover the equilibrium. The wheel must then be straightened to the course you wish to follow. This is, of course, easy to write, but, the tyro will doubtless say, "hard to follow," as the machine takes all kinds of erratic twists and plunges. It is easy to jump off, you must not let go the handles, however, or the machine will probably be damaged by falling in a heap. Do not mind if you only go a yard or two at first, the wobbly wanderings of the pilot wheel will become less and less until after half-an-hour's practice you will be able to let the machine run twenty yards or so in a tolerably straight line; if not, try till you can.

A good many riders may scoff at these preliminaries, but they will save much trouble when the actual learning commences. The vast majority of embryo cyclists apparently imagine that the steering-rod is the bar of a trapeze, and they cling to it accordingly, as if swinging over some abyss, and seemingly endeavour to exert more strength with the arms than they put forth with the legs, reminding one of a man learning to swim, who makes terrific but nullifying exertions, and perhaps advances one yard, whereas the same power, properly applied, would have taken him over a hundred yards with less exhaustive results. The exertion required to propel a cycle is very, *very* little indeed, provided it is *properly applied;* but the novice will disagree again, and his friend, who is endeavouring to support him, will be of the same opinion.

We will presume that our friend has passed through the preliminary process of self-help practice pointed out, and can sit on his saddle, with the toes on the pedals. His friend should stand on the left side, holding the left handle-bar (so as not to interfere with the novice's arm), and—well, it depends on the make and shape of the machine where the other hand is to be placed, but, generally, behind the saddle will do. If the friend is totally ignorant of cycling, he will be rather an encumbrance than a help, except to steady the machine at the very outset. All is now ready. Let the friend push the machine slowly forwards, but not too hard with his left hand. As soon as the novice "feels his feet," he must put more force into the pedals, and advance at something more than a snail's pace, and when he has gone a little way on the machine tell his friend to let go.

He is now on his own resources, and may feel a bit nervous, and instinctively do the "trapeze trick" with the handle-

bar. But once more our instructions, if followed, will have taught him better, and instead of hauling round the bar as if he was holding the helm of a yacht when making a sharp tack, he will hold the handles lightly, and only slightly turn the wheel in the direction the machine inclines. It will soon right itself, and he will be ready for a waving roll in another direction, and most likely come off; but he should be ready to do so by throwing out his foot and lighting on it, at the same time endeavouring to save the machine from falling. Perhaps the first time he will only go five yards before falling, the second time he will probably cover twenty yards, and the third a hundred yards, but he must not expect any such results unless he has learned the "goose step," *i.e.* graduated in the way we have described. If he wishes to dispense with such aids, he will find the "short-cut" is, in the end, the longest and most disagreeable way of achieving his object.

The next *step* is learning to mount. This will come easily to the one who has followed the instructions. To begin, he must go back to the hill stage, when he was making initial attempts to steer, and go through the same efforts, only he will find that he can now stand on the step almost as long as the machine runs. It is better to have the saddle rather low at first, to enable it to be the more easily reached. When the machine is running well, after the hop or two has imparted impetus, straighten the left leg, lean forwards, raise the right leg, point the foot towards the right pedal, and *glide* into the saddle;—do not seek to reach it with a jump—and then find the pedals as soon as possible. This must be practised until it can be accomplished every time with certainty and success. So far the novice has been assisted by the road gradient; his next advance will be to go through the same performance

on the level, and ultimately, as he becomes a better rider, not be content until he can, without many hops, mount when going up-hill.

DISMOUNTING is the next lesson to be learnt. The novice has doubtless already had more than enough of involuntary dismounts; but he must begin on his own account. There are many ways to accomplish this. One of the most effective is the *Pedal Dismount*; and this has several subdivisions both in method and according to the class of machine. The simplest, and, if nicely accomplished, one of the most effective, is the *backward step-out* dismount. When the left pedal is at the lowest, after slacking speed by application of the brake, rise on it, throw the right leg backwards, and, as the additional weight on the rising pedal stops the machine, step to the ground. Another, and rather more dashing method, is to dismount from either pedal by throwing the opposite leg over the machine behind, so that the rider is brought up standing beside his bicycle. Yet another method, when the novice becomes more expert, is *leg over handles*. This is more suitable to high than low machines. If dismounting to the right, the left leg is raised, with the foot well out, the left hand removed from the bar, the leg passed over it, the bar again gripped with the left hand, as the right is removed for the leg to pass; the rider is thus momentarily side saddle, but only for a fraction of a second, as he shoots to the ground on the right side, and in his descent transfers his hold so that he comes to *terra firma*, holding the *right* handle grip in the *left* hand. The whole operation should be accomplished smartly and quickly. It reads much more dangerous than it really is; but, at the same time, it is one which should not be attempted until the rider has acquired confidence in his own powers. Our own favourite method of dismounting,

from a 54-inch, was by a backward jump from the saddle, lighting astride of the small wheel; but this must not be tried on a Safety until the rider has carefully measured himself by standing over the driving wheel, to make sure that he can dismount, in the manner first described, with perfect safety. Sometimes, when the rider is short, and the wheel high, it would be most dangerous to do so. Every beginner should persevere until he has mastered every detail of mounting and dismounting. As a rule, riders scramble through this portion of their cycling experience, and often men who have been riders for years are still clumsy at getting on and off. Let every one who aspires to become a cyclist master every detail of the *Alpha* and *Omega* of every cycle ride. A rider never knows how or when he may be "cornered," by traffic or what not, and if he only knows one way of dismounting or mounting, he may meet with a serious but preventable accident.

Now that the novice has become a fairly efficient rider, he must not imagine himself a Holbien or Nix, and attempt long rides. As in every other unaccustomed exercise, cycling brings into play a new set of muscles, and these must be by degrees accustomed to their work. Gradually increase the distance, say within a fortnight of being able to go a furlong by himself he may go ten miles. If he attempts even so moderate a distance too soon, he will return stiff and sore, and his ardour will be damped. This stage is, however, quickly passed; and our friend the novice will "set his cap" at fifty miles, and then at one hundred miles in the day; both will be of easy accomplishment if he lays his work out properly, and is guided by that best of all mentors, EXPERIENCE. When he sets out, let him make it an invariable rule to always carry in the saddle-pouch an oil-can (charged) and spanner. The cyclist who, with the

superior knowledge begot of having been a rider for a month or so, tries to do without these indispensable implements may go on very well for a time, but he will eventually get, in the words of the sporting reporter, "badly left."

CHAPTER VII.

THE PASTIME OF CYCLING.

ALL cycling may be considered more or less a "pastime." But by the pastime of cycling we mean that free-and-easy style of pleasurable riding which is undertaken solely *pour passer le temps* in a pleasant and enjoyable manner; and this is the sort of cycling which is at once the most usual and the most beneficial. To the tired man of business, coming home after a day's anxiety in the city, the pastime of cycling is of incalculable benefit from a hygienic as well as a temporarily-amusing point of view. To the man of leisure and means, there is more amusement to be found in the pastime of cycling than in any other recreation—because of the infinite variety of its phases, and because of its locomotive character, which enables the wheelman to continually change the scene of his ramblings.

Presuming that the cyclist has earned that name by learning to ride, let him adopt as his motto, "*Make haste slowly*," and cast to the winds every thought of satisfying his friends that he can ride so many miles in so many hours. During his first season, at any rate, the cyclist should steadfastly repress any symptoms of a desire to see how fast he can go, or how far he can ride in a day. Indulgence in any such feats will infallibly bring disappointment, probably illness, and possibly an utter disgust for a

pastime which, judiciously cultivated, would have resulted in the utmost gratification.

Having procured his cycle, and arranged to house it in a secure and *dry* place, the tyro will probably need little urging to keep it clean and in apple-pie order; but one habit in which novices are apt to indulge should be avoided: it is *not* either necessary or desirable that the cycle-owner should amuse himself by taking his machine to pieces and putting it together again. He should, however, acquaint himself with the use and object of every adjustable part of his cycle; and the mysteries of accurately adjusting the height of the handle-bar and seat-stalk (on a tricycle or a Safety), and the pedals (on all kinds of machines) should be thoroughly understood. Very seldom will the agent from whom a cycle is purchased take the trouble to properly adjust the positions of these parts to suit the rider, and each must therefore suit himself.

The height of the saddle will naturally first claim attention; and this should be, at first, rather lower than can conveniently be ridden, and yet no lower than will suffice to bring the pedals easily within reach. The length of crank-throw will depend mainly upon the man's taste; but, speaking generally, a throw of six inches, from the centre of the crank-shaft (or axle) to the centre of the pedal-pin, will be found a suitable mean to start with; and after a little practice by experimenting with shorter and longer cranks (loosening the nuts and sliding the pedal up or down the slots for the purpose of altering the throw, taking great care to see that it is firmly secured after each alteration), the rider can ultimately discover what length of throw will best suit his idiosyncrasies.

The saddle should be adjusted with great pains, to secure not only its correct height from the pedals, but also

a comfortable and powerful position as regards its verticality above the pedals, and its pitch, or tilt. On the "ordinary," or tall bicycle, there is but little scope in this respect, it being impossible to place the saddle actually over the axle; and for the sake of ease in mounting and a minimum of danger, it is desirable that the peak of the saddle should be some four or six inches behind the head of the front forks. On Safeties and tricycles, however, it is possible to put the saddles too far forward, which will prove a most uncomfortable position on a ride of any length, and the rider should remedy this by loosening the nuts that hold the saddle to the stalk, or] pin, and sliding it back until the peak is an inch or two *behind* a vertical line dropped to the crankshaft. In this position he will be able to ride comfortably at first, and can judge for himself, as he goes on, whether a position still further back will suit him better. The exact tilt, or pitch, too, must be adjusted to suit the rider, a saddle which is exactly level from front to back, when no weight is on it, frequently dipping forward as soon as mounted, or tilting backward, as the case may be. Nowadays there is usually some contrivance provided whereby any such improper tendency to tilt too far forward or backward may be remedied; but in the absence of such special means, use must be made of a wedge-shaped piece of wood, or leather, or even folded brown-paper, placed between the saddle and its supporting spring; and a deal of patience will sometimes be required ere the exactly suitable pitch is hit upon. The trouble taken, however, will not be thrown away, a comfortable saddle and position being a desideratum second to none on the cycle.

The position of the handles must be regulated according to the rider's height and length of arm. For an average

man the handles may be an inch or too higher than his saddle, to begin with, and a few rides will soon reveal any undue height or the reverse, it being noticeable that very low handles cause the rider to lean down upon them to such an extent as to throw a great deal of the weight of his body on to his hands—a deplorable aching of the wrists resulting; whilst if the handles are too high the rider's elbows have to be bent, and a pull, to obtain leverage, cannot be conveniently taken at the handles when climbing a hill. When in doubt, it is preferable to have the handles a trifle too high than the reverse.

Upon the proper adjustment of the machine will depend, to a very great extent, the whole pleasure of cycling; and in case a nut or screw should ever come loose while on the road, it is necessary to be provided with spanners fitting every nut and screw-head. The pedal-nuts are the most frequently liable to loosening, unless they be very firmly tightened to the crank, and as these are always good-sized nuts, it is safe to supplement manual force by the pressure of the foot on the spanner, to give a final clinching to the nuts, in which case the pedals ought to keep firm for any length of time.

The tyro should ascertain, by personal inquiries of more experienced riders, the object and the constructive principles of every part of his machine, so that he will be able on emergency to discover for himself *what* is wrong, when *something* is evidently wrong, and to remedy the defect. Ball-bearings, steering-centres, and detachable cranks, all need to be understood, to ensure their perfect adjustment when, after a time, wear has loosened them; and in case the rubbers should come loose from the rims (which they seldom do in their entirety, but very frequently in small sections at a time), the rider should understand that the

rubber is attached to the rims by means of a kind of cement which softens upon the application of *heat;* thus, upon finding that a few inches of rubber is loose, all the cyclist need do is to hold a gas-jet, a red-hot poker, candle flame, or even a burning newspaper, underneath the steel rim; when, as the steel warms, the cement will melt, and as soon as that is seen to be the case the heat may be removed, the rubber pressed down, by tying, so as to adhere to the sticky cement, and the wheel be left for some minutes at least (the longer the better) for the cement to cool and harden. Should there be no cement left in the rim to be softened by the warmth, a very small quantity of Loudon's tyre-cement, a small stock of which should form part of every cyclist's initial outfit, should be broken up into small fragments, placed between the rim and the rubber, and so melted by the warmth of the rim and caused to effect the necessary adhesion. If you are not able to get at cement or heat, the rubber may be kept on temporarily by binding thin wire or string round it for some little distance on each side of the loose part. This train of evils can be effectually prevented by the rider insisting on his tyres being fixed on by Hookham's process.

Beyond these few precautions, the cyclist need entertain no anxiety about his cycle. A first-class machine will run for a whole season without needing repairs, provided it be judiciously lubricated by injecting two or three drops (not more) of some *good* lubricating oil into each hole provided for that purpose. We say *good* oil, because bad or unsuitable oils will do damage to the steel frictional points, not only by gumming and clogging the bearings, but even in cases by their acidity eating away the steel surfaces. There are many prepared oils sold for lubricating cycles and sewing-machines, and in the absence of such, good sperm

oil can be obtained at any chemist's (*not* at the village general store), and is rather improved by the addition of a fourth of its volume of paraffin, which helps to clean out the bearings. Once in fifty miles should be ample lubrication.

For burning in the lamp, clear colza oil will be found satisfactory; but the wicks of cycle lamps should be changed very frequently, to avoid smokiness, and even refusal to burn, a wick which has been soaking in oil for a week or more invariably burning with less brilliancy than a new cotton.

The bell, or gong, should be attached to the handle-bar in such a way as to be actuated by the left thumb or finger without removing the hand from the handle; and the break, if of the leathern-band variety (such as is generally found on tricycles), must be kept free from grease, powdered chalk being a good thing to spread upon the brake-drum in the event of its becoming greasy, in order to make it act more effectually. Whether the brake be a band, direct plunger, or spoon lever, the cyclist should accustom himself (or herself) to use it as seldom as possible, checking the momentum of the machine by "back-treadling," or pressing upon the pedals as they *rise*, whenever possible. Dexterity in back-pedalling can be obtained, by practice, to such an extent that many of the crack cyclists ride machines without any brakes, and can hold them in hand down the steepest declivities. We do, of course, not advise the beginner to dispense with a brake; but the power of back-treadling will always be useful, and may upon emergency save an upset or a collision.

The cyclist may go hither and thither at his own sweet will, enjoying the physical sensation of riding as well as mentally feasting his senses upon the fair scenes through which his

wheels will carry him. Even the resident within the heart of a city may speedily leave the noisy streets behind him, and loiter among the green lanes, gathering health and true "recreation" by the ever-varying succession of rural landscapes, changing atmospheres, and interesting associations. He can dawdle along a leafy lane with no other object than to indulge himself with the delightful sensation of "doing nothing;" he may climb the hill, and gaze out upon the far-reaching prospect, or may enjoy the exhilarating run down into the valley, where the babbling brook tempts him to recline upon its grassy banks. If his tastes be piscatorial, what more convenient mode of transporting himself to the distant stream, with his tackle lashed to his cycle? Or if photography claims him as one of its followers, how can he find so many quaint nooks and stately landscapes as by wandering in unfamiliar scenes upon his wheels? Within the reach of an evening's ride from every man's home, there are to be found hitherto unsuspected treasures of scenery, such as would have remained for ever unknown to him but for the pastime of cycling; and that cyclist will best occupy his time who uses his cycle as a rational means of affording him the delights of exploring such localities, instead of rushing along familiar highways in the effort to get from one point to another within the shortest possible space of time, just for the sake of being able to say he has done it!

CHAPTER VIII.

TOURING.

THERE are few ways of better enjoying a holiday than by taking a tour on a bicycle or a tricycle. We say there are a few, because some people are physically unfitted for such an active form of relaxation from everyday toil. People with excessively feeble constitutions, of completely sedentary occupations, or suffering from ailments for which medical men prescribe "complete rest," would not enjoy a cycle tour. On the other hand, it is the sedentarily employed citizen who, after having accustomed himself to cycling exercise by gradual and steadily-increasing journeys during his evening and Saturday leisure, most fully enjoys the untrammelled freedom of spending a fortnight or more on a cycle tour; and the active young man whose previous holidays have been spent within the prescribed limits of a seaside town and its immediate environs, finds a novel charm in the wide scope of cycle-touring.

The tourist will usually, as a matter of course, go a-touring on the same cycle as he rides when at home; but if much touring is to be done, the choice of the most suitable combination of wheels is no unimportant matter. Each type of machine has its votaries. The ordinary bicycle's chief defect is its scanty accommodation for luggage. On this kind of cycle, a small "Multum in Parvo" bag behind the saddle, and an American-cloth roll strapped to the handle-bar, are about the only means of conveying spare clothing. The Safety bicycle is a little better in this respect, a bag of goodly proportions being accommodated on a suitably constructed carrier in front of the handle-bar,

although here there is the disadvantage that the extra weight makes the steering drag heavily, except upon a few machines so constructed as not to render their steering liable to affection from the weight of luggage. Behind the saddle is not a good place to carry luggage on a Safety, there being already quite a sufficient proportion of the rider's own weight on the back wheel. Tricycles are, upon the whole, the most suitable forms of cycle for touring, affording almost unlimited luggage capacity without interference with the steering and balance; and enabling the tourist to assume a less vigilant habit of riding, regardless of rutty or stony places in the road such as might upset a bicyclist. When two are going together, the tandem tricycle is *par excellence* the vehicle for touring; although the tandem bicycle does not share this quality, having all the defects of the bicycle with the addition of very small luggage capacity and a bad habit of getting out of order when far away from a competent repairer. Whether the Safety or the tricycle be used, it will be found advantageous for the tourist to have it geared rather lower than what he is accustomed to at home; because a gear which may suit very well for short rides will often prove tiring upon long journeys; and the tourist must always calculate upon the probabilities of meeting with such misadventures as a hilly road, a head-wind, or a surface made heavy by rains—considerations which may be lightly set aside when encountered on a short journey, but which may mar the pleasure of a whole holiday if met with for several days in succession. With a low gear, even a week's continuously bad luck in this respect will not be materially felt, the tourist treadling his way easily through the mud, against the wind, and up the mountains, if need be. One of the most experienced riders living, Mr. A. J. Wilson ("Faed"), has toured in the hilly

county of Devonshire, on a Safety geared to 72; in Ireland, on a tandem geared to 63; in Wales, on a tricycle geared to 66, and again in Ireland, on a Safety geared, inadvertently, as low as 48, and has ridden every kind of cycle with all manner of gears; but upon none has he found the labour so remarkably easy, nor the speed so satisfactory, as upon the lowest geared of them all.

What luggage to take is a problem difficult to solve. Happy is the hardened youth who requires no underclothing; to him a "complete change" is a matter of ounces. But most tourists in our climate find it necessary to clothe themselves carefully, lest a sudden change of temperature should chill them; and this necessitates not only the wearing of more clothes, but the carrying of a spare outfit, as well as toilet articles, maps, and other indispensable etceteras.

For the average man, a touring suit may consist of thin flannel, without any lining whatever; the jacket being of either the usual lounge shape, or (for those who prefer it) of the Norfolk cut; the knee-breeches, or knickerbockers, loose, and *without any lining inside the seat;* the stockings thin, and the shoes stout. A flannel shirt may be supplemented by flannel waistcoat (made with the back of flannel, as well as the front, and innocent of cotton lining), or not, according to taste. For underwear, nothing can surpass the thinnest quality of Dr. Jaeger's all-wool vests and drawers. The hat, or cap, is a matter of taste, so long as it be neither heavy nor tight. Thick stockings are not needed, even for those who do not wear drawers underneath; their weight is irksome. The most important thing is to *be sure that no particle of cotton lining is introduced into any garment*, "all wool" being the rule throughout. If the tourist finds an unlined coat and vest insufficiently warm, he may have them lined with flannel, or, better still, with

Jaeger's all-wool lining; but the lighter he be clothed, as a rule, the happier he will be.

Then, for luggage, as little as possible should be carried. Any idea of having several changes of raiment, just for the look of the thing, must be scouted. Absolute necessaries only must be packed up; and many a tourist finds that a tooth-brush and a suit of waterproofs fill the bill of *his* necessaries. For the purposes of daily toilet, a comb and brush (the latter of "military" shape, without handle, to facilitate packing), a tooth-brush, shaving tackle, and half a cake of soap, can be easily stowed into a piece of American cloth, or thin rubber-sheeting, prepared with suitable loops or pockets inside; or very neat and compact cases containing all these requisites can be had for ten shillings. A flannel shirt—of "day" pattern, so as to come in handy on emergency in the daytime—is best for sleeping in; and a liberal supply of pocket-handkerchiefs can be packed into a small space. To ensure a comfortably cool change at the end of a day's ride, duplicate underclothing is essential, and, lest the riding costume has become wet, a very thin pair of wool, flannel, or serge trousers, and a jacket to match, can be rolled up tight. Spare shoes are not necessary, since slippers are obtainable at every hotel, and the tourist may have his own riding shoes dried and cleaned while he is having a bath or a meal.

Waterproofs should not be packed in the luggage-bag, but be carried either separately or in an outside pocket of the bag, where they can be got at in a moment, without disturbing the other things. Choice between capes and jackets is largely a matter of taste, save that jackets are preferable on a tricycle by reason of capes being liable to blow against the wheels. On bicycles, capes are perhaps preferable, not sitting so close to the body, but permitting freer ventilation.

Leggings should not be donned except when very heavy downpours compel, because the heat they generate is injurious to the limbs, and liable to cause a chill when, the rain having ceased, they are doffed.

A pair of rug-straps, with which to fasten the rider's coat to the handle-bar, will be found advantageous in hot weather; and, in very hot, bright, and dusty weather, a pair of smoke-coloured spectacles affords a welcome relief to the eyes from the glare of the sun, as well as a protection against the inroads of flies. Thus equipped, the tourist can "go anywhere and do anything" in reason.

The photographic amateur must beware of loading himself with too heavy a kit. Even a quarter-plate camera, with three double-backs and a tripod stand, adds materially to the weight of one's luggage; and as the time occupied in setting up and putting down the ordinary camera runs away with no inconsiderable proportion of the tourist's leisure, we incline to recommend the use of a "detective" camera, which requires no building-up. There are several spring carriers on the market, especially constructed to accommodate cameras on cycles, two of the best being those by Carson, of Dublin, and the Quadrant Tricycle Co., of Birmingham.

As to where to go, each tourist must decide for himself. England, Wales, Ireland, and Scotland might be ridden over in any direction, with the certainty of finding passable roads; and our common education is sufficient to give the veriest tyro an idea of what part of the kingdom he would best like to explore. Having settled the locality, he should, having first joined the Cyclists' Touring Club (*vide* Chapter XII.), write to the chief consuls for the counties involved, and obtain accurate directions as to the best routes from place to place; but, first of all, obtain a copy of the Tourists'

Map of England and Wales, post free 1*s.* 2*d.* from the "Bazaar" office, 170, Strand, or the necessary county maps.

The question of what distance he will cover, per diem, must also be decided by each man for himself; after considering how far he can comfortably ride in a day, and having made allowances for the time to be spent in sight-seeing, and reduced the mileage a trifle in consideration of the weight of luggage to be carried, the result arrived at may be divided by three, and the quotient set down as the average distance to be ridden daily. Again, quoting "Faed," that noted rider has covered some two hundred and twenty miles in a day, but his diurnal distance when on a pleasure tour varies between ten and forty miles, and unless there is a very unusual paucity of scenery *en route*, the tourist who wants to enjoy himself will adopt a similar proportion, with the addition of never troubling to get to the destination fixed upon for any one day if stress of weather or other considerations make it more desirable to stop at an intermediate point.

CHAPTER IX.

CYCLING FOR LADIES.

By Miss L. C. Davidson.

It is almost impossible for those women who have taken up cycling within the last year or two to realize the amount of general suspicion and prejudice from people who looked no further than the surface, which had to be encountered and lived down by the first women who ventured a-wheel. It is thanks to their courage and good sense that their sisters

are able to participate without remonstrance in delights which would otherwise never have been theirs. To-day the new departure may be said to have lived down all the dangers that threatened its earlier years, and to have taken its triumphant stand among the very foremost of feminine pursuits. And what these pleasures are, none but those who have tried them for themselves can really know. The feeling of active movement, of the power of free locomotion, the thrill of healthful exertion, and the bounding of the pulses, as one speeds along some level stretch, or shoots swiftly down some steep decline—all these must be felt to be properly understood, for no description can do them justice. A new world of enjoyment is unlocked to the woman who finds herself a-wheel. Country sights and sounds are placed, as if by a magician's wand, within reach of the dweller amid bricks and mortar; and the fair nooks and corners of regions hopelessly remote are transplanted to her very neighbourhood. The nervous invalid, the victim of neuralgia and sleeplessness, the sufferer from a thousand nameless ills, finds herself suddenly endowed with health and vigour hitherto undreamed of, and a vitality she has never known before. Countless new interests present themselves, and she learns, to her surprise, that cycling is a door that leads to many paths of pleasure.

To learn well at first is half the battle. A bad style once acquired is desperately hard to lose; and for the sake, not only of appearance, but of ease and comfort in riding, one should be at pains to learn the new accomplishment as carefully and well as possible. A few lessons from one who knows will never be thrown away; and it is a work of but little difficulty to acquire the whole art by the aid of a few practical hints well laid to heart.

The Machine.—A single tricycle is the best machine upon

which to begin. It should not be of obsolete construction, nor of too heavy build. The first trials should be made on a road free from crowded traffic, and the first effort should be made slowly and cautiously, till at least the mere mechanical acts of pedalling and steering are achieved and understood; and, even then, the novice should be satisfied with a progress that is slow and sure. She should not ride up long hills, nor take distances calculated to over-fatigue her. She should never ride when tired, or rush down hills till she has assured herself of her complete control over her machine. She must exercise a wise discretion in avoiding crowded thoroughfares, and must not be tempted by a vaulting ambition to start on tours far beyond her powers of strength and endurance. She must cultivate an erect and alert, though easy, carriage in the saddle; she must learn to assist her pedalling by ankle action, and to cultivate "form" in riding as far as in her lies. She must not spread her elbows abroad, and turn out her toes; she must not hang forward over her handle-bar, nor shuffle in the saddle. She must, in a word, eschew all awkward tricks, and try to check the first tendency to a slovenly style of riding.

As to her machine, she should carefully select the make most suited to her particular requirements—weight, strength, etc. Individual needs and tastes are the only real guide to selection; and it is as well to make trial of as many different makes as can conveniently be experimented upon, before the decision is made which will unite machine and rider for at least a certain time. Nothing is more trying than to find one's self the possessor of a particular cycle which proves, on more intimate acquaintance, to be far from carrying out the fair promise of its advertisement, or its too enthusiastic advocates among one's personal friends.

It is well for women that the tricycle preceded the Ladies' Safety bicycle, and, so to speak, paved the way for its introduction, since it is pretty certain that, but for some such preparation, the two-wheeler would have had no chance. It has now made a place for itself, however, in popular favour; and many of its partisans prefer it, for certain reasons, to the three-wheeled machine. It is lighter, better for inferior roads, and devoid of much of the friction of the tricycle; but against these advantages may be placed as a drawback the facts of its imperfect luggage-carrying capacities, its difficulty of balance, and the necessity under which its rider labours of dismounting the moment she attempts to come to a standstill.

Riding.—Want of space forbids me to enlarge upon the correct method of learning to ride either machine; it is only possible to give a few general rules. The feet should rest upon the pedals lightly but firmly, the flat of the foot being on the rubbers—neither the toe nor the arch. The heels should be turned slightly outwards, and the hands must grasp the handle-bar with a touch which guides but does not cling. The body should be held erect and straight, and must be kept as steady as possible, most of the movement being made with the ankles and wrists—little with the knees and shoulders. Mounting and dismounting must be effected with quickness and exactness, not with a scramble or a shuffle, which may entangle the frock in the machinery. To mount and dismount from the bicycle is less difficult than it looks: it is a mere affair of practice.

Every woman should look upon herself as, in a certain measure, an advocate, so to speak, of the pastime among the members of her own sex. Upon her it will largely depend whether such women as see her a-wheel will desire to emulate her example, or shun her as a warning against

imitation. If she rides in a slovenly, awkward style, and sits her saddle ungracefully—if she dashes frantically along, hot, dusty, and purple of visage, she will surely not win many recruits to the paths of cycling, but frighten them instead, from doing as she has done.

In riding, there are certain rules to be laid to heart, if one would make cycling a real benefit to health, and gain, instead of losing, by it. Hills should be treated with respect, both in the ascent and descent. It is a great mistake to attempt hill-climbing beyond one's strength. The moment the exertion begins to feel too great, as soon as the heart begins to beat hard and fast, and the front wheel of the cycle to "stick," that moment is the one for jumping off, and pushing one's machine up the rest of the way. To ride after the point of actual distress has been reached is to run a risk of harm, and should not be attempted. It will be found that each attempt is easier than the last, and carries one further up the hill, till at last, what seemed absolutely hopeless at the first, has become a feat of no moment at all; and it is actually far less trouble and exertion to ride most hills than to push up them.

Going down a hill calls for no less caution, though in a different way. The chief risk of accident in cycling comes from rashness in "coasting;" and the most experienced and skilful lady rider should never allow herself to relinquish her watch over her mount when going downhill. Her hand should be always on the brake, ready to put it on at the shortest notice; she should back-pedal in really risky descents, and in no case should she coast down, feet up, unless she can see the bottom of the hill before her free from traffic, and from roads that branch into it on the way.

No woman should ride too violently or too long at any

time. It is best to avoid starting off directly after a hearty meal; and one should not sit down to eat as soon as one leaves the saddle, but allow at least a short interval for rest. After a long day's ride a hot bath is an excellent institution; it rests one more than anything else can do, and prevents any stiffness that might follow on violent exertion.

For those women who suffer from burning by sun or wind in riding, an excellent remedy will be found in rubbing glycerine well over the face before starting, and then slightly dabbing it off with a soft towel.

Eau-de-Cologne is a capital thing to carry with one on one's rides. It is extremely refreshing, and a real boon when one is hot and tired.

Dress.—The question of costume is a most important one—important both to health and appearance. It is a mistake to suppose that "anything will do for cycling." In point of fact, "anything" will *not* do; and it is of real necessity to dress one's self for the wheel in such manner as to secure comfort, ease, and safety. At the same time, it may be as well to begin by assuring the intending rider that it is perfectly possible for a lady to look graceful, elegant, and womanly in the saddle, and that any other appearance she may present will be entirely through her own act and fault.

To this end, the clothing should be as light as is consistent with warmth, and as easy and free from restraining pressure as can be managed. The underwear should be all wool, and corsets must be relinquished when one mounts the saddle. The gown should be of dark grey, brown, or heather-mixture—tweed or serge for winter, and *bèige*, or some such thin woollen material, for summer. The make should be an object of consideration; it must

be sufficiently plain in the skirt not to catch in the machinery, while at the same time it should conform in such measure to the mode of the day as to be inconspicuous when the wearer is out of the saddle. Something of a draped nature looks best, the drapery caught down to the foundation, so that it will not blow about in the rapid movement through the air; and the skirt must be wide enough to fall gracefully about the knees and feet, but not so wide as to catch in the wheels at the side. For tandem-riding a slightly narrower skirt will be found needful, since the close proximity of the riders makes it more difficult to prevent interference with the pedals.

The bodice should be of the Norfolk or blouse cut, loose about the waist and shoulders, to allow free play of the arms. Oxford shoes should be worn, with low heels and wide toes. Shoes that are easy, and not quite new, are best, as, otherwise, the feet are in danger of being cramped. It is important that the stockings should be attached to suspenders, not gartered—as the pressure of a garter is very likely to cause varicose veins.

As for the hat, a straw sailor in summer, and a small cloth cap in winter, will be found the most suitable and comfortable wear. Gloves should be soft and flexible, loose enough not to confine the hand, which must spread to grasp the handle-bar and brake. Undressed kid are best for the purpose, and wear better than any other sort.

Plain linen collar and cuffs are the best finish to such a toilette. And it must be borne in mind that anything liable to spoil with wind or weather is quite out of place in cycling. The great object is to achieve neatness, a business-like appearance, which is in keeping with the pastime, and which can face, without detriment, dust, rain, and mud. All bright colours are out of place; all flying

ribbons, lace, and artificial flowers; all feathers and ornaments beyond a simple brooch. The desire of a gentlewoman will be to avoid public notice by her dress in the saddle, as out of it; and this is best achieved by bearing in mind the needs of the exercise, and conforming to them.

There have been, and there still are, many advocates of the habit, as a correct form of costume for the saddle. Its partisans have claimed for it that it is neater, simpler, and more suitable for cycling than any other make of gown; but experience has taught many of those who were at first warm in its favour that it has its distinct drawbacks. It is, in point of fact, decidedly less adapted to the needs of the cyclist than the horsewoman, and is not a graceful garment when one is a-wheel. From time to time there have been attempts to foist upon the cycling section of womankind a variety of strange and uncouth costumes, supposed by their theoretical inventors to be the precise thing, likely to meet every demand of riding-women; but in many instances they have proved hopeless failures, and have been discarded as such after a short trial.

Touring.—The woman who has once mastered the art of cycling, and tasted its pleasures, will not be long in soaring to greater heights, and ardently desiring to tour. Nothing can possibly be more easy to accomplish; and the Cyclists' Touring Club arrangements have made touring a pleasure, and a thing easy to undertake, instead of a toil and a difficulty.

For touring, the luggage must be reduced to the smallest possible compass, as will be easily understood when one realizes that one is one's own porter, and that every extra ounce becomes a serious consideration when it is carried upon the machine by one's own exertions. It is wonderful with what a small amount of belongings

one learns to be content, when this is the case; and one does not absolutely dream how little is actually required till one has put it to the proof, and gone a-touring.

An M. I. P. bag will hold all one's night and toilet requisites, which should be as small and *packable* of their kind as may be. One or two pairs of stockings, a pair of thin slippers, a large supply of handkerchiefs, some Thilum, eau-de-Cologne, court-plaster, and a little brandy, should be among the supplies; as well as a small housewife with a good amount of cottons, needles, buttons, etc.

Fortunately, in these days of the parcel post, one can send on a change of linen to await one, if necessary, at every stopping place. An extra gown can be forwarded in the same way; and this latter is a most distinct advantage. Not only is it a great gain to find a change of costume ready when one reaches some big town, or some fashionable watering-place, on one's wanderings, but it also solves the problem of looking up friends on the journey. We all feel a little reluctant to fling ourselves, travel-stained and worn, into a well-conducted and conventional household; but it is possible, with a fresh frock at command, to accept invitations, and to indulge in theatres and concerts, which one would otherwise have felt one's self somewhat debarred from.

Travelling has become so simple an affair for women, even when alone, that a tour need not cause the least apprehension in prospect to even the most timid of her sex. She should, as far as possible, map out her route beforehand, and make choice of hotels. If she wishes to smooth every difficulty from her path, she can write in advance to the various stopping-places along her route, engaging rooms and making all arrangements.

The lack of companionship is frequently the greatest

drawback to touring, on a woman's part. It is a weak species of pleasure to ride alone through the loveliest of lanes, or to the most entertaining of show-places; and most women shrink a little from the extreme solitude of a cycling tour, so much more devoid of human companionship than many other forms of travel. As more women ride, however, this will of course right itself more and more, and the present complaint become a thing of the past. Nowadays clubs may be found in almost every neighbourhood, and, by joining one of these where ladies are admitted as members, every lady cyclist will find herself supplied with companionship for her rides, and may possibly be able to arrange tours with her fellow-members. In some places clubs are being started which are confined exclusively to women; but so far these institutions have not proved very successful, nor do they promise to become universally popular.

On the score of expense many women are withheld from starting machines of their own, and depend upon such as can be hired from the cycle depôts. This may be characterized as a fatal mistake. It is not reasonable to expect that the best specimens of mounts can be found where they are subjected to every sort of usage, and exposed to every risk of accident. A constant change of machine is also very trying; it is much better to get accustomed to one sort and keep to it, as a general rule. I would, therefore, advise every woman who begins riding to start a cycle of her own. She will feel the advantages to be immense; and as for the cost, a well-made and well-treated machine ought to last her so long that it becomes in the end a cheap investment.

Care of Machine.—The woman who rides should understand her machine. There is no necessity for her to be

constantly airing her knowledge in conversation, and indulging in technicalities that bewilder her uninitiated audience; but she should thoroughly understand the use of every nut and cog, and be able to put right any small derangement that may occur in the course of her rides, as well as to make sure, before starting, that everything is in perfect order. Many an accident has been avoided by a little knowledge and forethought of this kind. To such cycling women as confide their machines to servants, careless of their delicate construction and ignorant of the proper treatment they require, I would give a word of most sincere advice. Take care of your machine yourself. This may at first sight seem a formidable function, but it is, in reality, quite simple. To clean a machine is by no means a difficult business, and it is one which becomes a still lighter matter by practice. The gain of having it properly cleaned and kept in order is so great to a lady cyclist that it far outweighs any small trouble. Personally, I have never found any man possess my own views as to the absolute removal of every speck of dirt and grease from a machine. And even cycle agents are less particular in this respect than a lady had needs be, if she aims at keeping her gown tidy and neat, and not destroying her wearing apparel.

Nothing is more groundless than the idea that to ride means to wreck one's gown, and that a certain amount of dirt and grease is a necessary evil. If a machine is properly kept in order, there should be nothing of the kind. All superfluous oil should be wiped off as soon as applied, and the machine kept well dusted. If these precautions are taken, there should be no fear of soiling the frock; and, indeed, if the cycle is to be of real practical use as a vehicle for every-day use, one must be able to ride without risk of spoiling one's clothes.

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The utility of the cycle for shopping, calling, etc., equals its advantages as a pleasure agent. To women living in the country, and unpossessed of a carriage, there is really no limit to its usefulness. It has, in fact, supplied a want so great that one is inclined to wonder how one's entire sex got on at all before the invention of tricycles and bicycles, and their adaptation to their use. That the pastime will become far more universal, and its benefits spread more and more among all classes of women, is not only earnestly to be hoped, but there is great ground for expectation, that such hopes will before long be realized.

CHAPTER X.

Racing and Training.

"The most contemptible of created creatures is the non-active young man"—an authority has written; next door to this undesirable biped is the active young man, in whom there is no spirit of emulation, the man whose soul does not hunger to pit his physical powers against those of his fellows in whichever sport he is most interested. Competition is now so keen and so universal, that the man who, having health, strength, and youth, stands aside when others combat for honour and glory, can only take rank with those imitation imbeciles—the dudes and mashers—who are universally recognized as the lowest type of civilized humanity.

Ambition must not, however, overvault itself, and no one ought to venture into a contest until he has perfect command over his machine, is able to steer straight, and take corners when going at high pressure without swerving, otherwise he

will become a positive danger to every competitor who has the misfortune to be drawn in the same heat. This danger has increased tenfold since Safeties became so general in racing. We have seen scores of men on metropolitan racing tracks who ought to have served a longer apprenticeship to the primary points, and at least learned to steer before appearing in such company. Steering at ten to fifteen miles an hour is easy, but it becomes more difficult as the speed advances, and at racing pace it is, except to an expert, uncertain. This is owing to the strain on the arms, by their being used as a lever to obtain more power for the legs. A racing man in the front rank ought to be able to ride on a chalk line; some, however, even after working their way to a short mark, retain their wobbling tactics. On the other hand, we have seen a country lad, a farmer's son, who had only been able to ride three months, sit his machine with the grace of a Keen, and win three events off the reel at his first appearance. It is hard to judge from the form shown on the road if a man is likely to be of any use on the path; some of the most noted record-holders on the road have made a poor show on the track, and *vice versâ*. It is, therefore, only by actual trial, or rather a series of trials, that a man can ascertain his merits in the racing line, and if he finds himself outpaced at first, let him stick to it till he reaps the award of merit, and triumphantly bears home a prize. We have known a man compete for *ten years* in one branch of sport before winning—but he *did* win at last.

Training in old times meant a terrible trial, a severe ordeal, which almost required the staying power of a Sampson to stand; but happily modern enlightenment has changed all that, and even a delicate constitution can not only bear, but is all the better for, a course of training. Once more locality

has a good deal to do with it. If a Londoner, it will be better for the rider, if eligible, to join the London Athletic Club (Stamford Bridge, Walham Green), where he can have the advice of two of the best trainers in the country, Nat Perry and Jack White, who will, for a small weekly payment, look after him and "train to the hour." At Paddington Grounds (Maida Vale), National A.C. (Kensal Green Station), Crystal Palace (Sydenham), there are good grounds and smart trainers, and it will well repay the town novice to attend one of these grounds.

Every one, however, does not dwell in the county of London, or even in a large provincial town. As we instructed the novice in learning to ride, so we will help him through his career as a Knight of the Path. One hat will not fit all heads, nor will one set of rules suit every man. Each case ought to be judged on its own individual surroundings, hence the difficulty of giving explicit instructions. The novice may be near a path, where he can obtain both advice and practice, or he may be in the country, where cinder-tracks are unknown. In either case, he ought to do a good deal of road work, riding at high speeds, on good level stretches, where the surface is smooth and the traffic *nil*. Very little hill climbing should be indulged in; it, to a certain extent, strengthens the legs, but not in the way required for speed-racing, and it tends to make the action laboured, and certainly spoils the pace—and, after all, pace is *the* thing.

We will assume that our young friend has learned to ride, got a fairly light new machine, and hearing that there are to be some sports at Sometown in July, he makes up his mind to try his luck. It is now May, so he has plenty of time. If he is inclined to be stout, he ought to begin by taking a few sweating rides, wearing a complete set of thick woollen underclothing, long sleeves to

the jersey, a muffler round the neck, and gloves. A few smart rides of five to ten miles, clothed in this garb, will soon remove the superfluous avoirdupois. He should keep a record of his weight, and he must not be surprised at a sudden drop, as it will be quickly made up again. To diverge for a moment, and quote from personal experience. In the winter of 1880 the present writer was training for a thirty-mile walking race. During one trial (eighteen and a half miles in three hours), about three weeks before the race, he lost 5½ lbs.; this was on Saturday. On the Monday he had gained 7 lbs.—*i.e.* 1½ lbs. over the loss; and in the actual race 8 lbs. was lost in 5 hrs. 8 mins. odd secs., so that there is no need to be alarmed if two or three pounds of useless fat has been got rid of.

To resume: in these preliminary rides he must always finish at a good pace, and *immediately* retire to the bath-room. If the home of the novice does not boast of that indispensable apartment, he *must* have a bath, if only a shallow sponge-bath. The water ought to be tepid, and it will benefit him greatly if there be some Tidman's sea-salt in it; indeed, this ought to be made a rule. A few good rides like this will "shape" him for his future work. After the bath he must be thoroughly, to technicalize, "towelled," rubbed dry, "polished and scraped" in fact, finally winding up with flesh-gloves, and plenty of hand-rubbing.

The value of hand-rubbing cannot be over-estimated, and the worth of a professional trainer may be gauged by the amount of hand-rubbing he gives his pupils; depend upon it, the man who slurs over this portion of his work is not worth his wage. But we forget, the novice is in the country, and has none of these luxuries; if, however, he is in the position to command such help, he ought to call in

the groom, coachman, or stable boy (preferably some one who has to do with horses), if he is not so blessed, and cannot even get a friend, he must, as a *dernier ressort*, rub himself, in which case he must not be sparing in his work. A splendid thing to rub the back well with is a hair strap, with tape loops. With this every part of the body can be reached, and a fine healthy glow set up. If there is help, while the back is being rubbed, the novice should lean forward, and lay hold of something solid, so that his attendant has a firm purchase; then, when the body is finished, he should slip on a jersey and stand on two chairs while the legs are rubbed. Before resuming his ordinary habiliments he may take a little brisk exercise with *light* dumb-bells. Then he will be ready for something substantial to eat—if the hour is not too late—for a late dinner or meat tea, preferably a chop or steak, but any good fresh flesh food. Some writers, medical men especially, protest against the meat tea as a digestion destroyer; but once more, "what is one man's meat is another man's poison." When the writer was in hard training, a meat tea was his pet meal, and after a hard spell of work, a couple (sometimes three) chops, rather more cups of tea, and, as they say in Parisian restaurants, *pain à discrétion*, formed the general evening meal, relieved by steaks, etc., but nearly always meat, and in proportion to the amount of work done. If tissue be wasted, it must be built up in a firmer manner.

Daily routine of work and exercise. We will presume the novice has to attend business during the major portion of the day. The hour of rising and early work must be controlled, to a great extent, by habit. For a man who is accustomed to rather late rising, to get up an hour or so before his usual hour and put in a spell of exercise before breakfast, will cause a feeling of lassitude all day, and unfit him for the harder

work of the evening. On the other hand, many men are by habit early risers, and are all the better for pre-matutinal-meal practice. In any case, we do not believe in a man doing hard work after the long fast of the night, and before a substantial meal has been taken; but most will be benefited by a stroll, brisk walk or easy run, and occasional ride. The *change of exercise* of the former will do more good to the muscles and system than the latter continuously pursued. If there are baths or a swimming place within a get-at-able distance, by all means stroll there (whether a-wheel or afoot), say twice a-week, enjoy a few minutes' brisk swimming and diving, do not remain long in, and *never* stand shivering about the edge; five, or at the outside ten, minutes is ample, the shorter the better. After the bath, let the journey home be brisker, but not exhaustive; then strip off everything, and have a vigorous rub down, using a rough towel, flesh gloves, or rubbing-band, with which every part of the body can be reached, till a healthy glow is set up; then don the clothes of everyday life, with a mind and body refreshed, and appetite sharpened for breakfast.

Many feel a craving for something to eat on rising; this should never be fought against. Have a store of plain biscuits handy, eat two or three while getting on the flannels, with a little butter, or, better, with a little Liebig spread on them, or a new-laid egg beaten up in fresh milk is a splendid thing for the non-bilious.

One of the objects of training down the weight is not merely to get off so many pounds, but to replace part or all of what is lost by better stuff, and unless there is plenty of nourishing food this is impossible.

The preliminary step with old-time trainers, who thought every man ought to be put through the mill in exactly the

same way, was to purge their victim strongly, and thus weaken him at the outset. A little of this will go a long way—a blue pill or gentle laxative draught will do no harm during this early stage of training, as it will help to clear the system. If medicine in any form is wanted, Messrs. Burroughes, Wellcome & Co., of Snow Hill, E.C., issue a "Cyclist's Case," containing all that is likely to be required.

Preliminary preparation having thus been got over, the novice is ready for the more serious work of regular training. First and foremost comes the question of

Diet. "What to eat and what not to eat" generally forms a lengthy chapter in works on "Training," and some authorities (?) apparently endeavour to exhaust a cookery book by running the gamut of dietary detail from A to Z in foods and drinks. As a matter of fact, except in the final wind-up for an important engagement, and a few minor exceptions, no change need be made, the keystones of success being moderation, regularity, and practice. Quite nineteen out of every twenty who go in for sport are bound by business to certain hours, and therefore to attempt to fix an arbitrary hour to do this or that would be only ridiculous.

Breakfast may consist of nearly anything *except* new bread and hard-boiled eggs, hot heavy breakfast cakes, pork pies, crumpets, and so forth. Fresh fish is a capital thing, a kidney, small chop, etc., as the fancy dictates and the pocket can afford. Something solid should always be taken—a poor breakfast means a feeling of weakness all day. As a rule, salt meats are not recommended; but, especially in the earlier stages, a little ham or cold corned beef will do no harm, as the food should be varied as much as possible, with a preference for fresh grill-cooked meat. Some relish a plate of oatmeal porridge—if so, let them have it;

but meat will be better in the last week or so of training. Never eat in the Swindon Junction, "ten minutes for refreshments" style, but *masticate* the food slowly and enjoy it. Reading a paper at breakfast is a capital way to add pleasure, and prevent rushing through a meal. Bread should be at least a day old, and there is nothing better than the "Allinson" whole-meal brown bread—now made by most bakers. It is of particular value to athletes, being nutritious and satisfying.

If the place of business is not too far away, walk there after breakfast. Take time over dinner and endeavour to get a stroll before and after, do not make the midday meal a dash from desk to dinner and dinner to desk. As to the best

Lunch or Dinner, old time notions are so exploded that the choice is almost unlimited. Personal needs, requirements, and convenience must of course decide here; but it is much better to take the solid meal of the day about one o'clock to two o'clock. Most authorities declaim against soup. Soup, properly made of the right ingredients, is a delicious and nourishing beverage; the only kinds to be avoided are spicy decoctions. Beef, mutton, fowls, game, etc., may be freely partaken of. Veal is not so good, and pork is best avoided. Greens and potatoes taken moderately, and in fact, all good wholesome food, avoiding, to again repeat our oft-repeated injunctions, only rich heavy things; and strongly seasoned *entrées* of uncertain composition, together with sodden sweets, such as the dough of apple dumplings, cabinet puddings, etc., are best left alone, ditto cheese; but blancmange, jellies, fruits, light pastry, etc., may be freely indulged in. Ripe fruit is good; nuts, dates, etc., bad. Sugar should be left off as much as possible; it is very fattening.

extremely so to some men, and can easily be dispensed with. After dinner there should be a quiet rest; *not* in the smoking-room. We write of the average man, who most likely dines in a restaurant. If so, we advise him to make friends with the most sporting waiter in the establishment. If "Arthur," "Alfred," or "Apollo" becomes interested in the novice's training, he is more likely to get the best cuts of underdone, chops cooked to a turn, and steaks full of red juice, than if left to chance. *It pays to make him so.* If possible, dine at a grill, and do not forget the *chef.* Some years ago, in 1878, when training for a forty-miles' walk, it was our lot to dine daily in a small grill-room in the heart of the city; we soon made it all right with both presiding deities, and, as a consequence, always found the choicest chops and plumpest steaks picked out, and could rely on getting stale bread, and being generally well looked after. Others may take, and *give*, the "tip" accordingly.

As a thirst-quencher, the best things are milk-and-water (the standard beverage of Canadian farm labourers, when working in the fields), plain weak tea (cold), or oatmeal water. If a more palatable drink be desired, and, as we have already pointed out, the novice is accustomed to beer, a glass of Burton or good old ale may be taken at dinner. If not, he can get along very well without it. Teetotallers *must* and can. The best time for dinner must be guided by circumstances. If the novice is one of the happy mortals rejoicing in a Civil Service appointment, or in a bank, which closes at four o'clock, then dine at one o'clock; if he is detained in business till five or six, dine at two o'clock, as he must then practice before tea.

Tea coming after the chief work of the day, there is, or ought to be, an appetite on the premises which must be satisfied by something more solid than a bit of toast and

a cup of tea. For preference have something hot, a cutlet, chop, bit of steak, etc., with toast or stale bread. Marmalade or any similar "tart" preserve may be used; very sweet ones not touched. When the work is easy, lightly boiled eggs, watercresses, etc., form a pleasant change.

Supper is altogether forbidden in most training books; but, as we have so repeatedly written—every man for himself. Rich heavy suppers must *not* be indulged in. If a man is accustomed to having supper, he must not go without, if only a biscuit and butter; it is bad for any one to go to bed hungry, and unless something is taken a feeling of weakness in the morning will be the result. The best possible *nightcap* is a cup of Liebig—beef tea—taken the last thing before bed. Be sure to purchase the genuine *Company's Liebig*, and not one of the many imitations. A teaspoonful in a cup of hot water produces a delicious and sustaining drink, better and more stimulating than the best ale ever brewed. If the novice is in "diggings," he ought to have one of the small "Home-comforts" boxes (price 1*s.* to 1*s.* 6*d.*), containing kettle, frying-pan, saucepan, and spirit stove, so that he can be independent of landlady and servant.

Drink and Smoking. "Stinting a man's liquor" was one of the greatest hardships of old-time training; but *nous avons changé tout cela*, and although a man should limit the amount of liquid swallowed, if he is in the habit of taking much, he must not stint himself too much, as it creates a craving which does more harm than a little extra fluid. What to drink is the more difficult problem. Spirits must be tabooed entirely. If the novice drinks beer, there is nothing better with his dinner than good old ale or bitter beer, but he must be content with a single glass; in the evening he may have another in lieu of tea, but not in addition to it.

In strict training the pipe must be laid aside, with cigar or cigarette; but, at first, a little smoking will do no harm. Some men never leave off, and we have seen a man smoking between his trial and final heats; but this is mere bravado. If a man does not smoke at any time he can skip these lines; if a moderate smoker, he can cut down his allowance by degrees; if one of those inveterate bacca burners he must curtail until he gets down to a cigarette or two daily, finally knocking that off in the last week.

Clothing. Always make a complete change before and after practice. Never wear anything in practice which you are going to resume after tubbing and towelling—more especially socks—many unaccountable chills come from these. Before going out to practice, the ordinary socks—in fact, all the clothes—should be hung out to air and dry. At night, when going to bed, put out the socks in the same way. No change need be made in the ordinary clothing. Do not coddle; but, at the same time, beware of chills and colds. The best underwear is a light natural wool (undyed) jersey—preferably of the well-known Jaeger pattern—*not* merino. Let the ordinary clothing be loose, light, and healthy, with shoes for general wear. So much for the ordinary garb.

Racing Costume. For an outfit, a man wants three sets, first a heavy or sweating set, thick rowing sweater, with high collar, and old pair of knickerbockers (under which may be worn a pair of long drawers and long stockings, if the object is to get weight off); secondly, the ordinary practice things, a light jersey (purchasable for a shilling or eighteen pence), common running drawers, and last, but not least, shoes. These are the most expensive part, and require to be specially made by an expert, *not* the local shoemaker; among the best makers are Norris (the horse-skin cycling shoe); Goy, Ltd.,

Gamage of Holborn, etc. The shoes are low cut and lace down to the toe. By-the-way, not one man or bootmaker in a hundred knows how to lace a boot or shoe. There is only *one* correct way. Count the holes thus: the top one's "up," next "down," "up," "down," till the end next the toe is reached; if these are "down," the lace (anti-slipping waxed thread, made on purpose for running shoes) is folded in two and the ends passed *down*, leaving the lace straight across the end holes, the ends are crossed and brought *up* the next holes, crossed and taken *down* the next, and so on. If the end rows of holes come "up," reverse the operation and commence by bringing the lace ends *up* through the toe holes, giving two ends of equal length, then cross and put them *down* the second holes, cross and *up* the third holes, and so on so that they come *up* at the last holes. This may seem like making a mountain out of a molehill, but it is really of great importance; the result is that there is nothing between the lips of the sides, and it is much easier and quicker to tighten or slacken than the usual unsightly methods, but if the boots are made with hooks the process is simplified.

The shoes have double soles, the clumps being slotted to take the rat-trap pedal, and great care must be taken that these fit exactly. Send or take a pedal to the shoemaker, and *always* be sure that the foot is properly on before starting. Of course these shoes do at all times when rat-trap pedals are used. For rubber pedals a light walking shoe may be used, or one like that described, but without the slots. Finally there comes the

Racing Suit. A number of London men wear black, but this is not only monotonous, but renders it difficult to know one from t'other. At the same time the uniform should not be gaudy, but a cut above "white and blue," or "blue

and white." An entire suit of Cambridge blue, plain, or trimmed with some dark material, is very effective; a coloured sash, stitched to the jersey, and going over one shoulder, renders it easy to distinguish the rider. The jersey may be bought cheap and trimmed by a sister—one's own, or some one else's. The drawers must be properly made, like trousers, minus pockets, and with an elastic at the waist, long enough to reach just above the knee (*never* to cover the knee), and not tight, or the action of the leg is cramped. The clothing is thus scanty but sufficient, light but neat, and affords an opportunity for displaying good or bad taste.

We now enter the active stage of the final preparation for work on the path. Most towns have now a cycle track, and the lot of the training cyclist who resides near one is lightened. While following up the general principles laid down, it will be better if he consult the ground-man and enlist his services, more especially for rubbing down. At the ground, he can engage a locker to keep his things in.

Practice. The rider must commence work on the track carefully, and educate himself to the easy running on the fast path, and more particularly to negociating the corners. The last named want a lot of learning, and are well worth studying. A man who botches the bends is a peril to others and a danger to himself. Pay particular attention to this, learn to keep your wheel straight at all times without wobbling, and to take the corners so that you can keep close to the edge, at a uniform distance from the kerb, without rolling or waving from side to side. Learn also to swing round the corners at all parts of the path. Most tracks are now so banked that any one not accustomed to the bevel, or raised outer side, is at sea at once. Riding in company will give confidence, and teach a man to take care of him-

self, and look out for others. When riding behind a man, be careful not to get too close, and never let the pilot wheel overlap *inside* the rear wheel of the leader, for if the latter slackens suddenly the consequences will be disastrous; whereas, even if the wheel does overlap, on the *outside*, the danger can be avoided by a quick turn outwards. When passing a man, a *clear* length in front must be allowed before turning in, or disqualification on a foul, if in a race, will be the punishment. Practice on the path may be on the lines already laid down. There is one thing, however, which has never been alluded to previously in any work on cycling, and which will be of great benefit not only to the novice, but also to the most experienced record-breaking champion racing man. It is—

Starting. Even the seasoned old rider—hero of a hundred handicaps—pays but little attention to this most important portion of the race, and is content to crawl from his mark in the same old way; whereas, by a week's practice he could easily improve thirty yards in the mile, or rather in the first lap, which would enable him to catch his men much sooner. There are half-a-dozen men on the London racing path who could cut the present (May, 1890) starting quarter record by a little attention to this. It matters not whether an Ordinary or a Safety is used, but the effect is even greater with the latter. Let the rider get some strong friend, who understands cycles and cycling, to act as his starter whenever possible, especially in practice, so that both rider and pusher-off are in thorough unison with each other. First of all the pusher-off must take to heart the N.C.U. rules on starting—

93. Attendants must keep *both* feet behind the mark from which a Competitor starts; crossing it in starting will disqualify the Competitor.

94. In starting, the *Foremost* part of the Competitor's machine *in contact* with the ground must be placed ON the starting mark.

98. Where more than one Competitor starts from the same mark, the inside stations shall be decided by lot.

The right pedal of the machine ought to be a little advanced from the perpendicular, so that power can be applied at once; the pusher-off steadies the machine with his left hand, and grips it with his right, on an Ordinary, a foot or eighteen inches below the saddle, on a Safety in much the same position, only higher; but this depends on the particular make. Instantly with the signal, a strong steady shove is given, not a jerking thrust, with the right hand, the pusher-off taking care not to over-balance, and to get out of the way of the competitor coming up behind. The rider should always be ready for the shot (every race ought to be started by a loud-sounding pistol, and if one is used, or even a cap snapped, during starting practice, it will be of immense benefit), and immediately apply steadily increasing power. Do not expect to sprint away at the first pedal pressure, and if too much power is used it makes the wheel skid and the machine wobble. As each pedal comes into position at the top, drop the heel and raise the toe, so as to apply power at the earliest point, and as the stroke finishes, drop the toe and raise the heel. This is ankle action; it helps the pedal over the dead point, and gives a longer stroke. The rider must try to get up full speed in the shortest possible distance. As a rule, a rider takes about four seconds for the first ten or twelve yards, so that the time for the first century (one hundred yards), is very slow and open to improvement, yet few think of making it here. Do not trust to luck to find a starter; have your regular man, and if you practise together, the improvement will soon be manifest. If possible, get some competent clock-holder to time, say, for the starting furlong. After a few evenings' steady starting

practice, again be timed, and the improvement will be surprising, even to the champion who thinks he knows everything

Finishing is no less important than *starting*. Many races are won, lost, and thrown away on the tape. A determined spurter, who has pluck and brains, will often snatch a victory when seemingly hopeless. Again, a man is often beaten in the last yard, owing to want of perseverance; and lastly, a rider who fancies he is winning easily, wishes to show off, smiles in a superior sort of way, slackens up, and expects applause, but only gets laughter as the scratch man shoots up, catches him napping, and wins on the post. In practice, when doing a fast spin, *always* make it a rule to *finish up five yards beyond the post*. Nine out of ten, in practice, slow up just before reaching the post, and unconsciously do so in the actual race; therefore, always finish past the post at top speed.

Practice on the race ground. It is of essential importance that a rider should, when at all practicable, practise on the ground over which the race is to be ridden. If on turf, try to get practice on grass; few things are more discouraging to a man who is accustomed to a fast track, than to find the deadness of a grass course, when he races thereon for the first time. Again, each track has its own peculiar idiosyncrasies which should be studied. A man who *knows* a certain track, is yards and yards faster than one, of otherwise equal merit, who does not. Even if at a distance, try to get a spin on the ground a couple of days before the event, and if the machine can be left there *in safe hands*, it will save much trouble on the day.

Evening practice is the most important item in the day's programme. If home is too far from the nearest suitable spot, arrange to keep your practice clothes at a neigh-

bouring inn or cottage. On arriving there from business, strip, have a brief polish with the flesh-gloves, and, *making a complete change*, get into the practice clothes. If possible, get a friend to train with you; the mutual help will be great. Pick out a level bit of road, free from ruts and stones, and a mile or so in length, even a level quarter is better than varying ground over a longer stretch. Begin by riding steadily, and gradually increase your speed till perfect command is gained over the machine, then practise sharp bursts at full speed, particularly at getting off the mark quickly, the importance of which has been already explained. Do not do too much work at once, but what you do, do well. If the novice has a friend bent on the same task, they will soon find out each other's merits in practice, until one can give the other say fifty yards in the half-mile; let the scratch man make up his mind to give the novice seventy yards, and the novice determine to keep ahead with thirty yards, the result will be that each will pull the other out and mutual improvement quickly take place. This severe work must not be done every night, and must further be guided by the weather. If the latter be bad, and the roads sticky, practice will do more harm than good, and indoor exercise, dumb-bells, etc., with the sweaters on, with bath and rub-down to follow, will be much better.

On the race day. We presume that you have taken a complete rest from all cycular exercise on the preceding day. Keep in good spirits and have a substantial breakfast, avoid exertion, in fact, take things as easily as business permits. Have dinner three hours before the race—steak or chop for choice—with stale bread, nothing to eat or drink between this and the race; rest, and proceed to the ground by bus, cab, rail, any way except by cycle or walking. At the ground do not stand about, sit down till it is time to dress,

leave a margin so that there shall be no hurry; when stripped, have a good rub down, see that the machine is all right, and get into the middle of the ground before the previous heat with your attendant; before going out, rinse the mouth with water, do not swallow any, however. If it is the first appearance of our friend the novice, he will no doubt be excited; but he must try to keep cool. As soon as the heat preceding his is over, he ought to go to his mark, get his machine into position, and mount as soon as all the men are at their places, waiting for the starting shot. If he has followed instructions, he will leave his mark quickly, and pass the man ten yards in front (if there is one) before going fifty yards, and mow down the one who had an original advantage of twenty yards in the first half-furlong or so. Some of these may come again; but, if the heart of the novice be in the right place, he will stall off these, and, passing the limit man, land home a clever winner of his heat. Now will come a rest before the final; a wrap must be put on at once, to prevent catching a chill. The machine had better be left in the middle of the ground, it will be safer there. If room can be got, the most restful position is lying at full length on the back. Immediately after the heat, if there is a long interval, strip and have a thorough good rub down, put on ordinary clothes, *sit* in the pavilion, or elsewhere, to witness the racing. *Do not stand about*, but sit or lie. Do not go where there is smoking; get plenty of fresh air. In the final heat, the novice will again feel the benefit of his sharp starting, and fairly frighten his opponents; and lastly, by sticking to his work and going right ahead, and shaking off those who try to pass him, the novice will, or rather his wheel will, catch the judge's eye as the first over the tape, and he will win a race, or at least a prize, and lose his claim to be styled a novice.

Training for long distance. Rapid spurting must, to a great extent, but not entirely, give way to long distance "slogs." Begin by riding five miles at a good pace, then increase to ten, and so on. If the race is to be on the road, practise on the road. If for, say, fifty miles, a severe trial need not be done; but the entire route should be traversed more than once, so that it may be well known when the time comes. A fast ride of twenty-five to thirty-five miles should be taken four or five days, or a week, before the race, to give staying power.

Position when racing. A graceful attitude, on a Safety, when racing, is almost an impossibility, and old race-goers may well sigh for the style in which such riders as Lieutenant Byng and Jack Keen sat their machines. The first amateur champion, H. P. Whiting, was one of the introducers of the "grasshopper" style of leaning over, which is almost imperative on latter-day dwarf bicycles. The very latest fad of Safetyists is to get the saddle back as far as possible, so that the position is still more like that on the boneshakers, and riders rely more on the forward push than on the downward thrust. Bad habits are easily acquired, and, as a rider improves, he should strive to attain style as well as speed, and above all, never stoop and wag the head. If, owing to the exertion, the shoulders are dropped, the head must be kept up and held still; it neither adds to the speed, nor does it impress the spectators, for a man to put out his tongue and wag his head like a china mandarin.

APPENDIX.

Cycling Institutions.

There is no sport so rich in powerful, useful, and successful institutions as cycling. In this, as in other things, the youngest of our national sports has outstripped the older bodies in possessing, in addition to the indispensable head governing body (N.C.U.), an International Club (C.T.C.), with over twenty thousand members—a scientific society, (S.o.C.), whose aims and objects are above the mere pleasures of the pastime or sensations of the sport, and last but not least, a body devoted to the improvement of the roads, which ought to receive the support of every vehicle-owner in the kingdom (R.I.A.)

National Cyclists' Union.

57, Basinghall Street, E.C.

The supreme governing body of cycling, wielding absolute sway over its destinies. Its power is recognized and reciprocated by the kindred associations—the Amateur Athletic Association, Amateur Swimming Association, and the corresponding bodies in Ireland and Scotland—so that a man found guilty of an offence in cycling, or dishonest practices in connection therewith, is, by being disqualified permanently or suspended for a period, not only barred from competing as an amateur cyclist, but the door of every amateur competitive sport is closed to him. This all-round punishment has a great moral effect in purifying all branches of amateur sport. It was founded in 1878 as the Bicycle

Union. When tricycling expanded into a sport, two attempts were made to run a governing body for the benefit of tricyclists, but the greater ate up the lesser, and later on the B.U. became the N.C.U., thus covering the whole range of wheel politics. It deserves the support of every club and wheelman in the country; the latter can join as "Independent members" at five shillings per annum, and thus help the official mouthpiece of their sport. The N.C.U. has branches, termed local centres, in various parts of the country, with a central controlling committee or executive in London, where the council of delegates—the cycling parliament—meet, to hear the reports, make, unmake, and remake the "constitution, laws, and rules" of the body, every point of management or revision being openly debated and voted upon. It is the first *duty* of a qualified cyclist to either join the N.C.U. direct or belong to a club which is affiliated, and to procure a copy of its rules, laws, etc., so that he may fully understand what he may or may not do. A set of model rules for clubs is also published, and will save much trouble to those establishing a new club. Official handicappers are also appointed for different districts. We give the addresses of some, so that clubs can obtain their services: Midland counties, S. Golder, Coventry; Bristol, R. H. Wickham, Black Boy Hill; Manchester, W. Platt; London and South of England, H. Hewitt Griffin, Putney.

THE CYCLISTS' TOURING CLUB,
140, Fleet Street, London.
E. R. Shipton, *Secretary*.

Founded at the Harrogate meet of August 5, 1878, as a bond of union between touring cyclists, as the Bicycle

Touring Club. For some years the annual meeting was held at its place of origin, but it finally came to London as the Cyclists' Touring Club. To quote *verbatim* from the application form:—

"The principal objects for which the club is established are (as set out in the Memorandum of Association)—

(1) To promote, assist, and protect the use of bicycles, tricycles, and other similar vehicles, on the public roads.

(2) To provide legal assistance for the riders of bicycles, tricycles, and other similar vehicles, in the enforcement of their rights to use the public roads.

(3) To promote the comfort and safety of its members while touring on bicycles and tricycles; by collecting and furnishing the necessary information for the planning and conduct of cycling tours; and by publishing and supplying to its members road-books, maps, periodicals, or newspapers; and by providing a suitable uniform and badge for any member at his or her cost; and by arranging for suitable hotel accommodation for its members at their own cost."

There are over twenty-four thousand members, scattered all over the world. The subscription is only half-a-crown a year, with a shilling entrance fee; and the advantages include a cheap and uniform tariff at hotels, a useful handbook, neat and serviceable outfit, and pretty badge (closely resembling the L.A.W. badge of America). The C.T.C. is open alike to ladies and gentlemen, the only qualification being that the candidate must be an amateur. Just as it is the *duty* of every cyclist to support the N.C.U., it ought to be their pleasure to join the C.T.C.

THE ROADS IMPROVEMENT ASSOCIATION,
57, Basinghall Street, London, E.C.
J. E. Phillips, *Hon. Secretary and Treasurer.*

The objects of the R.I.A. are, briefly—

1. Circulating popular and technical Road Literature, having for its object—

(*a*) The enlightenment of the ratepayers of Great Britain upon a subject which vitally affects their pockets and their interests.

(*b*) The guidance of County Councillors, Highway Boards, and other authorities having control of roads, and the instruction of road surveyors, and the labourers under their charge, as to the proper system of road repair and maintenance.

2. Remonstrating with the responsible authorities in cases where the neglected state of the roads has become a grave public scandal, and, where necessary, as a last resource (so far as the funds permit), taking legal action to enforce the rights of the public.

3. Watching any suggested, and, if possible, introducing fresh legislation, with a view of removing the anomalies that at present exist.

4. Taking up the question of finger-posts and mile-stones, with a view to their erection in places where they do not at present exist, and to their improvement or maintenance, as may be necessary.

THE SOCIETY OF CYCLISTS,

9, Conduit Street, Regent Street, London, W.

Benjamin W. Richardson, M.D., F.R.S., *President.*

E. T. Edwards, *Hon. Treasurer.*

C. R. Briggs, *Hon. Secretary.*

In the early part of 1885 this society was established, its avowed objects being—

The development of cycling and application to the promotion of studies in literature, science, and art.

On these lines, therefore, it may be regarded as a scientific society, with cycling tacked on as a recreative pursuit. The roll of membership includes men who have made their name in science, art, the army, the bar, medicine, etc., etc.