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AMATEUR CYCLING

WITH HINTS ON TRAINING

By

G. LACY HILLIER,

AND

W. G. H. BRAMSON.

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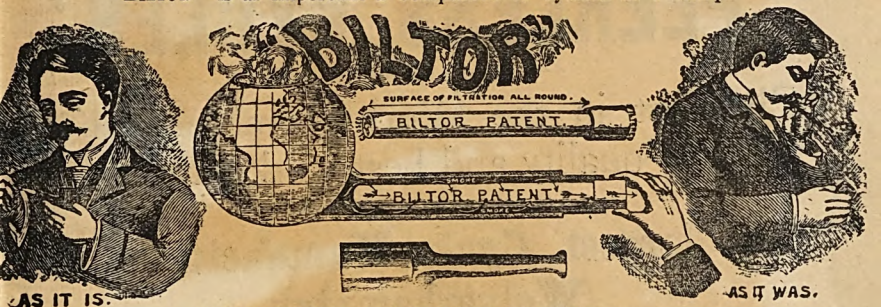

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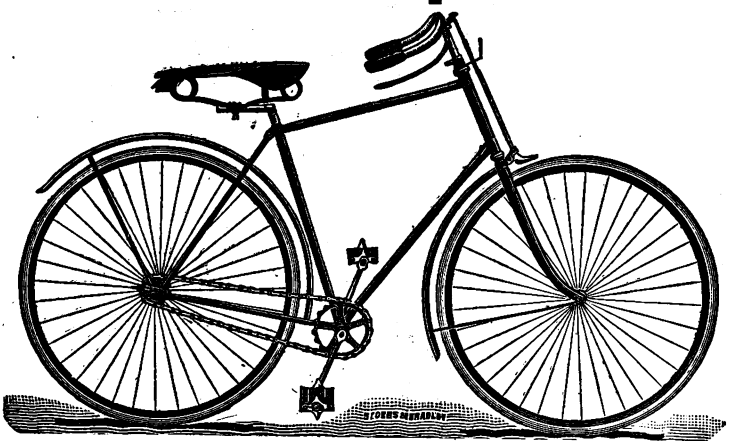

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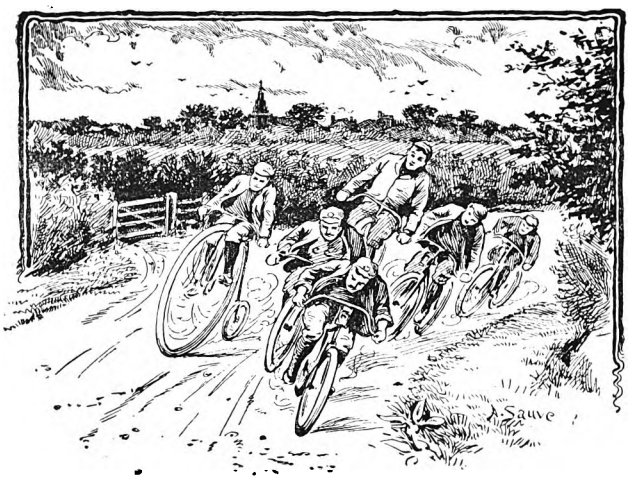

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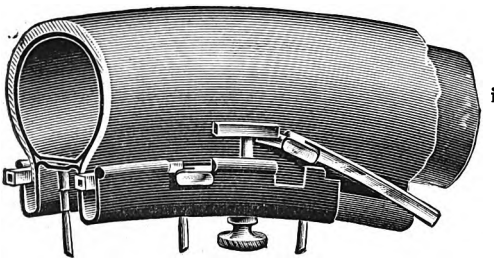

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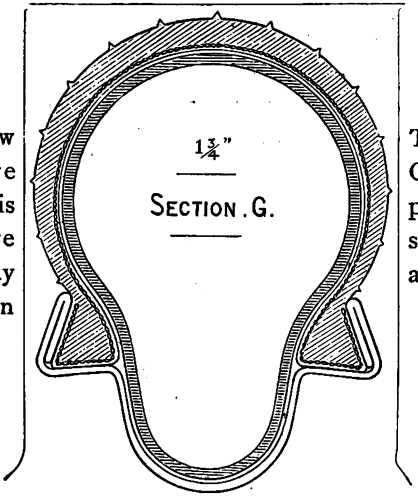

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WITH

HINTS ON TRAINING.

BY

G. LACY HILLIER

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AND

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25 Miles Amateur Tricycle Champion, 1889, and 5 Miles Amateur Tricycle Champion, 1891.

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CONTENTS.

INTRODUCTION.

"Dandy, on thy dandy-horse,
Whence comes thy propelling force?
Art thou riding? art thou driving?
Say, how nam'st thou all that striving?
Though on bicycle thou mount thee,
Biped still we needs must count thee."

THIS little Work is intended to put before the beginner in the art of cycling, the origin of the machine he rides, its gradual development, its varieties, and their special merits and advantages; and to afford such hints as may enable the tyro to master the best methods of riding, dressing, and so on, in pursuit of the pastime. Should he desire to seek fame upon the path the necessary steps to that end will be clearly indicated; so that, if he possesses the natural ability to succeed, he can scarcely fail to do so. Some short notice will be taken of the institutions of cycling, those bodies which by steady labour have brought about important changes which benefit wheelmen throughout the length and breadth of the land, and whose programmes include further reforms, which will enhance the merit of the services they have already rendered to the sport.

This book is absolutely independent and impartial; the authors are not, and never have been connected with the manufacture of cycles or accessories for cycles, and simply write by the light of experience gained in the amateur ranks, without being under any obligation to any one. This being

so, they are free to speak plainly upon all points, and to give to the best of their knowledge and belief a perfectly unbiassed opinion.

This feature, alone, will mark this out from other works which claim to instruct the novice on such matters.

The scope of the book is here clearly indicated; elaborate detail is avoided and the aim has been to compress, into as brief a space as possible, the information necessary to guide a novice through the earlier stages of his cycling experience, to start him on sound lines with suitable machine and accessories, and to leave him only when he is competent to take care of himself.

CHAPTER I.

The Birth of the Cycle.

CONTENTS—The birth of the cycle—its origin—Mother Shipton—'Carriages without horses shall go'—The state of the highways—A royal journey—Velocipedes—Baron von Drais—The first balanced cycle—The dandy-horse and the method of its use—The pedestrian curricle—Danger of hernia—Gavin Dalzell—Kirkpatrick Macmillan—Mr. J. Johnston's investigations—Macmillan invents crank driving, 1830-40—The first crank-driven cycle—The French velocipedes—Cranks fitted to the front wheel—Pierre Lallement's invention—The cycle arrives in Coventry—Creation of the cycle trade—The cycle as a racing machine—The value of the cycle as a means of transport—The ordinary—The tricycle—The safety—The geared ordinary—The air tyre—Thompson's patent—Dunlop's invention—Relative merits of the Ordinary, Tricycle and Safety—Chain driving and its drawbacks—Carter's gear case—The tricycle as a carrier—The coolie cycle, man cab, or Coventry chair—The tandem—As a touring vehicle—Use of the cycle by photographers—By artists—Position of the cycle to-day.

A brief glance at the origin of the machine, which has, in effect, created a national sport in the short space of twenty years, or so, is all that can be indulged in here; but it is a characteristic of the average Briton that he likes to learn something, at any rate, of the history of the sport he pursues, and it is to meet that wish that this chapter is penned. At one time the real history of the development of the cycle was much obscured, and it is only of late years that some trouble has been taken to ascertain where and when the "landmark" improvements were made. That wondrous wise woman—unless, as was probably the case, the prophecy followed the fact—Mother Shipton, is reported as having in one of her vaticinations said

"Carriages without horses shall go."

Though this applies even more forcibly to the railway train we have no evidence that the seer did not refer to the cycle

and, perhaps a search might reveal passages disclosing the name of next years' amateur champion. Still, whether the prophetess referred to cycles or not, the fact remains that what were termed "engines to go without horses," presumably therefore driven by men, were written of and possibly made as early as the end of the 17th century; when the highways of this country were in so bad a state that it was a common thing for the traveller on horse-back to have a guide in front of him probing the mud and water with a staff, to find sound ground for the horse to traverse; and even royal personages were not unaccustomed to be rolled in the mud, through the upsetting of their coaches; as for example, in 1803, when Prince George of Denmark was fourteen hours in covering forty miles, and the writer, who records the feat, considers it the more marvellous in that, *except when overturned or stuck in the mud*, His Royal Highness made no stop at all! How any "engine" of the velocipede type could have become a practical success, upon such roads as these, it is difficult to see, and yet they were invented.

All these earlier cycles were of the carriage type, that is to say, they were three, or more frequently, four wheeled vehicles always of clumsy build, though often very ornate and having accommodation for several persons who were, usually to be passengers only; the propelling force being developed by an unfortunate footman, who, in one drawing is shown, in laced coat and cocked hat, hanging on to a strap with his legs in a box, which contained a complicated system of levers, whereby he was to drive the machine.

The cyclist of to-day, as clad in the lightest garments he rides over our excellent highways upon a 30-lbs. air tyred safety, and sometimes finds it hard work, will, doubtless, sympathize deeply with the braided and be-frogged footman who had to drive a very heavy coach with six, seven, or even eight passengers over the vile ways of the early part of the 18th century. The inventor of that period resembles very closely his successor of to-day; the claims, made for some of the complicated pieces of mechanism they patented in those days, were truly laughable; especially as to the pace they hoped the "engine" would attain.

The first radical improvement, a really "landmark" improvement, in the history of cycling, was the invention of the

Baron von Drais of Saverbrun, near Frankfort on the Main. His machine, which was called the "Draisnene" after him, being the first recorded instance of an attempt to depend upon the balancing of the two wheels placed one in front of the other as in the modern cycle, to enable the rider to stay on the machine. The first experimentalist in this line might almost be classed with the man who first ate an oyster, as the task appeared to be dangerous to say the least of it; but the Baron succeeded and the Draisnene became an accomplished fact. It was extremely simple in its construction. First there was a slightly curved bar of wood, rather lower in the middle than at the ends, which was called in England "the perch," an expression used in the early days of modern cycling in America to indicate the saddle, at the rear end of the perch were a pair of rigidly fixed forks in which the rear wheel ran, in front, were a pair of pivoted forks carrying the steering wheel, which was deflected by means of a handle bar sometimes fixed at the top of the fork prolonged for that purpose, or run out to the front and curved back like a Bath chair handle. On the perch was placed a long and well-padded cushion which answered to the saddle of to-day; whilst the most characteristic point about the machine was a small square cushioned bar rising from just in front of the cushion or saddle upon which the rider leant his chest when progressing at high speeds. This padded chest-rest, by the way, is a stumbling block to most modern artists who try to draw the Draisnene; they, almost invariably make the rider rest his arms upon it, whereas the arms passed underneath it and where free to steer, a fact which accounts for the care displayed in mounting the chest rest upon a very narrow, central support, which, very often, sprung from close to the saddle and was bent there. There were no driving cranks upon this machine, but the rider progressed by striking the ground alternately with his feet, taking in fact giants strides whilst keeping the machine on an even keel; and, as will be easily understood, the speed attained upon the level was by no means slow, as compared with walking or even running; whilst down hill the vehicle, owing to its weight, ran at a great pace, which is clearly indicated in the caricatures of the period, wherein the artist is never tired of showing the unfortunate riders of these contrivances plunging down hill at

top speed and smashing up at the bottom. In France, the machine, under the name of Celerefé was also used; indeed, some people claim the credit of the invention of the machine for Mons. Niepiece, and assert that Baron Drais only copied the French invention, whilst about the same time Dennis Johnson, a coachmaker of Long Acre, constructed and sold a number of machines under the name of "the pedestrian curricle, or dandy-horse." The dandy was sometimes erroneously referred to as the hobby-horse, a name belonging to something quite different. When used by expert riders the dandy-horse was capable of no mean speed, and all things considered some very fine performances were accomplished upon it; but the caricaturists fell upon it with great vigour, and the iron tyred wheels and springless perch caused the riders great inconvenience; whilst the mode of driving tended to produce hernia, and is probably responsible, in some degree, for the idea still prevalent that cycling has that tendency, which is an error, without doubt, when predicated of the cycle of to-day.

In France local postmen or messengers were supplied with dandy-horses, and they were long in use in out of the way places; but, as a fashionable sport, the use of the dandy-horse rapidly declined, and the vehicle gradually disappeared from the highways.

In remote parts of the country, however, the dandy-horse was still used for the practical purposes of locomotion, and at the great annual Stanley Show of 1889, a machine was shown which was practically crank driven, and its user, Gavin Dalzell, a cooper of Lesmahagow, Lanarkshire, was at once elevated to the pinnacle of fame, as the man who had invented an improvement in the original dandy-horse, which had—in effect—made the cycle of to-day a possibility; the machine shown was driven by means of swinging levers, attached to a pair of cranks. Dalzell for a long time retained the credit of having made the new departure, his portrait was published as the inventor of crank driving, and all due honours were paid him. Early in the year 1892, Mr. James Johnstone of Glasgow, was induced to embark upon an exhaustive investigation as to Dalzell's claims, and eventually succeeded in demonstrating with sufficient clearness that Dalzell was not the original inventor, and, further that the credit can be claimed with certainty for Kirkpatrick

Macmillan, a blacksmith of Courthill, Keir, near Penpont, Dumfriesshire.

> **"You've guessed him a Scotchman, shrewd reader at sight,**
> **And perhaps altogether, shrewd reader, you're right."**

Macmillan used his improved dandy-horse for the purpose of journeying from Penpont to Glasgow and other places nearer to his home, and he was well known, all round the district, as a rider of the novel vehicle. Mr. Johnstone pursued his investigations with great vigour, and actually unearthed the bill, John Leslie, a blacksmith, of Lesmahagow, rendered to Gavin Dalzell for the iron work of his cycle, and this being dated 1846, is conclusive, seeing that Macmillan is known to have ridden his improved machine between 1830 and 1840, and the evidence collected goes to show that he was the first rider of the strange vehicle propelled by the rider with his feet off the ground; which caused so great a sensation in Glasgow, as to cause the rider to be locked up for creating an obstruction; and it is not astonishing that a crowd did collect, for, not only was he the first man to pedal a bicycle, but the machine he rode had a wooden body shaped like that of a horse, and this body being hollow he was able to pack a change of clothes therein! The rear wheel was fitted with a pair of cranks, whilst to the neck of the horse, in front, were joined two swinging bars which hung down vertically, and long connecting rods joined the cranks and swinging bar on either side. On the ends of the swinging bars were placed the pedals, plain angle irons, and there must have been a great loss of power owing to the spring of the long connecting rods. Some attempt at adjustment was also made as the rods could be moved up and down the hanging bars, and thus it came about that the little parish of Keir, Dumfriesshire, first saw a crank driven bicycle.

Unfortunately, the dandy-horse was decidely under a cloud and little if any contemporary notice was taken of the invention, which, had it been taken up and pushed as the original dandy-horse had been, might have advanced the history of cycling by from 20 to 25 years. But the impetus of public favour was wanted and a radical improvment, which indicated clearly the road to further advances, was allowed to lapse except in a few isolated instances.

The real renaissance of the dandy, in the form of the bicycle, was destined to come from France, where the velocipede, in its earliest forms, was very popular; the machines were three or four wheeled ones driven by means of cranked axles, and long swinging levers, which carried a block to fit the foot with a strap over the toe, and which required great exertion to keep them going. Some of these vehicles were remarkably well finished, but their great weight militated against their use. Inventors attempted to overcome this by adapting them for the employment of arm as well as leg power, and some fearful engines were produced in this direction.

One of the most popular forms of velocipede was a machine with a single wheel in front, steering bicyclewise, and two small wheels behind made by a firm at Chelsea who fitted the front wheel with cranks and thus made another important departure in the history of the cycle. This machine had quite a run, and was shown at the Exhibition of 1862; where it, in all probability, came under the eye of Pierre Lallement who had for a long time been giving his attention to velocipedes. The result was that Lallement, shortly afterwards, made in Paris a machine which was to all intents and purposes, a dandy horse with cranks and pedals on the front wheel; thus the bicycle was born. Lallement going to America, the cycle remained in its primitive state, almost as he left it; and was regarded only as a child's toy and as such was used very freely in Paris, and in this shape it happened to come under the notice of an Englishman, who had friends in Coventry engaged in the sewing machine trade and kindred industries.

Bringing one of the French cycles to England he showed it in London at Spencer's Gymnasium and, seeing that it was likely to prove a success, went down to Coventry with his specimen machine. The sewing machine trade was, just then, falling off considerably and other Midland trades were languishing, and the cycle provided a welcome outlet for ingenuity and capital. The Coventry Machinist Company, then identified with the sewing machine trade, accepted an order for 100 cycles and other firms also taking the matter up vigorously, Coventry became the centre of a flourishing industry which employs thousands of operatives and millions of capital throughout the United Kingdom.

Manufactured by practical men and rapidly improved by ingenious minds, the English-made bicycle soon began to make a name for itself all over the world and just as the *elite* of a foreign city will only be seen on English bred horses so the best of the foreign wheelmen have, for the most part, preferred English-made bicycles; and the preference can easily be understood; in as much as if a bicycle fails its rider, damage is certain to ensue, and therefore those who can afford it invariably have the best and most reliable. Firm after firm in different parts of the country took up the trade, competition produced rapid improvement and the cycle was completely modified and altered. It at once lost its "child's toy" characteristics; one of the very last features being the silver plated flying horse with which one firm decorated the front forks of their machines.

The cycle soon took up a very strong position amongst our sports and will, most assuredly, become national ere long. That position is, in the main, due to its economical character. Many a rider, who has taken to cycling solely for the purpose of exercise, has found, when its novelty has worn off, that it has become a necessity to him, as an easy and rapid means of transit from place to place, and thus he continues to remain an active cyclist when the primary inducement has passed away altogether. The converse of this case is equally forcible, a man residing in the country at some distance from the nearest town or railway will take to a cycle with many protests as to the hardships therein involved, and after a time finds in the sport a fascinating as well as a healthy form of exercise which makes him as great a votary of the wheel as is the rider in the former case.

The new industry at once attracted attention and its development in the earlier stages was rapid; the bearings, upon which the axles of the wheels ran, were very soon provided with anti-friction bearings; these first consisted of rollers which very soon gave way to balls; the solid bars were replaced by hollow tubes and the wooden wheels by the beautiful suspension wheel. The first type was that known as the 'Ordinary Bicycle' which was for a long time the only bicycle, a front driving and steering wheel of large diameter was mounted in a pair of almost if not quite upright forks, which ran up to the head and handlebars.

From the head, a long backbone followed the curve of the

wheel to the back forks in which ran a very small hind—or trailing-wheel. This type, fitted with rubber tyres, was perfected with great rapidity and many wonderful feats were accomplished on it, upon the racing path and the road, which did much to attract public attention to the new vehicle. The 'Ordinary' was emphatically the expert's machine and there are old riders who assert that no man is fully master of any type of cycle who has not at some time or another ridden an 'Ordinary.'

This is of course an exaggerated view, but there can be no question that the co-operation of hand and foot in steering, which will be presently discussed, the sensitiveness of the balance, and the care necessary in the earlier type of cycle to avoid falls, tended by mere severity of discipline, to make the cyclist careful to master very fully the peculiarities of his mount a necessity which though not by any means so apparent is without doubt present to a greater extent than is generally supposed, in some of its descendants of to-day which, though termed safeties, are anything but safe in the hands of a rider who does not consider that any care is required in their management.

For some years the 'Ordinary' alone existed and the attention of manufacturers was solely directed to it; it was improved in many ways and reached at length, what appeared to be the pitch of perfection. The tubing at first used was crude and unreliable but it was in due time replaced by material almost ideal in its perfection for the purpose intended, bearings, forks and every other detail were gradually brought up to the mark, and then the manufacturers cast about for a novelty and the old three wheel velocipede presented itself for consideration.

The improvements in details, the tubular frames, ball bearings, rubber tyres, etc., which had been well tried and tested in the bicycle, presented themselves for incorporation in a new development of the velocipede and the tricycle became an accomplished fact attracting to the ranks of cycling a very large number of persons who could never under any circumstances have been persuaded to mount the airy perch of the ordinary bicycle. The tricycle, gave a new and widened impulse to the sport and trade (to the advantage of both,) and brought into the ranks of cycling many grave and reverend seigniors, whose presence, therein, proved of great

assistance to its welfare. Upon the racing path, where, by-the-way, nearly all the advances in cycling mechanism have been tested and perfected, the rejuvenated velocipede made a successful appearance and the interest excited by the performances accomplished, caused tricycling to at once, take up a position as a most important branch of the cycling sport.

Several methods, more or less satisfactory, of driving the tricycle were tried, but the machines in the end were almost universally driven by means of a chain passing over two cogged wheels, one fixed on the axle and the other on the crank axle. In the earlier machines, the chain driving arrangement was crude and not wholly satisfactory, but improvements were rapidly introduced, and the chain, in particular, was perfected in a wonderful way.

The balance gear, the invention of James Starley, was also brought into use and the racing machines became lighter and lighter, with the result that really splendid performances were accomplished upon them. The tricycle thus became, in effect, the nursery of chain driving, and the gearing question was most thoroughly worked out in this machine, and, when it had been fully perfected, made apparent the feasibility of another idea previously thought out, which originally lacked this one point to make it a success. That idea was a "safety bicycle," as it is now termed; a small bicycle placing the rider nearer the ground, but possessing the pace of the larger wheel. Many methods had been tried to accomplish this end. Messrs. Singer & Co., had made a machine in which a large rear wheel was driven by a lever action direct on to the cranks, whilst the rider sat in front of it and steered a small wheel. Other designs of a similar nature had been tried with more or less success; but it was not until chain driving had been worked out, and, in some degree perfected that it was possible to construct a satisfactory safety bicycle.

The first really practical machine of this type was the "Kangaroo," made by Messrs. Hillman, Herbert & Cooper, a small bicycle of the ordinary type; the front wheel of which was driven by chains on either side, the cranks being fitted at the ends of projections dropped straight from the fork ends. The strain on these unsupported bearings was very great, and the back lash of the unconnected cranks was

extremely awkward, and this type, though popular for a time, gave way to what is called the "Rover type" brought out by Messrs. Starley & Co., the machine being the "Safety bicycle" of to-day.

The earlier safety bicycles or "Rear-drivers" were of course crude as compared with their perfected descendants, the type is well known and is now by far the most popular upon road and path. The two wheels, nearly equal in size, are mounted in a frame, the most popular type of which is known as the Diamond or modified Diamond frame, from the arrangement of the tubes to obtain the greatest rigidity from a given weight. The rear wheel is firmly fixed in this frame, which carries at its lower corner the crank bracket, which holds the front pulley wheel rigidly with regard to the rear pulley wheel, the latter being usually part of the rear wheel-hub; then a chain being placed over the two pulley wheels the rider drives straight on to the hind wheel, which exercises only one function in the machine—that of propulsion. The saddle is fixed upon an adjustable standard, rising from the frame in front of the rear wheel; and the whole frame is designed to secure complete rigidity as regards the crank bracket, rear wheel and saddle standard.

The front of the diamond frame forms or is part of the head through which passes a continuation of the front forks which are controlled by the handle bar. In the front forks is placed the steering wheel which exercises that function solely. Much of the rider's comfort depends upon the correct adjustment, by the maker, of the angles of the centres, and some machines are much more easily steered than others. The rear-driving safety bicycle is a curious recurrence to the original type, and in many vital points it resembles the original dandy-horse in outline.

Like previous new departures, and in fact like every other development in cycling, the "R. D." safety was crude and imperfect at its first appearance, and several seasons of hard usage upon road and path were necessary to bring it to perfection; and even then, as far as the matter was tested, it lagged behind the ordinary bicycle in pace on the path; though upon the road its safety made it the faster machine and the more popular amongst the steady touring, as well as amongst the rapid road-racing division. That it should not be perfect at

first was to be expected; as all cycles, simple as they may appear to the uninitiated eye, contain many little points that conduce vastly to the rider's comfort which are only discovered in actual use, and after careful trial by expert users; and although perfection is habitually claimed at every stage of the inventions' history, it may in most cases be very safely predicated that improvements in detail are both probable and possible, in fact throughout the history of cycling nothing is more clear than that whenever the riders, the trade and the press have sat down with folded hands, and announced that perfection or thereabouts has been attained some new and startling development has upset all calculations, and set everybody once again to work to improve and alter.

The safety bicycle was pushed vigorously forward for many reasons, but the main one, apart from its own intrinsic value was the fact that all machines were of one type and size, and that, owing to the adjustability of saddle and handlebars, "standard patterns" would fit any one; this of course simplified the matter and makers stocked more largely than they could do with the ordinary bicycle, in which every man wanted a modification in size of wheel and so on.

The stage of complete satisfaction, all round, alluded to above had just been reached in 1889. The Safety was perfected, minor points might be modified but there was, as regards general lines nothing more to be done, and every one had acquiesced more or less in that verdict, when one of those revolutionary inventions burst upon the cycling world and started the whole thing anew, for 1889 saw the practical advent of the air-tyre. Somewhere was in the forties, a Mr. Thompson had patented a design for fitting to the wheels of vehicles air tyres, rubber or other material, containing air under pressure. How it came about that Thompson did not persevere with his invention it is difficult to say; for, although the cycle was not invented, the developments in American trotting records, when the horse is, to use the correct expression, "hitched to a bicycle sulky," which means a two wheeled vehicle, the wheels of which are shod with the famous Boothroyd tyres, show clearly that even for draft vehicles the air tyre possesses absolutely indisputable merits.

Up to 1889 solid rubber tyres had been fitted to bicycles,

and, on the path, the amount of rubber had been reduced to a mininum for the sake of lightness; on the road, experienced riders had used big tyres, and the Surrey Machinist Company had for years fitted 1-inch soft rubber tyres to their roadsters; and, without knowing any better, the rider was satisfied and found that amount of rubber a sufficient check to the average vibrations of the road, or, if he became unduly conscious of them he adopted a more effective spring. The inflated tyre was in effect re-invented in Ireland and proved successful; it was of course at its first introduction in a rather crude state, and its durability was considerably over estimated by its friends; whilst most of its adverse critics tried it under an erroneous belief as to the right way to handle it. A small group of Irish riders used it and for racing purposes pumped the tyre up very hard, a thing which many English riders who tried borrowed machines were naturally afraid to do, as even at that very early date the liability to burst was notorious, and those critics who asserted *inter alia* that fact, though it was angrily challenged at the time, have been amply corroborated by the subseqent efforts of makers of inflated tyres, in every way, to secure reliability in that direction, even at the cost of some proportion of the tyre's speed.

The air tyre at once attracted the attention of inventors in all parts of the world, and designs, ranging from the Ingenious to the Impossible, have inundated the Patent Office, whilst many inventions of very great value have been brought before the public. The original tyre, the "Dunlop," got a start of all others, and, as the average racing crack when near the top of the tree is loath to experiment, nearly all the best men have ridden that type of tyre on the racing path; but there are several others which bid fair to press it very closely ere long, and some reference to them will be found in the following pages.

The inflated tyre has added many miles to the capacity of the average rider, and has vastly enhanced his comfort until a mishap occurs. The absence of vibration is of course a part of the gain, though habitual riders of the solid tyred machine were in many cases quite unconscious of the vibration or its effects, it is only by going from an air tyred cycle on to a solid tyred mount that the cyclist can form any idea as to the amount of vibration he quite uncon-

sciously endured on the old type. The racing man's speed has been most marvellously increased, 150 to 200 yards per mile is not an exaggerated estimate of its average effect, and the very wonderful performances accomplished upon the path have done much to re-awaken interest in the sport of cycling amongst the outside public; such feats as a mile in 2 minutes and a few seconds, nearly 24 miles in an hour, and over 400 miles in 24 consecutive hours are sure to excite interest and to awake enquiry, and so the sport is advertised and benefited.

The air tyre, crude as it was at first, was again thought to mark the limit of large improvement, and it enabled the safety bicycle to come off triumphant in its battle with the ordinary. The dwarf went right away in the matter of speed, and the big machine when tardily fitted with inflated tyres was not benefitted by them to the vast extent which the safety had been, in the main, by reason of the extra weight and what was much more important, the fact that, the limit of pedalling speed appeared to have been reached before the air tyre was fitted to the ordinary.

Just when everyone was saying that finality had been reached, another new departure occurred in the production of the geared ordinary. In this machine the front wheel contains, in its hub or attached thereto, a gear arrangement whereby the driving wheel revolves faster than the pedal crank, the machine in fact being geared up. There is little doubt that all other things being equal it is infinitely better to drive the front steering wheel. By so doing nothing is lost, and the whole of the machine follows, instead of being thrust before, the driving wheel. The geared ordinary is in outline a small ordinary with a rather large hind wheel, and in some cases a heavy rake on the front forks, and though at present in its initial stage it is quite within the bounds of possibility, that when perfected upon the racing path, the geared ordinary may press if it does not pass the rear driver for speed. As a road machine, especially for winter use, the geared ordinary is far in front of the safety, and the gears being in most cases small are easily closed in from the mud; and, if adequate mud-guards be fitted, the rider finds the "G. O.," as it is termed, an ideal winter mount.

The relative merits of the various types of cycle, the developments of which have been briefly sketched, in the

forgoing pages, depend almost entirely upon the user and the conditions under which he will ride. Each class possesses special merits of its own, and each, under particular conditions is to be preferred. For the purposes of this enquiry cycle falls naturally into three classes: ordinary bicycles which includes any machine in which the front wheel is driven direct through the hub, with or without the intervention of a gear. Safeties, any machine of the dwarf type driven by the rear wheel, and lastly, tricycles including all three and multi-wheeled contrivances.

The ordinary, as already explained, is without question the expert's cycle, as the combined driving and steering with the front wheel, causes it to be primarily difficult to learn; but when fairly mastered, it is much more under control, as the feet and hands jointly share the steering, and the machine being driven by the front wheel, the rear wheel becomes actually a "trailer," which of necessity ensures straight running if the steering be reasonably good; and, just as it is easier to drag than to push a wheel under such conditions, so it becomes more easy to steer a front driven machine than a rear driven one. As soon as the complication introduced through propulsion by the feet, direct on the steerer is overcome. All these remarks, also, apply to the geared ordinary when built, as it should be, on conventional ordinary lines, as it then behaves exactly in the same way as the undergeared ordinary, and is as steady and as handy as that type of machine. In the ordinary and geared ordinary the rider is lifted somewhat higher above the ground and out of the mud, and if the machine be properly fitted with saddle-flaps and a rear wheel mud guard, it is cleaner than any other type of cycle, and if a geared machine is not geared too high it may be safely be said to be the best form of cycle for all round use.

The safety, however, offers great attractions to beginners, and is likely to always hold its place amongst that class, as it will always be the most popular type of cycle for the average rider, in as much as if it is carefully used it is safe, whilst presenting, as it does, a relatively small surface windage is less apparent when riding than in the higher wheeled types.

The introduction of the air tyre in its earlier forms in-

creased the tendency to side slip which the safety already suffered from to some extent, owing to the position of the rider with regard to the wheels; but this point having been brought prominently before the public, by published criticisms and accounts of accidents, caused by the defect in question, the inventive minds of the country were at work, and already in some air tyres, such as the Clincher and Boothroyd, the point has been satisfactorily dealt with by giving the air chamber a wider seating, or supporting it by placing it in a curved instead of on a nearly flat rim. The one great drawback of the safety is the chain driving, which perfect as it is, is yet open to many objections; but some of these have been effectually met by the adoption of the invention known as "Carter's gear case," which is a case fitted over chain and gear wheels, in such a manner, as to exclude all mud and dust. Into this case is put a small quantity of oil, and thus the chain runs continuously in an oil bath; an arrangement which has been found to work most successfully in practical use.

Another drawback to the safety is its mud throwing capacity, and this can only be dealt with by means of an elaborate system of mud guards, and in this direction it is still susceptible of further improvement. With all these drawbacks granted, however, the safety possesses so many obvious points of advantage that it is certain to retain its hold upon the vast majority of the riding public for a long while to come, and as each recurring season introduces to the cycling world, at the great Stanley Show, new improvements, the minor drawbacks will doubtless be as effectively dealt with as the greater ones have been in the past years of safety history.

The tricycle is peculiarly suitable for those would-be cyclists, who cannot be persuaded to undertake the task of learning to balance a bicycle, albeit, this class should be a very small one now-a-days, seeing that hundreds of tricyclists have successfully mastered the safety bicycle, and that several riders exist who have had the misfortune to lose a leg, and yet mount and ride the safety with ease. It is a popular fallacy that the tricycle wants no riding, and many a good cyclist has had a bad fall from a tricycle by indulging in that belief. The tricycle like everything else wants learning, the wheel base is by no means a broad one, and

unless a certain amount of care is exercised, the rider may easily be upset. For riding in towns, over stone setts, in a country where the roads are very greasy when wet, and for luggage carrying the tricycle stands well to the front, and a large number of persons who use the cycle for purely business purposes adopt this type, for these reasons. There is no doubt whatever that the balancing of a bicycle, however, automatic the action may became by long and constant practice, is an exertion, and that the unconscious adjustment of the weight involves some muscular effort. This is of course, saved when the tricycle is ridden, and this fact explains the unexpectedly close approximation of the best performances upon the broad and narrow gauge cycles; a result which could not have followed except upon some such economy in the strain of riding, in the case of the tricycle user.

The tricycle has also been adapted for use as a carrying vehicle with marked success, and the weight which can be successfully propelled by average users is very remarkable. Many butchers, grocers, and other tradesmen send out their goods by carrier cycle, and the handiness of the machine has commended it to the newspaper publishers and the parcel post authorities, in short the economic side of cycling is in the main due to tricycle adaptations, and the comparatively low cost of the carrier cycle, and the fact that it requires but little expenditure to keep it in order has recommended it to many tradesmen, in the manner indicated above. Last, but by no means least, come the development of the tricycle in the shape of the Coolie-cycle, Man-cab or Coventry chair, in which a Bath chair-like arrangement is propelled by a rider seated behind; the passenger being comfortably ensconsed in the chair in front. Until the experiment has been actually tried it is difficult to understand with what ease a comparatively heavy passenger can be carried. Properly adjusted this machine can be made most useful, though of course, no great effort at pace should be made. The gearing should be low, not higher than 35 inches, and the cranks lengthy, and an adequate and thoroughly reliable brake should be fitted. With these precautions the Bath chair cycle can be used without undue exertion, and with pleasure and advantage to both passenger and driver.

In addition to the general types of cycle referred to above, there are many varieties of the tandem or double cycle class, and these present peculiar advantages in cases where two persons—as for example husband and wife—habitually cycle together. To attain the most satisfactory results, it is absolutely necessary, that the riders should frequently ride together, as by so doing, each becomes accustomed to the other's style, and the result is eminently satisfactory. When so accustomed, long distances can be ridden in company on a tandem, with markedly less exertion than they could be accomplished by the same riders upon two single machines. The tandem is also peculiarly suitable in the case where an expert rider desires to have the company of a less accomplished friend, as the expert can carry a person who cannot ride a cycle by himself, upon the front seat of a tandem safety, and maintain the balance if the front rider will only be careful to sit still, and not be nervous. The tandem tricycle is a peculiarly suitable machine for touring, the carrying capacity is of course considerable, and the surface presented to the wind is relatively small as compared with the running weight of the vehicle and its riders. The companionship feature is of course very complete and given the vital condition—some preliminary practice together—there is no form of touring more enjoyable than that upon a tandem cycle with a well chosen and congenial partner.

The cycle, as now made, is carefully studied by many other trades, thus the photographic appliances manufacturer has of late years given very special attention to the wants of the wheelman in whose ranks he finds some of his best customers, as quite a number of cyclists are ardent votaries of the camera; and this fact is not astonishing having regard to the many opportunities which the average wheelman has of picking out pretty 'bits' in his journeyings. The rider who has a taste in this direction will find many appliances specially made for his use, whilst cycle makers fit their machines with the carriers, and other fittings, necessary for the conveyance of these impedimenta.

The artist, too, finds the tricycle especially servicable to him in his outdoor studies; and here, again, special appliances for his use are made to fit the machine, and any rider who keeps his eyes open in his journeyings will see the

cycle put to most various uses—milk delivery, bill-sticking, and even chimney sweeping having pressed the silent wheel into their service. A sport, which thus possesses a solid, economic value, alongside of its aspect as a pastime only, has unquestionably come to stay, it has grown out of its infancy, passed through the critical period and now numbers its followers amongst all sorts and conditions of men. It is not likely to be effaced as was the dandy-horse, in the beginning of this century, by ridicule, because it has passed that stage successfully; it has ceased to be a child's toy, and its earlier *devotees* reached years of discretion a decade or so back, and have left behind them the youthful eccentricities which were bound to be identified with a new and juvenile sport; they remain in its ranks, however, and thus the youngster of to-day begins almost where the pioneers left off, and the result is a sport placed upon a sound basis, with a backbone of veterans to keep it straight.

The development of the cycle from the "chaise to go without horses," and the Draisnene, to the air-tyred geared Ordinary of the present day, its latest developement, has thus been traced in these pages; and the next step is to indicate the manner in which the reader may acquire the art of cycling, to advise him as to his choice of a mount, and to point out to him the practical methods whereby he can get, therefrom, the greatest amount of pleasure upon the road and path. These matters will be found dealt with at length in the following pages of this book.

CHAPTER II.

How to Ride a Cycle.

Contents — Riding schools — Of the balance — Of position — Of action—Ancle action and the air tyre—Shoes for riding—Practice recommended—Capacity as to distance—Hill climbing.

In the earlier days of the sport a would-be rider had to take his chance and struggle through his novitiate with possibly the assistance of a friend in some quiet by-way, and doubtless many a future rider will have to do the same, but wherever it be possible, the embryo cyclist should learn in one or other of the schools, in which experienced riders undertake to instruct beginners for a moderate fee. The advantage of this course is sufficiently obvious, the machine is adjusted correctly from the start, position is studied, and the many minor points which mark the difference between good and bad riding are indicated at the very earliest stages, so that, if the rider, in the end, falls into bad and slovenly methods, he must do so solely by reason of an inherent tendency in that direction. As however a school, or even competent instruction is often not obtainable, some brief and plain instructions, may not be out of place.

Of the Balance.—The balance of the cycle depends upon the carrying out of a very simple rule for the learner is told to turn his steering-wheel *towards* the side to which he appears to be falling, this being in ninety-nine cases out of a hundred unfortunately, exactly the opposite of what the beginner *does* do; of course, if the wheel be too much turned a fall is the result, and the happy mean can only be learnt by steady practice; when that first and crude stage is passed progress is steady, but not rapid, and the rider gradually acquires, in a greater, or less degree, the capacity of automatic or unconscious balance. Cyclists can often be seen riding with a look of painful concentration, watching the road with close attention, gripping the handles very firmly, and evidently ill at ease; the majority of such riders are beginners, but every now and then old riders may be

met who have never lost this trait of their novitiate. Such men never properly ride a cycle; they propel it, and stay on it, but it strongest point and greatest merit is lost to them for some reason, either undue nervousness, caused by early falls, or absolute incapacity, which has prevented them from acquiring that automatic balance which is the highest developments of cycling.

In the rapid dashes of the trained racer around the track, probably the very last thing he *thinks* about is the balance, whereby he stays upright on the machine, but nevertheless he is unconsciously adjusting and arranging his weight so that the bicycle pursues a straight and even course. This being so, the beginner when once he has mastered what may be termed the mere arm-steering of the cycle, should devote time and trouble to trying to advance to what may be termed the body balance, which is learnt far more easily and quickly upon the 'Ordinary' bicycle than upon any other type. Still, whatever be the machine ridden, the user should make every effort to balance and steady it as much by the adjustment of his bodily weight, as by the use of the handles. In later stages, riding without touching the handles is excellent practice, and to the eccentric and now discarded fancy for riding long distances "without hands," *i.e.* not holding the handles may be ascribed the accurate steering and balancing which characterized some of the giants of the past, upon road and path.

Of Position.—Position is an important factor in the proper acquirement of the art of cycling, and demands particular attention from the novice in these days, when abnormal and ridiculous attitudes are advocated by those who should know better, quite a large number of the cycles of to-day are unsuitable, as sent out, for their intended users. The saddle is placed too far back, the handles too far forward and much too low, and so on. These errors have been made because the average beginner wants a machine exactly like that of some prominent rider, overlooking altogether, the fact that most of the prominent riders are abnormal in their physique, and that what suits them is not in the least likely to suit the next man. Then the beginner, in many cases, tries to put himself in the position of the racing crack, overlooking the fact that however suitable that attitude may be for a short period of highly

concentrated exertion on an absolutely smooth track, it is wholly unsuited to the rider who desires to ride for a long time on ordinary roads at a steady pace. The position then, on the machine, should be easy, the saddle neither too near to, or too far from, the pedals, the handles within comfortable reach, with a slightly bent arm. when the rider is sitting upright, and so on. The leg position must particularly be studied, as a too short or cramped reach is nearly as bad as an over-long one, the latter being particularly likely to produce strains and possibly hernia. The usual test, which is found most suitable for novices, is for the rider to be able to easily touch the pedal, at its lowest point, with his heel when sitting in the saddle; this places the pedal well within his reach and is a safeguard against danger, though it may, of course, happen that longer experience may enable a rider to shorten or lengthen the reach to suit his own individual fancies, with marked advantage. In short, in this as in many other matters in connection with cycling, the experiences of the individual modify, and alter, in a most marked manner, those arrangements which are found suitable by the majority. so that it becomes obvious that to attempt to lay down any hard and fast rules as universally applicable, is as empiric as it is absurd.

The leg position, which depends upon the relative positions of the saddle and the pedals, is of course the most important, as the lower limbs provide the motive power, and every effort should be made to find out the most suitable position for each particular individual; but it must not be forgotten that the arms act as an important factor in the driving, and that the handle-bar performs much the same functions for a cyclist, that the stretcher does for the rowing man; just as the latter would find it difficult to row with his stretcher badly placed, so many cyclists find it very difficult to ride solely by reason of the ridiculous position of the handle bars. As indicated above, a position found peculiarly suitable by a racing man on the path, may prove wholly disadvantageous to a road rider; and the beginner, at any rate, should be encouraged to ride with a straight back and fairly upright, the handles being so placed, that, when sitting up, the arms are just bent, and no more. By simply throwing back the shoulders the

straight purchase necessary for hill climbing can be secured, and the rider will not get himself into these cramped round-backed attitudes which are intended to resemble, but have nothing else in common with, the position of the path-racing crack.

Of Action.—As soon as the earlier stages of the novitiate are over, the tyro should begin to study the action of every limb and every joint in the limb. As regards the arms and shoulders, immense care should be taken not to set them too stiffly by the exertion of the muscles, to do so, not only fatigues the rider, but unsteadies the steering and retards the progress of the machine. The "top" should be carried freely, with the muscles as far as possible relaxed except, of course when called upon for a special effort, and the rider should carefully watch for any tendency to permanently stiffen the pose of the body. Some men, for example, grip the handles with spasmodic firmness, and the unnecessary exertion thus made must tend to exhaust the rider. In such cases, special attention should be given to the handles, and if nothing else will effect a cure an actual change of handles from vulcanite to rubber, or rubber to vulcanite, or the fitting of a smaller or larger pair will, with a little attention, often cure the bad habit; awkward methods of holding the handles, a fertile source of constraint and stiffening, can sometimes be cured by moving the handle-bar upwards or downwards into a fresh position.

The top, then, should be carried easily, and stiffness carefully eschewed. The lower limbs require especial attention, and it is a matter of intense astonishment to those who study the subject, to note how many now seem to lack the faintest idea of how to best apply their power. Several riders, like Falstaff's ragged army, "march wide," as if they had gyves on, though the prevailing fashion of heavily-dropped handle-bars has had a most beneficial effect in forcing the rider to keep his knees in, for the in-kneed action, though decidely a disadvantage, is a very much less one than the throwing wide habit, whilst some men are so built of course as to make either of the above, the perfection of "straight driving." For straight driving is the ideal to be aimed at by all. The beginner should, whilst practising, run his eye down his leg and note that all the joints are in line; the heel should be neither turned out or in, though perhaps in

most cases, a very slight turn in will be found most convenient and comfortable. The foot being straight gives the line for the lower leg, knee and thigh, and every effort should be made, from the first, to keep them in line. A careful study from behind, of the action, of the first half-dozen cyclists encountered on the road, will reveal to any person of ordinary intelligence the immense drawbacks which must necessarily follow on an irregular action. The "screw," as it is technically termed, throws unusual strains upon the joints and muscles, and not only tires them, but also wastes much of the power applied, in doing so.

In some cases, a bad action is unconsciously acquired through the use of a crooked pedal or bent crank, often to be discovered on a learner's machine owing to frequent falls, and these points should therefore be carefully looked to by an expert, and repaired at frequent intervals lest the continuance of their use should create such troubles as those here indicated. When the leg action has been perfected, the ancles remain to be cultivated, and the good ancle-worker has never done learning; whilst on the other hand a number of persons talk glibly about 'ancle-action,' who know absolutely nothing about it. It may be summed up as that "push and pull" action which keeps the machine running between the points where the greatest power can be applied, and the more it is practised the better the results attained.

Here, again, some persons have greater capacity for its developement than others, but no one need despair of acquiring, at least, some proficiency. The most general fault lies in the supposition that dropping the heel to the fullest extent at the top of the stroke, is the Alpha and Omega of ancle-action; as a matter of fact it kills the ancles, as the most effective position for the exertion of a muscle is found neither at the point of full-extension or full-retraction, but at an intermediate point; and the ancle and calf muscles being only called into active play at intermediate points, need not be handicapped by being placed in so absurd a pose. In any case the ancle fills but a subordinate, though important place—it is the connecting link which transforms the heavy thigh-thrust into the "all-round" action; and which, by small exertion, at the right moment, keeps "alive" the running of the machine.

It was fondly thought by some worthy persons that the air-tyre did away with the necessity of ancle-action, and it is an unquestionable fact that many clever pedallers on the solid-tyre became hopelessly flat-footed when they took to the air-tyre. But further experience has shewn that the ancles are still useful, as heretofore, and that more practise and experience are required to bring out their value. A satisfactory ancle-action cannot be secured without the use of special shoes, as the rider must have some firmer grip of the pedal than is afforded by a plain sole, or by the use of the toe clip, which is only servicable in connection with the forward kick, and a satisfactory and reliable shoe is not made in an hour. Designs, almost without number, have been made for cycling shoes, and in many cases they are most serviceable in the main, though failing in one point or another of complete suitability, and many years of practical trial under all conditions are necessary before success can be predicted; but Norris, of Holborn Viaduct, the well-known cyclist's outfitter, makes a shoe from the design of one of the authors of this work, which may be said to possess all the points necessary in a successful cycling shoe.

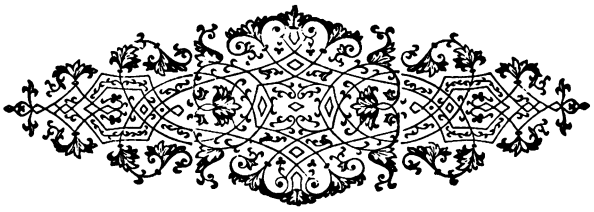
This shoe is fitted with deep blocks which drop inside the bars of the pedal, and afford that forward and backward hold which is a *sine qua non* in ancle-action, incidentally, this arrangment, possesses another important merit, from the beginner's point of view, as the blocks so fitted hold the feet straight, keep the ancle in position, and steady the leg action, in short the learner studying action will find that the adoption of a correctly and properly made shoe, will assist him vastly in his efforts to acquire the best and most satis-methods of progression. Thus accoutered he will study the subject of "action" under the most favourable circum-stances, and though at first the results may not appear to be commensurate with the exertions undergone, the learner should bear in mind that he has not only to educate his muscles but to develope them, a process which takes time, and can only be accomplished by steady and persistent exercise, even at the cost of some weariness, stiffness and tendency to cramp, which are best met by the use of Elliman's Embrocation, or one of the many similar preper ations, now before the athletic world.

The novice who will bear the points indicated above in

mind, through all his riding in the earlier stages, will, most assuredly, benefit thereby. The way to attain the best results, always supposing that coaching by a competent friend is out of the question, is to select a smooth and level piece of road, and to ride thereon, if possible daily, studying all the points in turn, this exercise should never degenerate into hard work, and at the first signs of weariness the rider should desist, but this careful, slow work is of immense value, a spanner should be handy, and adjustments should be frequently made, so as to secure the most comfortable position. In ordinary riding, training and the like, the riders will often find that if he gives particular thought, to say his ancle action for a few moments, the work which appeared hard, a short time before, will suddenly become easier. The explanation is obvious, the legs getting weary and not moving as actively as they might, and their weight being thus momentarly thrown upon the pedal at its lowest point, was to use a technical phrase, "taking the run off the machine." The moment that the ancles are brought into play, this momentary check was removed, and the machine at once ran easier, this is but an illustration, out of the many which might be adduced to show that the cultivation of a good action is an immense gain even to a beginner.

An important section of a chapter on "How to ride a cycle" is that which contains the cautions, experience has shown to be so very necessary. Thus the beginner always has a somewhat exaggerated idea of the distances he will be able to cover, and the hills he will climb. The capacity for riding great distances is only acquired after long and careful practise, and any attempt to compass them in the earlier stages, must result in failure. It is scarcely necessary to say that in this matter as in all others, there are degrees of capacity, some novices can ride many more miles than others, but a little care is by no means misplaced, and a beginner will do much better by beginning moderately. If a tour is contemplated it is well to prepare for it by daily rides at a fair pace, and these will afford some guide as to the distance, that may be attempted with comfort. Hurry should especially be avoided, and the day's journey should be broken into short stages, with plenty of time allowed for each. Hill climbing, like long distance efforts should be avoided, the strain is very great, and if the hill be climbed,

simply by the mere strength of the rider he may possibly injure himself in the effort; as he acquires skill, hills will be climbed with no danger, and within certain limits, the beginner would do well to avoid the task.



CHAPTER III.

Dress.

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THE cyclist of to-day is—if he only knew it—a most favoured person. The pioneers of the sport have suffered incalculable discomfort in arriving by practical experience at results, which he takes for granted, and adopts in the very earliest stage of his novitiate, and many a tyro now-a-days is more rationally and satisfactorily clothed than the experts of a decade back, not by reason of his own talent, but solely because the experts have placed their experiences at his disposal. The beginner goes to one or other of the numerous excellent cycling tailors, who make a speciality of such clothing, and orders a cycling suit, and gets a garb, which considered from the practical point of view is little short of perfect, suitable in design, comfortable in wear, and hygienic in the very sense of that somewhat "over-trained" phrase. In past times the writer of a cycling handbook

might devote many pages to the description of such garments, now-a-days the youthful cyclist goes and buys them, and ask no questions; it is advisable to point out, that the radical principle of the whole thing is to clothe the body wholly in animal fibre as opposed to vegetable fibre. Cotton and cotton compounds, when wet, strike very cold indeed, and the tailor's favourite device, in the old days, a linen waistband with a linen stiffener was singularly deadly, and the cause of innumerable bad colds, chills, and even more serious illnesses. Wool, camels hair, cashmere, and many beautiful fabric of allied textures are all suitable for cyclists, and the flannel, and woollen goods of our cycling tailors will vie, in variety, with those shown by tailors who are not bound within the category of animal fibres only.

The cyclist will find it better to wear many and thinner garments, than few and relatively thick ones as the drying of the thinner clothing is so much easier; woollen undervests, flannel shirts, short drawers if worn, should form the underwear; some riders wear long drawers, but the drag over the knee though slight has its effect, and it is better to wear thicker stockings, and to cut the drawers off above the knee; most active wheelmen, however, discard this portion of every day attire and prefer to wear in winter-time, rather thicker knickerbockers; the undergarments may be of course increased or diminished in number, as the weather requires, and an extra long undervest can so easily be carried that the cyclist need never be uncomfortable through damp underwear, as if the dry garment, though thin be put on under the others, the effect will be most satisfactory.

A number of old riders are in the habit of carrying, when touring, a long combination garment, drawers and vest in one a trifle thicker than their thin riding vests, and this serves admirably as a dry change next to the skin at the conclusion of a day's journey, and if not too tight fills the place of pyjamas at night. The fashion in outer garb has of late years undergone a most marked change. In the earlier days tight fitting uniforms were considered *de rigeur*, the reason of course being that any looseness about the legs would have caught the wheel of the original bicycle, and caused accidents and smashes, so the tailors naturally made the tight fitting tunic to match the breeches. This tight fitting tunic was truly an instrument of torture; for it was

a singularly untidy garment when unhooked, and the rider, if he desired to appear presentable, had to keep it fastened up, when it became excessively uncomfortable, so as to sail as near the military dress as possible, the uniforms were made in dark coloured cloth. These were hot and stuffy, in the extreme.

As long, however, as the ordinary bicycle ruled the roost anything like a complete reform was impossible, but as soon as the tricycle and safety came in, a change begun until the costume of to-day was developed, and it is apparent that the fashion is running almost as wildly to the other extreme. With the dwarf machine it became possible to wear loose knickerbockers, but the looseness is now exaggerated. The drag of the tight breeches over the knee was very great whilst the pressure they exerted upon the muscles, seeking to expand beneath them, was also a marked retarding force; a fact which is made very clear to any rider who will ride round a track against the watch, first in a tight fitting pair of shorts and subsequently in a pair of loose ones. The knickerbocker should not be made too loose, it should be fairly long reaching to the middle of the calf before being strapped up. The best fastening is a small cloth strap and buckle, the latter being well back on the band, so as to have some thickness of cloth between it and the leg; when the strap is buckled up just below the knee, it should not be drawn tight, but should come lightly round just to hold the ends of the knickerbocker up, and nothing more, no effort should be made to make the strap hold up the stockings. Though a great many people object to braces, there is no doubt at all, that the very best way of holding the knee-breeches up is by their use. Anything tight round the waist is a nuisance to a rider who in the course of his riding puts himself in various postures for hill climbing, fast riding, and so on, and moreover if anything will conduce to hernia in cycle riding, it is a tight and unyielding ligature round the waist.

Beginners and especially juveniles will find that some braces of simple construction, which, whilst tending to keep the shoulder back, favour ease of movement and position, and yet do not drag or tire the rider, are singurlarly useful, whilst those experienced riders, who have suffered from want of tuition, and have adopted awkward and ungainly positions,

will find in the use of a properly designed brace a cure for their trouble. In the days of tight fitting breeches, they were often cut to hang over the hips, but then, as they fitted tight all over, the danger was less; nowadays when the nether garments are so very loose, it becomes all the more necessary to carefully avoid any tightness around the waist. A hip pocket, and what are called cash pockets *i.e.*, pockets high up under the brace buttons in front, not too deep, are the best. Side pockets have an awkward habit of ejecting their contents, whilst the rider is mounted, more especially when he rides with a very short reach.

Many men eschew a waistcoat as if that garment was in some wise derogatory to their dignity, but there can be no rational reason for doing so, especially as it can be made very light and simple, and the pockets which it contains are so very convenient. Two pockets high up like watch pockets, and two in the ordinary place will be found the best arrangment; if the waistcoat is only to be assumed when stopping and not habitually worn, it is an excellent plan to have these pockets fitted with flaps and buttons, and then, if neatly folded and rolled in the waterproof, nothing will be lost *en route.*

The last body garment, nowadays, assumes either the shape of a lounge jacket or a Norfolk jacket, and both have their advantages.

The lounge jacket is the least conspicuous garb that the wheelman can assume; and as it is not necessary to insist upon extreme brevity, it is possibly the best shape to adopt. The neck should not be cut too low, and there should be a business-like collar, which will, when turned up, afford some protection to the throat. For winter work, buttons and a tab, to more effectually attain this desideratum are advisable.

POCKETS—Outside breast pocket on left hand side, with flap and button, inside pocket on right, with button, and two flapped pockets in the front. The Norfolk jacket if really genuine and not an imitation, is probably the most suitable winter cycling coat; the Norfolk, proper has not got any sewing about the folds, back or front, and might, most effectively be described as a loose coat caught in with a strap; of course it does not look so neat as the imitation, but it is an infinitely more practical garment. The imitation has either

folds, very solemnly sewn firmly into their position without any chance of expansion, or worse still, has a neatly folded band of cloth, sewn on the outside of the jacket from back to front, over each shoulder, the garment being cut to fit, and being only one remove from the old tunic in its unsuitability for the purposes of the wheelman. For winter work a genuine Norfolk jacket made of some rough wear and water resisting material, and cut high in the neck with a collar and tab, is of all things the most comfortable, whilst a lighter garment of the same type is very suitable for the summer, for those riders who like to eschew the use of the waistcoat. This, in effect, is the whole of the dress question nowadays, when uniforms have been in most cases abandoned.

The stockings should be of varying thicknesses according to the weather, but always with stout feet, they should be gartered below the knee, and not above it as they drag very much in the latter case. There are many methods of fixing them but nothing equals a properly fitted elastic garter, this should be made of light 3-4 in black elastic, and fitted without stretching round the naked leg just below the knee. This in most cases will be found ample to hold the stocking up except under very special strains. Many mechanical suspenders have been devised but scarcely any of them are to be recommended. In some, the metal fiittngs for adjustment have proved most dangerous in the case of falls, and if the black elastic garter here advocated be properly adjusted, it will answer all purposes and prove in every way a satisfactory and effective arrangement.

Shoes we have already referred to at some length elsewhere, the fitting of a shoe is very important and any effort made to give it grip by a ligature around the ancle is to be avoided, the only safe grip is behind the phalanges, that is around the waist of the foot, and the ancles and heels should as far as possible be relived of any strain however small, for though it may be very trifling, yet the mere pressure of a strap upon the more delicate muscles of the foot may so tire them as to materially interfere with the completeness of the ancle action; a great mistake which many beginners make, is having their shoes too light, the ease with which the sole bends causes awkward strains on the muscles of the foot, and cramp ensues. There are a vast number of shoes

on the market good, bad and indifferent, but a fairly stout shoe, which laces low down with a stout tongue and a broad sole, will be found of the most general use, when as is the case with many patterns of foot gear, the fit depends upon the gripping of the heel, they should be particularly avoided. Rubber soles are also not suitable as rubber gives way under great strains, and is hot, and draws the foot a good deal, and if made thick enough to be of any real service it is heavy and looks clumsy.

The question of ladies dress can only be generally dealt with, much of course must be left to the individual, who will get valuable assistance from the C.T.C., and from the lady writers in the various papers, Miss Violet Lorne of 'Bicycling News,' having particularly given much attention to the matter; the would-be reformers of feminine dress will find in any form of athletic sport a means to that end, and no sport will prove more useful than cycling in that direction. On the continent remarkable strides have been made, and dear Mrs. Grundy would faint, could she see some of the costumes which excite no remark in France, or the still simpler device of a young Norwegian lady, whose costume is that of a cyclist of the sterner sex without any modification. Any tight garment is certain to produce unsatisfactory results, and there are many ladies riding who look exceedingly well in the looser garb, which time and experience has developed. The C.T.C. lady members, with the assistance of some ingenious tailors, have brought the matter to a pretty clear issue, and with the remark that the all-wool programme is as important for the fair sex as it is for the sterner portion of humanity, the matter may here be left.

Juvenile cycling is fully treated elsewhere in these pages, and a few words upon juvenile costume, may not be out of place, it is of course necessary to bear in mind, that the average juvenile will not take care of himself; that the older wheelman will, and that to ensure some sort of protection, the former must be dressed with that end in view. Of course nothing will prevent the youngsters riding in any sort of clothing, at odd times, but for regular spins suitable dress should be insisted on. The stockings should be woolen, and the garters not too tight, this point being carefully looked to and the garters made as suggested above, and not fitted with adjusting arrangements, or they will soon be pulled up

tighter. Knickerbockers should be loose, especially round the waist, no strap should be fitted at the back, and very light braces should be insisted upon. The undergarment should be a vest of very thin material, and if this is not worn the flannel shirt should come next to the skin, and over all, a thick or thin singlet, according to the season with or without a neck to it. The advantage of the singlet or jersey is, that without being too tight, it keeps all the underclothing in close contact with skin, and the chance of sudden chill is thereby lessened.

It is a very wise precaution never to carry any of the tools necessary for adjusting the cycle in the pockets, and parents should see that their children use the wallet for this purpose. The injuries consequent upon a fall may be made very much more serious, if the victim alights upon a spanner, which he is carrying in his pocket; nowadays, riders are to be seen with a pocket inside the breast of the coat in which the air-tyre pump is carried, and it is quite conceivable that in the case of a heavy fall, broken ribs, and possible injury to the lungs, might result from this practice which should therefore be avoided.

The double seating of knickerbockers was at one time general, but it is not a practice to be recommended as the doubled cloth often shrinks irregularly, and disturbs the set of the garment besides causing discomfort to the rider, the preferable plan is to use the garment until worn, and then to have all the thin part cut out, and the second seat sewn in, the effect being in every way the same, but without the disadvantages referred to.

A cashmere handkerchief for the neck should always be carried when the rider expects to be out late, as after the hottest days, it is often very cool at night.

Waterproofs are necessary evils and are made in various shapes and styles. The day of close fitting waterproof coats with sleeves has gone by, and the cape is now the favourite shape, the best are very long in front, so that the cape can be thrown over the handle bar, the hands passing through two loops inside thus in theory keeping it tight between the arms. In practice it seldom happens that the position of the loops corresponds to the set of the arms in steering, and the waterproof bags down in the middle, and pours the water over the knees. A remedy for this can be devised in

the following way; take a piece of stout black elastic 3-8 in wide, and make a loop that will go round the neck under the collar, bringing the knot high up in front of the throat, at the other end make one or more short loops. When overtaken by the wet, put this arrangement on before donning the waterproof, and after mounting hitch one or other of the loops over any projection on the front of the machine, as for example lamp bracket, luggage carrier end, brake fitting or head nut in the case of an Ordinary. The elastic should be taut when the rider is comfortably seated, and will keep the waterproof well up on the middle line; if the sides be then caught on to the handles with a couple of fingers, the result will be that the water will run off to right and left.

In a general way the legs must be left to look after themselves, though there appears no good reason why short waterproof leggings should not be worn, doubtless a good many people overlook the fact that in the old days when knee breeches and stockings were the only wear, they were adopted for this very reason. The bad roads soon soaked the walker or rider's stockings and shoes, whereas he could keep himself dry above the knees by means of the heavy cloaks then worn, and the traveller arriving at his journey's end could, by changing his stockings, and thrusting his feet into a pair of slippers, secure complete comfort in that respect. One very good type of waterproof is that which resembles the South American Poncho, which is, in effect, a circular blanket with a hole for the head to pass through. It is fairly thick, and resists the wet for a time, and as soon as it appears to be penetrating, the user, by a twist of his shoulders, moves his cloak around, and presents another and dryer portion to the storm. The Poncho waterproof cape has the advantage of no opening low down to allow the water to pass through, and the disadvantages of being very hot and awkward to assume.

Most of the cycling waterproofs fail in being too thin and light. If they are actually waterproof they are no hotter, whilst many of the thin ones under heavy driving rain cease to be waterproof. The heat induces profuse perspiration when the rider exerts himself, and many think that there is but little advantage to be gained from their use; but, on the other hand, a properly constructed and sufficiently stout

waterproof is of the very greatest service to the tourist. He can keep himself all the dryer in it, even if he stands still under a hedge; whilst if, on the other hand, he must push on, he can do so at a moderate pace and suffer but little.

The question of head-gear has now practically settled down to the cricket cap in its varying forms, the best being what is now called the golf cap, or bag cap, for all seasons, with the ordinary straw hat in summer. At one time the polo cap, a most unsuitable head-gear, was universal. It fitted in with the military uniform alluded to above, and and was replaced by the tourist with a helmet, which may still be recommended for use in hot weather. Shooting caps and hats with wide brims are useful, and much affected by older riders; but the small peaked-cap is hard to beat for all-round wear. Straw hats are excellent for summer wear, but a great nuisance in windy weather. In summer a white peaked cap with a white shade over the back of the neck, may be adopted by those who are very sensitive to the heat, whilst in winter the peaked travelling cap, which can be pulled down over the ears if necessity arises, can be recommended. Head-gear is, of course, much a matter of individual fancy now that club-uniform is going out to such a great extent.

CLUB UNIFORMS.—At one time almost the strongest feature of club-life was the uniform, every member was required to adopt it, and for parades and such like, it was very effective. In the old days of braid, some very startling things were done. Gold and silver braid, footmen's knots, and startling combinations were often to be seen. One Midland club apparently took the cock sparrow as their exemplar, and adopted, light brown tight-fitting military-cut clothes, heavily barred with dark brown braid, whilst the officers were decorated with gold and silver lace in a manner which would make a South American diplomat die of envy. Gradually a change came over the clubs, and the tight and unsuitable costume was replaced by something looser and more comfortable.

To the Cyclists' Touring Club much of this new departure was due. The Norfolk jacket adopted by that organization, though made in a most conspicuous colour—green—was a very comfortable garment, and its wearers affected looser garments afterwards. Nowadays club uniform is only

recognized as such when the members are together, and in most cases is a plain and ordinary cloth, with dark stockings—in short, quite a simple costume. The Cyclists' Touring Club cloths, old and new, are very popular, and very serviceable; but the uniform idea is dying out, and it is the desire of many cyclists to differ in their garb from their fellows. The club badge is part and parcel of cycling dress, and the wheelman who is proud of the organization to which he belongs, will usually wear its badge. The universal badge wearing era, like the uniform era, has, however, passed away, and many a man never puts on the badge of his club. The earlier badges were very conspicuous, and were usually worn on the front of the cap. They were dangerous, too, in many cases, as the projecting ears or loops by which they were affixed, were liable to be driven into the head if the rider fell, inflicting serious wounds. The badges adopted gradually became smaller, were fitted with safety pins for easy removal, and in time were discarded, to be replaced by the club button, an excellent idea, and one which was promptly recognized as such by the vast majority of wheelmen. The club button is usually worn in the button hole of the left lapel of the coat, and has the club's special badge, its initials, or its name, set forth upon it. Some of these lapel-badges are really works of art, and there appears to be every chance that, in the future, a neat and small button will oust the larger and more conspicuous badge on the cap.

There are many small matters in connection with dress which are constantly undergoing alteration and improvement; but the general plan and design of clothing and underwear may be said to be now fairly well fixed. The principles are clearly understood, and the beginner who puts himself in the hands of a competent cyclists' tailor will find that in the main, he has got all that is required to make a cycling costume practical and comfortable, whilst a careful perusal of the cycling papers, and the "Cyclists' Touring Club Gazette," which deals in a most practical and unbiassed manner with all such matters, will keep him *au fait* with the latest developments in sartorial accessories. Whilst the newest designs will be found annually on view at the Stanley Show, where the cycling tailor's and outfitter's exhibition is always full of interest to those who desire to keep pace with the times.

CHAPTER IV.

The Racing Path.

CONTENTS—Personal competition, a characteristic of the Anglo-Saxon Race—The ordinary bicycle as a racing machine—Tracks—Cambridge—Crystal Palace—Paddington—Herne Hill—Advice to the beginner—Cycle racing not child's play—Exercise and how to obtain it Racing, a means of improvement—The shower bath and its opponents—The art of race riding—Head or judgement—Theory *v* practice—The rules of the N.C.U.

NOT the least interesting branch of cycling from the beginner's point of view is found upon the racing path The love of a contest, of personal competition running in the blood of the Anglo-Saxon race, and a sport which presents such marked characteristics as cycling—a sport in which speed is the distinguishing feature—is bound to find an outlet sooner or later upon a racing path.

The original form of the bicycle—the ordinary bicycle—lent itself peculiarly to the enhancement of the spectacular side of racing. The big men on big wheels filled the eye, and impressed the observer with a sense of the keenness of the struggle, and no later developments of the machine can be said to have equalled the original bicycle in this respect. It possessed another advantage, based upon a remarkable peculiarity of the great British public, who dearly love a champion, unquestioned and undoubted. But they do not possess the full knowledge necessary to identify him when they do see him, unless he himself demonstrates it to them unmistakably. Now, in the old days of ordinary racing a man had to possess many qualifications before he was a champion. He not only had to possess the necessary qualifications other than physical, but he had also to possess certain physical developments, as for example: height, and a long reach, so as to ride with ease a big wheel, and thus secure an advantage over the smaller men, who could not bestride a wheel of such diameter. Nearly all the notable champions of the past, from Keith-Falconer and Cortis, onward, were big men—the two or three exceptions simply proving the rule. Thus it came about that cycling produced several champions whose merits were unquestionable, men who

gave away long starts, and then won handsomely, and the public loved to see them ride, and cheered them to the echo, and cycle racing took the public fancy and became a very popular branch of athletic sport. In those early days, of course, special tracks were not thought of, and the cycle races were run on ordinary cinder paths, built for running only, the surfaces being by no means calculated to withstand the sharp narrow wheels of the racing machine of that period. Moreover, these tracks were quite flat, and even in the earlier stages the speed of the cycle racer was such that it became quite dangerous for him to attempt to negociate the corners at that pace. Still, in spite of all these drawbacks, great things were accomplished upon the bicycle, on the crude tracks of that time, and the times made, though ridiculously absurd compared with the records of to-day, were the means of drawing public attention to the merits of cycling, and thus gave it a start to which it owes its present position. As time went on the possibility of improving upon the tracks was suggested, and one of the first paths laid purely for cycle racing, was the famous Cambridge track which, when in condition, was second to none, and as a natural result many records were accomplished upon it, including the Hon. Ion Keith-Falconer's marvellous two-miles' time, which stood for years, and which was very far in front of the period at which it was accomplished. Subsequent champions, including the marvellous Cortis himself, tried to beat it and failed, and it was not until years later, on a much larger and better path, that the record fell before R. H. English, the sturdy flyer from Tyneside. The Cambridge path was faced with a white material; but the best paths of the day, after the Cambridge one, were of cinder, and "designed a double debt to pay," being running as well as cycling paths.

Then came the Crystal Palace era, when the authorities of that building laid down in their beautiful grounds a path for cycling only, which at that time was without an equal, and upon it Herbert L. Cortis rode for the first time twenty miles in one hour, whilst many other excellent performances were accomplished upon it, when in its turn it gave way to the Paddington track. The Crystal Palace was at first a cinder path, but gradually the surface modified, and had the foundations been as sound as the surface it would have

held its own for a long while. Paddington was laid under new conditions, and the curves at the ends were banked up, *i.e.*, raised a little on the outside to assist the rider in getting round. The surface was of burnt clay, brick dust, and other materials suitably fixed by a binder. It was very carefully tended, and for some seasons records were made there frequently. But in due time Paddington fell before the Herne Hill track, situated in the London County Grounds, Burbage Road, Herne Hill—this being at the time the very latest development in cycle paths, and not only possessing a grand surface, but having the turns banked up no less than 5 feet 6 inches at the maximum point. The effect of this banking is that the rider can go at full speed down the straights, which are 90 yards in length, with the certainty of being able to negotiate the curve with the assistance of the banking.

This, then, is a brief history of tracks up to date, but the later developments have indicated that cement, though terribly hard, may possibly be faster than any surface yet laid, and if this be so it will without doubt be laid on our London paths at an early date.

It is highly inadvisable for the beginner in the sport of of cycling to take to racing. Albeit, judging from the imperfect command which some men have over their machines it is clear that many do tempt fate at a very early period in their cycling experience. It is inadvisable for the beginner to race because, not only are his muscles unaccustomed to the strains that will be thrown upon them, but the rider's style has yet to be formed, and if at an early stage he devotes all his thoughts to hurrying, it is almost a certainty that he will fall into some hopelessly slovenly habits, which will in effect quench any possible chance of his reaching the higher stages of a racing man's ambition It will be, therefore, well for our tyro to refrain, at any rate for a while, from racing, and to content himself with watching other men race, studying his own style quietly and at slow speed. When a rider is fairly expert, and has found that he possesses some sort of pace upon the road, and in spins with his companions, it is quite time enough for him to think of taking up actual racing, and before that decision has been finally come to, the intending racing man would do well to take a medical opinion as to his soundness and capacity to

stand the work, for, whilst many a man is for all purposes sound enough to enjoy cycling in a quiet way, there are many who could not with advantage undergo the strain of training for racing.

A careful perusal of the chapter on "Training" will at once show the tyro that the work is no child's play, and that to succeed even in some small degree it will be necessary for him to work hard and exercise a great deal of self-denial; but, on the other hand, there is no surer way of becoming a complete master of the art of cycling than active competition, in which every minor point is most carefully considered and cultivated, and any real improvement in the rider's action is at once effective, which, of course, encourages him to persevere in it. Added to this, there is no better way of securing the exercise so necessary to health by the city toiler, who spends his business hours cooped up in a stuffy office. Such a one cannot obtain long walks in the country, or the amount of exercise necessary to keep him in health from that pursuit, but he can in a relative brief space of time, take exercise enough upon the racing path to open his lungs and excite the healthy action of the bodily functions. Thus, when a man says he is ill because he has no time to take exercise, the critic may enquire if he ever tried to run a mile in five minutes, for if any sound man would once a day, in proper garb, essay that task, or for the matter of that, run one mile in almost any time he would secure more exercise, than many a man who walks gets in an hour. Of course if this is done only once in a way, distress and ill effects are likely to ensue, but if habitually carried out, the result must be satisfactory.

The cyclist, especially the wheelman who is situated as described above, may well be encouraged to take to cycle racing, and thus be induced to spend his evenings on the racing track, in healthy exercise, and in friendly intercourse with his fellow riders; nowadays cycle tracks are well found, and well arranged, they are for the most part accessible, near large towns, and there the city toiler gets a breath of fresh air, an invogorating spin, and finishes up with a shower bath with advantage to himself in every way, such a form of exercise is especially calculated to be of service to those engaged in sedentary tasks, and if the lines laid down in the chapter on training be carefully observed, the good which

will accrue to the rider, will soon show itself in his health and physical development; even if the training produces no other results, it is worth while to undertake it, for the sake of the other developments which follow on a careful course of such work. The rider, if he carefully attends to the instructions given him, will steadily improve his action and his mastery of his machine, which will enable him to ride more easily, further, and faster, than he otherwise would be able to on the road. This alone is a gain, and many a man who has never shone upon the racing path has become a vastly better rider, by his careful practice thereon.

The mere physical training is of great value as pointed out above, and possesses the added advantage of having been accomplished under conditions which preclude as far as possible all danger of after ill effects. The rider having taken his exercise with its usual sudorific results, and had a rub down, and a cool off finishes his work with a shower bath which prevents his catching cold. Some time back a doctor in an American paper, attacked the shower bath after exercise in energetic style, and declared it to be most injurious, recommending in its place a warm soaping all over followed by a sponge down with warm water. This would be doubtless the right course to pursue, if the rider's training track and dressing-rooms were always situated in his own back garden, because he could immediately go into the house after the warm bath, and remain there for the rest of the evening; but, as unfortunately this arrangment seldom obtains, it becomes necessary for the athlete to take some precaution to avoid catching cold after exercise, and this precaution is to be found in the cold shower, just as after the turkish bath, the bather indulges in a cold plunge, if the shower bath then be an evil, it is a necessary evil. The rider training on a popular track will find many good cyclists there on whose style he can model his own, with special care to humour his own peculiarities, when those peculiarities depend not upon faults of style, but upon structural or physical idiocrasy, actual racing is of course the best school for the racing man, and it requires a combination of physical training, and mental adaptability to secure success.

Quite a number of excellent people, some of whom should know better, think, or pretend to think, that all a racing cyclist has got to do is to get upon his machine, and ride as

hard as ever he can to the finish, they seem to overlook the fact, that it is possible for a rider to 'run himself out,' *i.e.*, utterly exhaust himself, in 400 to 500 yards, if not in a shorter distance, and that as a consequence many riders prefer to go steadily at first; added to this fact comes another; the element of windage, which at the speed rates which now obtain is a very serious matter indeed, a rider progressing at a speed of 25 to 27 miles per hour, presents a certain surface to the wind, and every yard he increases that speed increases also the wind resistance; it has been found in actual racing that the advantage to the rider who stays behind his competitor is very great, as is futher illustrated by the fact that the records made with pacemakers—*i.e.*, with a succession of riders going in front, and making the pace as fast as they can with the would be record-maker hanging on—are far in front of those made without that assistance; thus it becomes an advantage in racing for a man to be behind till the time comes for him to make his effort, and spurt to the tape; the position in the rear has incidentally another advantage, as the leading rider has all the nervous strain, consequent upon his being constantly on the look out for the man behind who may make a rush for first place, and the inside position at any moment. This will explain to those who have not studied the question closely, the reason why at so many cycle race meetings, the races, especially the scratch races in which the cracks take part, are often distinguished only for the very slow pace at which the men travel until near the finish. It is not that they could not as easily ride faster over the first part of the journey, but simply because if one of them did so, his competitors would be only too ready to let him go to the front, and to keep him there until near the finish.

Race riding is an art to be learnt, and many men ride for years without success, because they do not possess the gift of 'judgement,' or 'head.' To illustrate what is meant by this the case of a highly successful jockey in horseracing, may be taken.

Thousands of horsemen have doubtless as good hands, as good a seat, and are as finished riders as regards position, and so on as the crack jockey, but how few of them have the knowledge, judgement or 'knack,' of discovering in a moment their mounts peculiarities, its strong and weak

point, and of knowing what to do, and when to do it? Exactly the same thing happens in cycle racing, one man though very speedy, never wins because he cannot seize the right moment for his effort he lacks 'head,' say his friends. On the other hand a rider only fairly gifted in the way of pace, will often win races, solely because he possesses the art of using his comparatively limited powers to the best advantage, this then constitutes 'judgement,' the decision must be instantaneous, and as instantly acted upon, and in watching a cycle race additional pleasure is secured by the onlooker, if he has himself some experience, and can follow with interest the "playing of the game," finessing for position, and so on which is a thing quite apart from the mere pace of the contest.

Cycle racing is governed by the rules of the National Cyclist Union in England, and these have been practically adopted by other amateur bodies throughout the world, with small local variations. In the main, the spirit of the rules, is to secure to every competitor fair play, and to watch each man's interests as closely as the most careful friend could do, the steady enforcement of the rules over a long period of racing, has secured their almost universal comprehension, and it is only occasionally that any infringement of them occurs, and then it may be generally traced to some local laxity which has permitted the development of some minor breach; thus, in one instance, riders from a certain district, almost habitually passed inside which is not permitted except in very rare and special cases, and the fault was probably due to the fact, that they had not been locally checked, when committing that breach of the rules of racing.

The racing rules of the National Cyclists Union, may be briefly summarized as under, it being provided that all amateur races must be held "under N.C.U. Rules," and that this fact must be publicly stated in all announcements made of the meeting. This is the first point upon which the racing man should satisfy himself, as, should he enter at a race meeting, not held under the rules of the Union, he will be liable to suspension until he can satisfy the executive of that body, that he erred in ignorance. The entrance fee, usually 2/6, must be paid at the time of entry, and if it be not paid, and the rider is reported to the Union, further

trouble will ensue. No person is permitted to ride under an assumed name, and the Union undertakes to see that all prizes offered are of the stated value, so that in case of a poor prize being given, which does not appear to be of the value advertised, the Union can be appealed to, and the matter put right. Each rider is permitted one attendant who holds him up with his front wheel upon the mark, and pushes him off when the pistol is fired, the attendant must keep both feet behind the mark, and should he cross the mark, the rider may be disqualified; it is therefore necessary to be very careful in the choice of an attendant, and to warn him, if he is inexperienced against coming over, lest he should bring about the rider's disqualification; in the actual racing the rider must keep as close as he reasonably can to the inside of the path, so as not to hamper other competitors coming up from behind, and when he overtakes a rider he must pass him on the outside. This rule is imperative and admits but seldom of any modification, so that any rider passing inside does so entirely at his own risk, and is liable to be disqualified by the judge direct, or on the report of an umpire; it is obvious that the stringent enforcement of this rule is of the utmost importance to the racing men themselves, as it lessens the chance of accident.

Any rider contemplating a season on the racing path should familiarize himself with the Union's Rules, as he will find this an assistance to his comprehension of the general rules of racing. The proprietors and managers of tracks, will do well also to enforce on all occasions, certain well defined rules, on the same lines, for the regulation of practise on the track, as by so doing, not only are the chances of accidents in training minimised, but the rider's safety, in subsequent races is enhanced by his being used to the observance of these simple rules. The set of regulations most usually adopted, and which are to be found posted in most track dressing-rooms of the more modern type were originally published in a book called "The Art of Training for Cycle Racing," published in Berlin, in 1888, and afterwards adopted without any acknowledgement by the compilers of a subsequent publication on the subject. It is necessary that such rules should be short and concise, and they should be legibly painted upon a board, put up in the dressing-room. They run as follows:

RULES TO BE OBSERVED BY RIDERS TRAINING UPON THIS TRACK.

1. This path may only be ridden left hand inside.
2. Riders overtaking others must pass on the outside only, as in racing.
3. A rider, whether riding in a string or alone, should never slow suddenly, or cross the track, or swerve out, without giving notice of his intention by holding up his hand.

NOTE. A cautious rider will always signal his intention to stop, whether he is alone or not, by *always doing so* the chances of accident are considerably lessened.

4. A rider, before dismounting, should always give a signal by holding up his hand, and if possible should always ride off on to the inside of the track before getting off. If he must go to the outside to a stool or similiar dismounting arrangement, he should be most careful to see that no one is behind him or coming up at racing pace.
5. No rider is permitted, under any consideration, to dismount on the track.

NOTE, this last rule should be made absolute, as it is usually possible to ride right off either inside or outside any path.

The steady enforcement of these rules by a competent track suprintendant, assisted and supported by the track authorities will do more to lessen the chances of accident than anything else, all that is needed is to draw the attention of the beginner to them, and to ask him to familiarize himself with their provisions; anyone, expert or novice who infringes them should be at once spoken to on the subject, and every effort made to secure their careful observation.

The beginner for his own sake, will do well to study them, and to see that he carries out their provisions.

The costume on the race day, may, with advantage differ from that worn in training, and should be light in the summer weather, though it is well to take a somewhat thicker vest also in case of rain or cold wind, many racing men are too lightly clad, and get completely stiff from the cold. In colder weather, and at the end of the autumn, thicker racing things may be worn; the best racing things

are made of stockingnette or allied materials, and fit closely without exerting undue pressure upon the muscles of the leg, the pants coming to the knee, and being usually held up by an elastic band round the waist, this may be with advantage replaced by braid braces, which if properly adjusted, hold up the pants in a much more comfortable manner, and do not permit them to work down, as the waistband sometimes does, the vest which must have short sleeves, should fit closely without being tight and may with advantage be made longer than is usual, some riders indeed have the back part made considerably longer, almost like a shirt; but if the brace plan is adopted this latter precaution is unnecessary. A cap may be worn or not at pleasure, but if it be no hard metal badge or broach should be worn on it, as in case of a fall it may cause injury to the head.

For long distance races in cold winds and chilly weather, a long armed vest, and long stockings are to be recommended as the two points, most vulnerable by the cold are the wrists, and ancles, and if these are covered, the bodily heat will be maintained for a longer period even in wet and in cold winds.

On the race path as on the road, the craze for extreme lightness in machines has passed away. Of course the lighter the racing mount the better, provided it is strong enough to carry its user, without giving in such a way as to cause twisting in the bearings, or frame, which is bound to have a retarding effect. Some men can of course by reason of their superior skill, ride lighter machines than others, but an extra pound will often make all the difference in rigidity, which is the secret of true running. The racing man who ventures on a new and untried make, is indeed a bold person, and if that make is extraordinarily light, it is scarcely fair to the other competitors, who may fall over him if his machine collapses; the choice of a racer should therefore be made amongst the better known and tested makes, and it should only be as light as is reasonably consistent with its capacity to carry the weight it is proposed to put on it.

CHAPTER V.

Touring.

CONTENTS—The most popular side of the sport—The best method of seeing the country—The tourist's machine, and its accessories—His clothing—Arranging a tour—Daily distance—Routes and their arrangments—Physical preparation for a tour—A tourist's kit—Shoes—Glasses—Drinks—The Cyclists Touring Club—its rise and progress—Conditions of membership—C.T.C. uniform—Its value to the tourist.

WHICH is the most enjoyable side of the cycling sport?

Were it possible to take a census of all the cyclists in the three kingdoms in answer to this query there would be a vast and overwhelming vote in favour of the touring side of the sport, for in fact it is the very strength and backbone of cycling, compared with which all the other sections are but frills and laces. It is not so showy as the race path, whose votaries test and develope machines which in a season or two are at the service of the touring section, but it is full of solid enjoyment which can be taken part in by all cyclists—young and old, strong or weak.

There is no better method of seeing a country or a district than a cycle tour. The cycle enables the user to leave the beaten track to visit many spots where the ordinary tourist by railway never penetrates, and removes altogether the patchy impression of a country or district which is so usual in the case of tours by rail.

The tourist's machine should not be too heavy. It should be as suggested above, the latest development as tested upon the racing path, but, of course, stronger and heavier than the path machine; it should have a reliable brake, and a sound and suitable spring, and the air tyres should be of "roadster" thickness. The lamp should be a reliable one, and a suitable luggage carrier should be fitted to the machine, for there is no greater error than to rely altogether upon clothes being sent by train, and a change at least of under things, as recommended in the chapter on dress, should always be carried on the machine, as the tourist is

thus quite independent of his heavier baggage, and can at least make himself comfortable, if it should go wrong, and if he is touring through new country, it is very likely that fate will overtake it.

The tourist's garments should be made on the lines laid down in the dress chapter, and extra pockets are a great gain, the plan of wearing several thin garments, rather than one thick one, is especially serviceable to the tourist, as he can thus get his thin clothes well dried in one night, whereas the thicker things take a long while to dry. With most modern cycles, it is easy to carry a considerable amount of baggage, and if this be well chosen, it can be made up into two parcels, one for the handlebar, and the other in the case of safety, and tricycle for the upper horizontal bar of the frame.

It will perhaps be well to take a prospective tourist right through, and we will imagine such a one contemplating a trip; the first question is of course destination and distance, the destination probably will be fixed by circumstances, as to distance it is unwise to arrange for too long daily journeys. There is no point upon which there is so much misapprehension, even amongst cyclists themselves, than as to daily distances, more especially, when run in company, individual riders doubtless do very long journeys; but in most cases such distances are undertaken something after the fashion of a big task, to be talked about afterwards, rather than as a pleasure excursion. Thus the rides of a Mills, or a Fletcher, from Land's End to John o'Groats, are emphatically, not pleasure excursions, they necessitate hard work from beginning to end, they have their object, but are not touring, and the rider who desires to enjoy himself should be careful to fix relatively short journeys, especially, through interesting districts. Thus, the wise tourist will be content with 40 or 50 miles per day as a general rule, and if he rides in the summer or early autumn, will take care to leave the middle of the day free. By riding 20 to 25 miles in the morning after breakfast, he can bring himself within easy range of his destination for the night, and can spend a couple of hours after dinner in inspecting the places of interest in the town where he stops at mid-day; then after a light tea, he can cover the second part of his journey which will be the easier ridden, in the cool of the

evening, after the heat of the day has passed, and his powers have been recuperated by his rest; when large parties are touring together, the journey is pretty certain to be shorter as many delays arise, and the pace is only that of the slowest member. Of course a couple of experienced tourists in good condition will often do much more than this with ease and pleasure; but it is highly inadvisable at least for the beginner, who has not tested his own powers to attempt such long spins, and if he has one or more companions they may suffer even if he does not. The cycling tourist to be a successful tourist, should take an interest in the country through which he passes, and should not traverse it with his nose on his handlebar, and that is why relatively short distances are recommended.

Having decided then the destination of the tour, and the daily rate of the journey; the next thing is to decide upon the route to be followed, and the touring tyro may be recommended to stick to main roads at first, the more experienced wheelman will doubtless follow routes of his own, passing through new country, but some general knowledge of main roads is of immense service, and the novice will do well to begin with them; the route being traced on the map, a reference to the C.T.C. Handbook will show the names of the headquarters at the various towns it passes through, and any good road book will give the distances, and the journey for each day can be arranged on a basis of 6 to 8 miles per hour, the times of breakfasting, dining and supping should all be arranged, so as to approximate to the tourist's usual hours, and if he should at any point travel faster than his time-table, it will be more satisfactory, and give him time for a rest, or a long stay at the next stopping place. If the tourist does intend to send clothes on by rail, or post, he can arrange for their reception by writing to the headquarters and thus avoid mistakes, the best course in the case of a long tour being to make up one or more bundles of clean clothing and send them on by parcels post some days before.

But that tourist does best who contrives to carry absolute necessities upon the machine, then in the case of wet, wind or other drawbacks he can stop short of his intended destination and make up the distance by a forced march next day.

In mapping out a tour, if it is to be enjoyable, and not a mere 'scorch,' the tourist will find it interesting to look up particulars of the towns through which he will pass, even if he only refers to an ordinary gazetteer, he will discover therein brief references to the matters of interest which he should try and see, whilst there are many other valuable books which would afford him more extended information in most big hotels too will be found the County Directory, which contains usually some general but valuable information as to the country, its features, and objects of interest, and in the case of many show places, the local guide is also obtainable, and may be perused with the same object.

It is highly inadvisable for anyone to undertake a long tour, without some sort of preparation, though anything like systematic training is quite unnecessary. The rider contemplating a tour should simply get out upon his machine, as often as possible, and go in for steady spins, with if possible a bit of fast work to finish the trip, and a smart run of 5 or 10 miles on the homeward journey, of course not pushed to the point of exhaustion, will free the muscles, and bring about some sort of condition, and a little condition is of the greatest service to the tourist, and will make his journey all the more pleasant. The mere fact of being out in the open air for some hours at a stretch, is often very trying to those accustomed to an indoor life, and they become very sleepy indeed, in which case it is much better to yield to the desire, and at some snug inn take the traditional "forty winks" on a comfortable sofa, the next stage of the journey, after a cup of tea to wake the rider up, will be covered with added enjoyment. The touring machine should have adequate foot rests fitted to it, and of course a sound and reliable brake as the hills which are surmounted naturally lead to hills to be descended, and it is absurd for a man to do nearly as much work backpedalling down a hill as he does to climb one. The tourist will take every advantage of such descents to put up his feet, and spin down of course with his machine sufficiently under control, thus resting and pursuing his journey at the same time.

The appendid list shows the various articles that compose a tourist's kit, and which can most conveniently be rolled into a "hold-all," and fixed upon a pair of Lamplugh's handiebar carriers:—

1 Long medium thickness merino combination-garment.
1 Pair stout stockings.
1 Thin merino or flannel shirt with collar.
1 Medium sized cashmere neck wrap.
Tooth brush; small brush and comb in one; a spare cap.

This will be found sufficient for a short outing, as the combination garment can be used as pyjamas. Stouter stockings are an advantage in the evening, and if extra long can be pulled well up over the knees, if the knickerbockers have got damp; the extra shirt is most useful, whilst a cricket or golf cap will pack into a very small compass. In packing make the bundle rather long than thick, and if it shows a tendency to sag down in the middle, a piece of a penny cane rolled up with it, will keep it straight, a short strap should be put round the bundle in the middle, before it is strapped on the carriers. If preferred the neck wrap can be pulled under the strap outside, at hand if needed, and on the top of all, the cape waterproof should be folded-flat, and put under the straps.

If the traveller desires to be particularly comfortable, he may make a seperate parcel, to strap on to the frame, containing trousers, socks &c., but care should be taken to make it flat, so as not touch the legs as this is peculiarly irritating and causes the rider to spread his knees somewhat and thus spoil his action.

The shoes have been discussed elsewhere, they should unlace very low down as it is then possible to open them out, and thoroughly dry them, whilst even if they be not dry, the rider can very easily put them on without cramming his toes into a damp shoe, a peculiarly unpleasant experience. It is a capital thing to use a felt sock in the shoe, as this can be taken out and dried, in fact, in a general way the more cycling clothing can be dissected the better, from this point of view.

The tourist will derive great comfort from the use of very light blues or smoked glasses, which are very effective in excluding flies, and in modifying the glare of the sun on the roads; a good many people have from time to time complained of headache or pains in the eyes, caused solely by this glare, which is at once remedied by the use of these spectacles, for they should be spectacles hooking on the ears, rather than *pince nez*.

From time to time the various cycling papers contain lengthy discussions on the subject of a suitable drink whilst touring. This is a very wide question, as the various liquids have varying effects upon different individuals; as a general thing ale is to be avoided; to use a familiar expression it "gets into the rider's knees," and seems to deprive them of strength—tea in moderation is excellent, so also is claret or claret and water. The pleasure of continental touring is in some degree due to the fact, that the tourist drinks the very light wines of the country. Most of the ærated waters of to-day, are machine made, and rather too metallic, besides being very gassy, and it is is difficult indeed to find a satisfacting and thirst quenching drink—some of the temperance beverages are temporarily satisfying, but by no means wholly satisfactory. The best course for the beginner to take is to note the effects of the various liquids he imbibes, and then to drink only that which experience has taught him, suits his particular idiosyncracy.

THE CYCLISTS TOURING CLUB.—No reference, however brief, to the touring side of cycling world be complete without some reference to the C.T.C., as the above institution is familiarly called and under which title several allusions to it, are to be found in these pages. The club is one of the largest athletic organizations in the world, second only to the League of American wheelmen in numbers, though it only undertakes half the work of that body, viz., the touring section—The club was founded August 5th 1878, and went ahead at a great pace, enrolling over 20,000 members, and making its influence felt all over the country. A local representative is to be found in every town, under the title of 'Consul' who will in answer to applications made in accordance with the rules, afford members every information as to the routes, &c., in his district. Hotels are also appointed 'head-quarters' of the club, there being several grades, they are permitted to exhibit a sign, specially prepared to indicate the appointment. In the earlier days of the club, these appointments were of great value, as the touring cyclist was not always a welcome guest, and the knowledge that, at a given hotel, he would be received and welcomed, was of great value; now-a-days when the cyclists constitute quite as important a body of guests as any other class of travellers, many houses which

have not secured the C.T.C., appointment cater for them, and are glad to welcome them, and in this direction the importance of the C.T.C., is in some degree lessened. On the other hand the club is immensely useful in the matter of routes and general information; and the club gazette published monthly is open to practical discussions of the various points which present themselves from time to time in connection with touring.

For a time after it reached the point indicated in the membership total, the club was torn by internal dissension, the council and the officials were not wholly agreed upon various points and disputes occurred; special meetings were called to hear the grievances of a small but very active section, and the club suffered greatly in the eyes of the membership and the public. The gazette instead of containing practical matter, was full of manifestoes, and resolutions of a very revolutionary character, and the officials and consuls instead of attending to the business of the club, pushing its interests, and securing new members, were in many cases taking sides, plunging into the fray, and more intent on worrying the existing membership for votes for their particular friends, and in support of their particular fads than of attending to the duties which naturally fell to their lot, and it is small wonder that the club began to fall in public favour, and the membership to lessen in a marked manner. At last after some two years of fighting the matter reached a climax in the elections of December 1891, when a pitched battle between the 'controllist,' and 'moderate' parties, resulted in an overwhelming victory for the latter, who out of 28 contested seats on the council, carried 26. A period of quiescence followed, and then the club once again began to make steady progress, and will doubtless ere long regain its original strength.

Membership in the C.T.C. is open only to amateurs, the subscription is 2/6, per annum, with an entrance fee of 1/-, the candidate must fill up a form, and get it signed by two members of the club, the name, address and club, if any, will then appear in the next issue of the gazette, after which if no objection be taken the candidate will be declared elected, and receive monthly a copy of the gazette, and be at liberty to make use of the facilities provided by the club. The offices are situated at 140, Fleet Street, whence all the necessary forms and information can be obtained.

One of the special advantages of the C.T.C. lies in the fact that it has two uniforms, which have been chosen by experts. The original uniform of the club was a dark green which was however, soon discarded, and later on a grey was adopted, this is still one of the official cloths, and makes an extremely serviceable uniform, its character for hard wear being excellent. Club flannels are made to match, and rumour whispers that such is the *esprit du corps* which burns in the breasts of some enthusiastic supporters of the club, that they actually seek their nightly couch, wrapped in garments made of C.T.C. flannel; other habiliments such as hats, handkerchiefs, etc, are also made in the club cloth pattern, and as careful supervision is exercised over the quality of the cloth, its adoption is not astonishing. The demand for an alternative uniform has induced the council to adopt a brown of neat and inconspicuous pattern, as the second club uniform, the cloth being of a lighter and more open texture than the older uniform, and judging from the number of suits already worn, it bids fair to become very popular, albeit as pointed out in the dress chapter, the tendency at the present time is to carefully avoid anything which savours in the least of uniformity.

The value of the C.T.C. is not confined to the United Kingdom, as it has its representatives and branches all over the Continent, and has from time to time been able to arrange special advantages for members when entering France, Italy, and other countries. The club ticket which every member possesses is a talisman in many quarters, and any cyclist who intends to do much touring will find that his subscription is saved many times over in trouble alone. The C.T.C. hotels charge a certain tariff, or rather series of tariffs, and although industrious critics have from time to time been able to discover instances where the system was disadvantageous to the visiting rider, in the vast majority of cases, the production of the C.T.C. ticket effects a material reduction in the expense. This is as it should be, as an appointment which in effect secures to the holder the almost exclusive patronage of a club numbering many thousands of members, should of course secure some corresponding advantage to those members. The C.T.C. member should always produce his ticket on entering the house, so as not to sail in any way under false colours, and if he has sub-

sequently reason to suppose that by doing so he received less attention or was relegated to inferior apartments, he should complain to headquarters, as much in the interests of those who follow after him, as in his own. For the most part it will be found that the head-quarters are well chosen, and the visiting wheelman welcomed in that capacity, though it must be admitted that the head-quarters of the north are on the whole superior to those of the south.

As will be gathered from the foregoing no cyclist who intends to tour, can afford not to be a member of the Cyclists Touring Club.

CHAPTER VI.

Hints on Training.

CONTENTS—The object of training—Explanation of the difference in capacity of athletes—Training a precaution—The rule-of-thumb trainer—Different types of rider—Daily work—Morning—Evening—Sprinting—Scientific work—Rubbing down—The bath—Clothing for racing—Food in training—Effect of training—Accessories for training—Dressing room—Track rules—Attendants—Trainers.

THIS is a large subject, wanting a volume to itself, and yet it may as regards its general lines be dealt with sufficiently to be of service to the rider in comparatively small compass, for unless a man is prepared to think as well as to train, it may be safely said that he will not succeed in the latter operation.

The exact amount of strength which a rider can extract from his muscular organism, is but a very small percentage of the actual force, or power it contains; how often do we hear of a man beside himself through fear or illness requiring three or four men to hold him, the explanation being that under such stimulus a far greater proportion of the inherent strength is exerted.

But under careful training the athlete developes by practice the capacity for getting out of his muscles more than the average proportion of strength, the nervous system is educated by degrees to force the muscles to greater exertion in that particular direction, whilst the muscles themselves are improved and strengthened, and the parallel developments react one upon the other.

In these facts will be found the explanation so often asked for, as to why one man physically inferior to another, may be a vastly better athlete. Though physically inferior the rider in the first case gets a much greater proportion of his muscular power into play, whilst the physically stronger man fails to get anything approaching the same proportion The matter may for the purposes of demonstration be reduced to figures, purely arbitrary of course, but at the same time clearly indicating what is sought to be conveyed.

A.—Is a rider of light weight whose muscular capacity if it could be fully measured, is indicated by the purely arbitrary figure 150.

B.—Is a heavier man whose muscular capacity is represented in the same way by the figure 200.

A.—Having greater natural capacity or by reason of more careful training, more frequent opportunities, or more experience is able to exert say 50 per cent of his inherent strength, which is 75.

B.—Lacking capacity or opportunity or from want of experience is only capable of using 30 per cent of his power, *i.e.*, 60.

Not only then is A a better man by 15, but he carries less weight besides. This explains why many fast riders, and successful racing men appear to the uninitiated eye as unlikely to be successful as compared with others.

Training then is of the very greatest importance, as it not only produces mere physical condition, but developes that mental grip necessary to enforce the exertion of power to secure success.

Not only from this point of view is a proper preparation necessary, the strongest constitution would fail under the strain of racing were it not for training. Many men have injured their health by competing in athletic exercises without proper preparation, whilst on the other hand many men originally weakly have built themselves up by careful and systematic training, no one can be the worse for gentle and proper training, and provided a man is sound such exercise is very beneficial.

In the earlier days of athletics, the old fashioned rule of thumb trainer was the oracle of the racing man, his ideas were crude and his methods heroic, and not to put too fine a point on it, he killed almost as often as he cured. For this type of trainer, all men were equal and all got exactly the same exercise, this method suited a small proportion of his clients, and with them he secured his successes. the failures, *i.e.*, the men who wanted a different style of handling—were never mentioned. As time went on a new school developed, that of the trainer who regarded each man as a different subject for study—unquestionably the only way to deal properly with the matter. No two men are alike, and no two men require the same work under all

conditions, and those works upon the subject which lay down hard and fast lines simply fail to deal with the matter in a modern manner; the rider for example may be big, fleshy, and a glutton for work, never satisfied that he has done anything worth the doing until he is utterly used up, and the astute trainer will frequently set such an athlete big tasks, such as making him hang on to a faster man for long distances, not so much because he is a fleshy subject and needs depletion—this of course this is a valuable point—but because such work sets the rider's mind at rest, and when he leaves off he is sure that he has done some good, albeit had he been of a different temperament, the end might have been obtained in another manner and by different methods.

The main object of a trainer then, should be to as far as possible satisfy the mind, as well as exercise the body of the athlete, and to so manage the work as to attain physical condition while at the same time the man himself is satisfied with the work he is doing, of course this end cannot always be attained, and the trainer may have to drive his man somewhat, but there are alternative methods of reaching an end, which every man who tries to be an adviser of training men should study—the exact amount of work necessary, varies with the individual and the only real guide is the weighing machine, if a rider is heavy it does not necessarily follow that he must get rid of a lot of weight, and a very thin and light man can often with advantage do a lot of work, but in general the reverse is the case and the weight of the subject, the best guide for the purpose of the trainer.

If the athlete can manage to visit the track twice a day morning and evening, he is favourably situated for the task before him, and until he is fit he will do well to carry out his work steadily each day—Friday excepted, and to race on the Saturday if occasion offers, as experience of actual competition is of the greatest importance to him.

The morning work should consist of a very steady spin at half-pace for 5 or more miles, it is one of the most valuable parts of the training work, and the idea should be, never to try any fast pace, but simply to regard the spin as a purely sudorific exercise, with this proviso, that throughout the work, the man and his trainer give special attention to form

and style; at half-speed all the various points in the action can be attended to, ease in the pose of the body can be cultivated, points in the adjustment of saddle and handles decided upon, and the true action of the legs and ancles thought out and improved, if no regular trainer is present the rider can do much for himself by watching his own action as far as possible, seeing for example that his knees come up straight and well, and so on, but being at the same time, careful not to acquire a trick of keeping his head down; all these and many other points may be studied by the rider himself, but the best results are obtained when another rider undertakes the task of coach. The second rider need not be an expert, for a man's faults are always much more apparent to others than to himself, and, as any novice may ascertain for himself, it is remarkably easy to detect inequalities in the style of others albeit much greater faults may exist in his own care quite unrecognized.

The object is to secure a smooth, easy action, involving as little exertion as possible with the legs, and also to cultivate an easy and relatively loose pose for the body, as any tendency to stiffen and set the muscles of the shoulder and chest, must of course upset the steering and unsteady the action, and that unsteady action, it goes without saying, has a great retarding effect upon the progress of the machine. In the course of this morning work therefore, the rider will improve his style more or less, and at the same time produces the necessary sudatory condition, for which all such work is primarily undertaken.

The evening work is of a somewhat different character, and the clothes worn may be of a decidedly lighter texture, the object now is not so much to throw off superfluous flesh, as to acquire pace—and pace alone should be considerd. Of course there are two ways of doing things, a clever way, and a clumsy way, but all the care and consideration given to style, in the morning's work is bound to slowly but surely enable the rider to attain pace in the clever way, but clever or clumsy, let the rider get pace by short distance efforts during the evening work. A very common error in the minds of many athletes is; that training necessarily means hard work, this is not so, where once the extra weight has been reduced, light, but very fast work is the most suitable for an amateur, racing as amateurs do every Saturday, with

possibly a mid-week meeting thrown in. The whole object is to acquire and keep a speedy spurt and this can best be done by light work. Thus when a man has reached the point indicated, two or three sprints before the wind for 150 to 200 yards, going as fast as he can over the distance, and taking plenty of rest between, will be productive of better results, than long slow monotonous spins. After the fast work is concluded the rider if he has any tendency to increase in weight, should slip on a heavier garment, and go for a steady spin until he perspires freely, then immediately dismount, and seek the dressing-room for a rub down.

This rubbing down is one of the most important items in training, and it is the one most often overlooked or perfunctorily executed, there is of course some art in it, and the conditions of the average dressing-room are entirely against its adequate performance. Nine attendants out of ten seem to think that the athlete's primary object is to be dried—whereas the primary object of scientific rubbing-down, is to encourage, for as long as possible, the flow of perspiration so when the man comes off the track, the procedure is somewhat as follows:—First he sits down in some draughtless corner of the dressing-room, and remains quiet for a few moments, this permits the skin to exercise its functions, and he burst out into a profuse perspiration, he removes his garments, and the attendant begins a gentle friction with a fairly rough towel having for its object not so much ,the drying of the skin, as its excitement to further action properly handled, the skin's action may be kept up for a considerable time by judicious rubbing, and the result is of immense benefit to the man. In most of the much frequented dressing-rooms, the attendants simply rub a man dry as quickly as they can, and hustle him into his clothes to make way for others, with the result that recurrent perspirations ensue which render him, peculiarly liable to catch cold. When the rubbing-down process is finally concluded a cold shower bath is by far the best and most suitable ending to the day's work, but it should be wisely taken, many men remain paddling about in the wet for too long a time, and in many dressing-rooms the arrangments for carrying away the water, are absent or inadequate, and there is nothing worse than for the athlete to stand in cold water whilst drying himself, the proper bath is a combined shower

and needle bath, the shower should be taken first, over the head, down the back of the neck and spine, and then the needle bath just long enough to get thoroughly wet and no longer, all the advantages of the cold bath are thus secured without any of the disadvantages, and the athlete is assured practical immunity from colds. The rubbing down and drying after a bath may be taken with greater deliberation, in fact the riders most pleasant quarter of an hour will be found to come after the bath and before dressing.

The amount of work to be undertaken varies very much, and each individual requires some modification. A beginner must in effect make, or submit to, experiments to ascertain exactly the sort of work which suits him, but as was said above, the scales afford the best and most satisfactory test, haste is most particularly to be deprecated as will have been gathered from the opening of this chapter; training is a complicated process, and cannot be hurried, if it is the mental training will lag behind the physical, and render the latter useless or at any rate ineffective. The novice then should develope slowly, the assistance of a friend is of great value, and the experienced eye of a trainer of greater importance still. The beginner will not get the attention which a crack secures, *i.e.*, careful watching both on the path and in the dressing room, but if he can persuade some experienced man, merely to look at him two or three times in the course of his work, and advise him, he will vastly benefit thereby.

The question of clothing is one which is of some importance, and as laid down in the chapter on dress, nothing but wool should be worn as far as the training garments are concerned. The morning's work should be done in rather heavier clothing than the fast work in the evening, and in every case the temperature should be considered, as if the man gets chilled, his muscles stiffen, and he can do no good work, and gets disheartened. Training garments should be kept in duplicate, so that they can be washed at reasonably frequent intervals, a bit of advice which appears especially necessary in some quarters where the training clothes—technically termed "whites," are of dubious hue, and by no means inviting, the necessity of cleanliness becomes the more apparent in this connection, when it is borne in mind that the special object of all the work is to keep the pores of the skin clean, open, and active.

Food in training has probably been the subject of more nonsensical utterances, than any other matter in connection with athletic exercises, it has been approached from many points, discussed and thrashed out *ad libitum*, and yet in the end it may be brought down to a very short sentence which runs thus :—

"Don't eat that which you cannot easily digest."

So long as a man confines himself to simple dishes, well cooked, and avoids anything which he individually finds indigestible all will go well, that is always supposing that he can afford sufficient time to take all the exercise he requires. A man limited as to his opportunites for training, may very well aid that process by a careful dietary, but if he does all the work he needs he may, in a general sense eat what he fancies. A man in sound health, and steady training, has in most cases a fairly healthy digestion, and the viands most common on an Englishman's table, may be consumed without hesitation, concurrently of course, careful attention should be paid to the general health, as a very little is needed to upset a man even when thoroughly fit and well.

Vegetables in moderation, and fruit are, contrary to the popular idea, most useful in the dietary list, and so long as over indulgence is avoided it is difficult to find any digestible viand which must be avoided.

On the day of the race moderation is of course to be recommended, and it will generally be found that each rider fancies some special dish. Fish for breakfast, steak for lunch, two or three hours prior to the race, is a very good menu, and if with the latter, the rider drinks a moderate quantity of claret the meal is an ideal one, it is unwise to ride either on a full or empty stomach, and the best short distance performances are mostly done some 2½ to 3 hours after a meal.

Throughout all the training a stop watch in the hands of a discreet and trusted friend, is of the greatest assistance, and its records taken in conjunction with the guide afforded by the weighing machine will in general indicate very clearly the progress and effect of the work.

The effects of training, vary remarkably, and it is only by actual experience with each individual, that the results can be judged; some men for example get rid of their superfluous flesh with great rapidity, but at the same time, get as

quickly weaker, and fail to pick up their strength again; others lose weight very slowly though getting plenty of hard work in, and plenty of work in most cases means steady improvement in pace, whilst others again, the most promising subjects, after a preliminary loss of weight begin to gain it again despite steady work. These latter are the very best subjects for the trainer, as they can stand an enormous amount of work.

A very common fallacy is that the object of the operation of training is to reduce the weight of the rider, this is in most cases the primary result of the trainer's labours, in as much as the rider begins operations when "fat and scant of breath," and the superfluous adipose tissue must be got rid of, but as soon as the earliest stage is over, and the preliminary reduction has been made, it becomes the trainer's object to give his man as much practice as he can with as little waste as possible, the more practice a rider gets without "going stale," *i.e.*, getting too thin and weak the better, and that is why the man who lays on weight when at work is likely to do better than others. It is also for this reason that a wise trainer exercises his man in relatively thin garments, and avoids as far as possible heavy work. The heavy work theory finds its reason in the fact that it is based almost entirely upon professional practice. The professional unlike the amateur, is not constantly in training, between his matches he goes out of training and when it becomes necessary for him to get fit, he has to concurrently get rid of some extra weight, thus he has to do hard work as well as train for pace. The average amateur on the other hand can take his own time to get fit, and when he has reached that point, his object is to remain so for the rest of the season, and he cannot stand the strain, if he indulges in really hard work, and must if necessary take his exercise carefully and economize his strength.

There are many accessories for training, the use of which is attended with beneficial results, the various embrocations are all of service, the friction used in applying them, being without doubt of almost as great advantage as the unguents themselves, medium flesh gloves are of the greatest help in exciting the action of the skin, but need to be used intelligently, the average attendant, if it be possible to judge from his use of them, apparently regarding them as a some-

what inefficient instrument for the flaying of the victim, in the same way the use of extremely coarse and rough towels is to be deprecated, a flesh brush, composed of bristles mounted on a strap, the invention of Mr. Bennett of Newbury, is a very useful adjunct to the dressing-room, its effect being like that of gloves and towels to excite the healthy action of the skin.

A few words as to dressing-rooms cannot be out of place in a chapter on training. Many dressing-rooms are peculiarly unsuitable for the purpose. Ventilation should be free, yet there should be an absence of direct draughts, offensive smells should be promptly remedied, fresh air and plenty of it should be supplied, the bath room should communicate directly with the dressing-room, to obviate the danger of chills whilst gaining access to it, filtered drinking water should be supplied, and special arrangements made to keep the floor dry and clean, Notices, "Smoking strictly prohibited," should be posted opposite the entry, as there is nothing more trying to the exhausted athlete when regaining his breath, after a hard race or a fast spin, than to get a big whiff of tobacco smoke down his throat. As the men sit for some time in the dressing-rooms, Track Rules and Regulations can with advantage be posted therein, and the same remarks applies to Club Notices, the announcements of race meetings and the like.

ATTENDANTS—The competent trainer in charge of a number of men can do much more by watching them at their work, than by doing the rubbing down in the dressing-room, if he so employs himself, attendants whose duties shall be confined solely to the dressing-room must be employed. They should be very carefully instructed in the art of rubbing-down, and should devote their whole time to the task.

TRAINERS—If of the newer school are of the very greatest value to the rider, but, the latter should not expect as some do, that their trainer will be forever advising them. As long as a man is progressing satisfactorily, the best thing a trainer can do is to let him alone, constant alterations in the work bother and disturb most men, and a fussy and incompetent trainer does more harm than good. The trainer should always see his man at work, and study him closely with the assistance of a stop watch.

CHAPTER VII.

Cycling for Ladies.

CONTENTS—Opposition to Ladies cycling—No open air sport more suitable—Skill of more service than strength—A suitable cycle for Ladies' use—Advantage of the Safety—Its drawbacks—Suitable tyres—Learning—The adjustment of the machine—Mounting—Brake power—Dress—Saddles and saddle spring—Bells—Lamps—Final Hints.

THAT estimable woman Mrs. Grundy, is still as we well know, a power in the land, and she possesses but little knowledge of the sport of cycling which has come to the fore since she was young, and she has consequently set her face steadfastly against England's daughters following the pastime; apparently because she fancies that lady votaries, of the wheel, must ride what she knows as the bicycle. Plenty of good people entertain the idea that there is only one style of bicycle, and that it must be ridden, to quote one critic, "man fashion."

As a matter of fact there is no open air athletic sport which, when properly followed up, is more suitable for the fair sex than the sport of cycling in as much, as will have been gathered from the chapter on "How to Ride," skill tells much more than mere physical strength, and a light weight girl, properly mounted, who acquires a fair amount of skill in the propulsion of her cycle, will not only suffer but little fatigue after some hours of healthy exercise in the open air, but will find herself quite able to ride comfortably with stronger and older riders. In short, if such a rider will take pains to learn the right way to use the machine, it will be a constant source of invigorating recreation.

The fair sex are but little behind the men in all exercises which require skill rather than strength, and a careful study of how to apply the power to the best advantage, in cycle riding, will soon make a lady rider an expert mistress of the vehicle. When to such expert knowledge is added the fact of lighter weight, and consequently lighter cycles, it is no wonder that numerous lady riders can undertake long spins with ease and comfort.

The question as to which is the most suitable form of cycle for ladies' use cannot be answered off hand, much depends upon the nature of the roads over which most of the riding is to be done, and if they are liable to become exceedingly slippery when wet, it is inadvisable to adopt the air tyred safety, the tricycle possesses marked advantages in such districts, as the chances of an upset owing to slipping are at least remote. The tricycle also affords plenty of room for the stowage of luggage, and is a very safe machine, by reason of its relatively broad base. The three wheeler, however, possesses some decided disadvantages. There is the extra weight and the extra friction of the more numerous bearings, the difficulty of mounting and the still greater one of dismounting, and last but by no means least, the fact that being a three track machine it is almost an impossibility to pick one's way over a stone strewn road; which might on a single track machine be quite easily ridden over. When the awkwardness of wheeling a tricycle is considered, especially in the case of a lady rider traversing a stone strewn road, it becomes a very open question whether the advantages of the three wheeler are not outweighed by its disadvantages. If the tricycle is decided upon there are now-a-days a number of excellent machines specially made for ladies, with smaller wheels, a wider base and every fitting necessary to the rider's comfort and safety.

The safety bicycle on the other hand specially constructed for ladies' use, possesses many very marked advantages as a mount for the fair sex. It can, in the first place, be made very much lighter than the tricycle; the operations of mounting and dismounting, when properly acquired, are simplicity itself, and have the additional advantage that the rider can dismount when progressing at some speed, and in the case of a slip or fall has an excellent chance of coming on her feet; and as suggested above there are but few occasions when a properly handled single track machine cannot pick its way through the roughest, and stoniest roads without it being necessary for the rider to dismount.

The two main drawbacks to the adoption of the safety are the learning to balance it, and the danger of side slip. As to the balance, if properly instructed the large majority

of lady riders soon master the art, and every day makes them more proficient until in a relatively short space of time the steering of the machine, and the retention of the balance become quite automatic, and drawback number one is completely eliminated. Side slip is really a serious drawback, as it causes sometimes awkward falls; the more expert the rider the less the danger of side slip. There was a certain amount of slip in the solid tyre, but the air tyre has multiplied the tendency, at the same time the air tyre is an absolute necessity in a lady's mount now a days; so it only remains to be seen which tyre or tyres are less liable to slip.

These are to be found in that class of tyre which is placed in a rim with a broad seating, and some lateral support. One of the singular theories which found much acceptance in the earlier days of air tyres was, that unless the tyre was placed on a nearly flat rim the full advantage of the compressed air was not obtained. The stock phrase was that all the air was "not available for cushioning purposes," and it was asserted that in the case of a tyre of the Clincher type, in which, at that date, one half of the tyre was sunk beneath the edges of the metal rim, a purely imaginary line could be drawn from lip to lip of the rim, and the assertion made that the air in the rim half of the tyre was "not available for cushioning purposes." This of course was absurd, and the rider was air born as long as the edges of the rim did not come in contact with the ground; though of course there was some merit in the free play of the sides of the tyre. Whatever the theory might have been, it has now been discarded; and quite a number of our fastest tyres have the lateral support necessary to modify the side slipping tendency.

But the best of them all, from this point of view, is Bartlett's Patent the Clincher Tyre, which has a broad seating, and the lateral support which is so vital in this connection, and there is no tyre to beat, if there be any to equal, the Clincher as a tyre for ladies' cycles.

The frame of the safety for a lady is run down to the bottom bracket, and then up to the saddle standard in such a way as to leave the space between handles and saddle quite open and clear, and in the case of a slip the rider will in most cases alight on her feet, so that taking all things

into consideration there is no question that, except for the very nervous, the safety is by far the best and handiest mount for a lady, and the number of fair wheelwomen to be seen riding, now a days, upon the single track machine indicates that they are themselves decidedly of this opinion.

A lady desirous of learning to ride the safety bicycle should, if by any means possible, attend a school and if that be impossible should at least secure expert assistance in the earlier struggles, and should carefully study the art of riding so as to secure that skill which, as set forth above, is so much more effective than mere physical strength without it.

In the adjustment of the machine some hints will be found in the chapter on Juvenile Cycling. Great care should be taken, and the rider should try and sit easily and gracefully on the machine, without clutching the handles or assuming that position of rigidity which so many wheelmen and women unconsciously assume. The balance should be carefully studied, and a rider who is fairly expert may improve herself, in this point, by an half hour's exercise on any quiet stretch of road by cutting figures of eight, turning to left and right, and generally studying the effect of the steering and body balance. Strange as it may seem, the method of mounting and dismounting from a safety bicycle made for lady's use is very easy and graceful, much more so than the tricycle mount and dismount. This is owing to the construction of the frame of the machine as described above.

The modus operandi is as follows:—The rider stands on the left hand side of the machine holding the handles firmly with both hands, the right pedal up and slightly in front of the vertical, the left pedal just behind the rider's right foot. The right foot is then raised from the ground and put over the frame upon the right hand pedal, the machine leaning slightly towards the left, then with one short hop on the left foot, the rider rises upon the right foot which is on the pedal, throwing momentarily some weight upon the handles, and seats herself easily on the saddle the machine having been started by the slight spring from the left foot and the weight pressing on the right hand pedal.

With but very little practice this mount can be acquired,

and then it soon becomes easy and graceful, especially if accomplished without any haste or hurry; the dismount is even easier as the rider simply slides to the ground on either side of the machine, which should have been pulled up almost to a standstill with the brake, or the rider may step off the pedal just as it reaches the bottom of the stroke; in which case the weight at the lowest point assists in stopping the machine, in which the brake should assist, as if a rider gets off when the machine is going too fast, the pedal sometimes strikes a nasty blow. If a hasty dismount is necessary the rider should swerve to the side the dismount is to be made, and spring lightly from the pedal clear of the machine.

Exercises in mounting and dismounting should be amongst the very first things undertaken by the beginner, who should be careful to give attention to the method of mounting and dismounting from both sides of the machine, and if the mount from one side seems more difficult than that from the other, it should be assiduously practised, until it is quite easy. In fact it is a good general rule for the wheelwoman or man, that if any of the ordinary exercises on the cycle seem to be difficult, or awkwardly accomplished, they should be carefully practised until they are mastered completely.

There is one thing essential to the safety and comfort of a lady rider, whether the chosen cycle be the safety or the tricycle, and that it is a properly fitted and thoroughly effective brake; as on it so much of the safety and comfort of the rider depends. It should be fitted in such a way, that whilst the lever is well within the reach of the smallest hand, the break spoon can be brought into effective contact with the tyre surface, a point often lost sight of in some of the best lady's machines in the market.

The best form of break is the front wheel spoon break, this is always in sight, is out of the way, and is very effective, and its only drawback is its dust throwing propensity; this point involves the tyre question again, as some of the inflated tyres will not stand a front wheel brake, and herein lies another advantage of the tyre recommended above, in as much as the Clincher tyre will stand any amount of break power being put on at a moment's notice.

A spoon break of this type was in one instance jammed

down at full power upon a two inch Clincher tyre by a rider weighing over fourteen stone, going at a high speed, and it pulled the machine up within a very few yards, without doing any injury to, or displacing in any way, any part of the tyre. A test, involuntary on the riders part, but absolutely convincing. A sound and suitable break then is vital to a satisfactory cycle for a lady's use.

A lady's cycle should have small wheels, twenty-six inches preferably, as being a standard size, with 1¾in., No. 8 Clincher tyres, a rigid frame, carefully stayed, and a Carter gear case, by far the most effective dress and chain guard ever fitted to a cycle. The rear wheel should be fitted with some open sort of guard, so as not to present too much resistance, to the air and mud guards of the best type should be fitted; but not placed too close to the wheels, in fact there should be ample clearance all over, so as to avoid clogging. The front wheel mud guard, is much better placed on the front frame, and should decend till it almost touches the ground. The saddle should be very carefully chosen; quite a number are made specially for ladies, and should be fitted upon a spring or springs carefully calculated for the rider's weight. Quite a number of feather weight girls are to-day using springs which *might* give under the massive form of Alice, consort and relict of the late lamented Jumbo; but under no less burden. If the saddle proves uncomfortable it should be altered and adjusted in various positions, provisions for which is found in all the more modern saddles, the pitch *i.e.*, position with reference to an horizontal line is the main point, and it will be usually found that a slight raising of the peak will be the best position. If not finally comfortable it should be changed for another.

A good and effective bell which does not require a big effort to sound it, as do some of the German made goods now on the market, should be fitted to the left handle bar.

The best type are those which ring both when the lever is pulled and when it is let go; the noise they make is characteristic of the cycle nowadays, and the persons rung to, know exactly what to expect.

The lamp should be carefully fitted, as a lamp constantly going out is a sad trial to a lady rider. There is from this point of view no economy in buying a cheap lamp, and when a good one has been secured it only wants proper cleaning, and trimming to remain effective for years.

Special note should be taken that the foot-rests are well within reach, and in a suitable position, many of them are placed too high up. They should be well within reach, but as now-a-days most of them are movable and adjustable, this can soon be arranged.

The long wheel base theory has been somewhat over done in men's machines, and with wheels of the size recommended, a moderately lengthy wheel base will be found the most satisfactory for ladies' use.

The great and vital subject of dress is dealt with at some length in another chapter, and as might have been expected the ladies have long since taken the matter into their own hands. The lady members of the C. T. C. in solemn conclave assembled, discussed the question at length, and the result of their labours, is at the service of every member of the C. T. C., a club which every lady cyclist should join if only for that reason.

Miss Violet Lorne, a very talented lady writer, on cycling subjects, has also devoted much consideration to the matter, and she has had brought under her notice the experiences of a vast number of lady cyclists, and is thus peculiarly well situated to give advice and render her sisters of the wheel, the most valuable assistance.

Cycling for ladies has unquestionably come to stay, the excitement, the exercise in the open air, the wider range of country thrown open to the cycle user, all make it peculiarly fascinating as soon as the noviciate is over; but unfortunately many ladies fail to get beyond that stage, simply because they either do over much, or too little.

Some fifteen to thirty minutes of slow riding conscientiouly undertaken each day, though it may be irksome, will in a relatively short space of time so strengthen and develope the muscles employed, as to make what was a task, appear comparatively light exercise and *then* the full charm and value of cycling will become apparent, and if the fair rider will but regard the cycle as a means of locomotion, as a vehicle which conveys her to the tennis ground, or to the residence of friends, too far distant to be reached in an ordinary walk, she will soon find it an absolutely indispensable adjunct. When she has become an expert, if she can only enjoy a tour under favourable circumstances as to weather, the sport will claim her for its own for good and all.

CHAPTER VIII.

Juvenile Cycling.

CONTENTS—Should I let my youngsters ride?—The parent's question—Cycling of advantage to the young—Illustrative instances—The Juvenile's mount—Weight—Gearing—Best tyres—Narrow tread—Pedal pins—Step—Spring—Saddle—Rattrap v.s., rubber pedals—Toe clips their use and abuse—The adjustment of the machine—Attitude—The 'Scorcher' pose—Position of the saddle—Handlebar adjustment—Waterproof carrier—Companions—Clubs—The best form of cycling for Juveniles.

A question very often asked by parents who are not themselves cyclists, is "should I let my youngsters ride?" and it is one which it is the object of this Chapter to answer, at the same time it is a difficult question to reply to, as there are so many considerations affecting it. The crux of the matter is the amount of supervision that will be exercised over the juvenile cyclist. That the sport can be made of material service and advantage to a growing child is unquestionable, especially in cases where weak ankles or weak limbs from accidents exist, the bodily weight being kept off them, whilst they are at the same time exercised in a manner calculated to strengthen the muscles, and in natural sequence the joints themselves.

A case in point may be quoted, a growing lad playing vigourously at football, had his knee dislocated, it was promptly reduced but was for a long time liable to swelling whenever he undertook any unusual exercise, and this condition increased rather than diminished owing to the natural carelessness of youth until he was unable to run, jump, or walk any distance, owing to the extreme sensitiveness of the joint, but though he was quite unable without pain to walk 5 miles, he found on learning to ride the bicycle, that 50 or even 100 miles in a day, gave him no trouble in the tender joint whatever, and by using the bicycle steadily, and avoiding as much as possible any exercise on foot, the knee was gradually strengthened until it was altogether sound and well.

In another case a little girl of very tender years, who suffered

with ankles so weak as to almost cripple her, was ordered by the doctor to ride a tricycle in her father's garden, for a given period each day, with the most satisfactory results.

The question as to juvenile cycling then may be answered in the affirmative, on the one condition, that it is indulged in under proper supervision.

Of course the first point is to see that the youngster is properly mounted, and here a number of people fall into a great error, they have heard of 25lbs machines for the use of adults, and they think that their children should be supplied with something still lighter. Of course, 'the lighter the better,' applies here as in all other cases in cycling, provided that the machine is safe, suitable and reliable, but it is almost a certainty that the juvenile's cycle will not be used as carefully as the featherweight machines, which experts ride upon the path, and therefore a few pounds of extra weight may be usefully admitted as a precaution against accident from rough usage, the extra weight of the juvenile cycle, can be fully met and counteracted as far as the element of 'strain' is involved, by the adoption of a lower gearing, and the parent who permits his children to cycle should see that the gear is a low one, as this is the greatest safeguard against over-straining. There is without doubt an opening for a sound and reliable, and really light juvenile cycle, though some few firms make very excellent machines, they are for the most part unnecessarily heavy, the juvenile cycle should have small wheels Clincher, or Boothroyd tyres, which are less liable to side slip, and therefore safer for juvenile use, ample brake power a *sine qua non*, a narrow tread, for a wide tread often causes strain and other troubles, plenty of adjustment in saddle and handlebars, carefully fitted pedals with extra strong pins to avoid as far as possible their getting bent by tumbles, as a bent pedal pin is the most fruitful source of crooked action, and a step properly constructed with a blunt outside end. The average step on juvenile machines being apparently especially designed, so that the friction of mounting shall keep its edge sharp enough to cut the clothes, and tear the leg of any rider who makes a mistake when trying to mount. The machine should be fitted with a very easy spring, suitable to the weight of the rider, very few springs are made which are really suitable, the large majority being much too

stiff, whilst the saddle should be carefully chosen, and when one has been found to suit, the user will do well to keep it until it is worn out. The combination spring saddles which are so suitable for the use of adults, have not as yet been made narrow enough in front to be suitable for children, as most of them want a certain amount of weight on them before they are fully effective, and any undue width, will cause discomfort, and spoil the beginner's action by causing him to throw his knees wide, all these points require the most careful consideration, and if the parent be not himself a cyclist he would do well to obtain the advice and assistance of some competent adviser, who has given some particular attention to the question of juvenile cycling. The pedals to be used are an important item, more particularly as the young rider will be scarcely likely to change his shoes specially to ride, the rat-trap is by far the safest and most satisfactory pedal for juvenile use, but it possesses one serious drawback from the parental standpoint, as it wears the sole of the boot or shoe badly. The best for use is the three spiked pedal, and if the spikes be shortened they will bed themselves into the sole of the shoe, and unless the rider is very careless with his feet, they will do no further damage, as the sole of the shoe will rest upon the flat bar, whilst the rider will have a firm hold of the pedal. If this plan is adopted, the shoe should have a thick front sole, which can be renewed as occasion requires, if however the rider is very careless with his feet, and always shifting them into different positions, the spikes will cut up the shoe rapidly, and the best course in such a case, is to adopt rubber pedals, with or without toe clips. The best form of rubber pedal under these conditions is that with square rubbers, as they afford a firmer hold for the foot, and of course many of the accidents of the juvenile beginner, are due to pedal slipping. The rubber pedal is an excellent school in this respect, and without the toe clip the youngster soon learns that to be safe he must be surefooted on the pedal, and so he rapidly acquires what is in fact, ankle action, so as to secure that important desideratum.

In past times when the ordinary bicycle only was ridden some of the best and fastest riders of the day, used rubber pedals only, without toe clips, and they were of coure particularly expert as pedallers, otherwise they could not have

held their pedals at high speeds, so the rubber pedal may be recommended in such a case as that quoted above, where the rider is very careless with his feet. The question of toe clips comes next, and if they can be avoided it will be the better for the rider in the future, as if a youngster gets into the habit of depending on a toe clip, his action is likely to become very stilty. If however, constant pedal slipping necessitates such an appliance, it will be well to fit it so that it only catches the foot *after* the rider has slipped his pedal, and if it be noted that the youngster has contracted the habit of slipping his foot forward to catch the clip, it should be removed again a little further away, until at length he puts his foot in a proper position upon the pedal, when the toe clip may be brought in again carefully, it should be regarded solely as a safeguard against pedal slipping, and the user should be frequently cautioned not to attempt to drive his machine by merely kicking against the toe clip.

As will be gathered the toe clip is a possible source of stilty and poor action, and though a racing man of experience may find it a useful safeguard, the beginner should be encouraged to avoid it as far as possible, and should if he is allowed to use it be very carefully watched, and any errors in its use pointed out to him, and corrected in the manner indicated. When the youngster has acquired a satisfactory action, and is clearly making use of his ancles "all round," a basket shaped toe clip may be adopted merely as a safeguard against the accident of pedal slipping. When the machine has been obtained and fitted up as advised, the youngster who has of course been taught to ride may be allowed to try it, and then comes the most important point in the whole matter, the first adjustment of the machine.

The average lad who has seen a cycle race, is of course assured in his own mind, that if he only adoptes the pose and attitude of Mr. Stronglegs the scratch man, he will be able like that halo'd hero to perform "deeds of derring do," on road and track, and so he will put his saddle a long way back, and his handles very low down, and arching his back, and dropping his head he will assume the correct attitude as he imagines of the "scorcher."

The position assumed by a racing man as pointed out

earlier in these pages is suitable to the accomplishment of the work he has in hand, sustained exertion for a short period, the forward position of the body presents less surface to the wind, the arm position if a proper one allows the full play of the lungs, and the pose with regard to the pedal work, allows of rapid and labour saving action, but for riding on the road and touring, such a position though often assumed by those who acquired the habit through want of instruction is singularly unsuitable.

The first point is the saddle, and its position with regard to the pedals, the juvenile will not lack activity but strength, and thus it is necessary to put him in a position in which activity will in some degree compensate for the absence of muscular power; the saddle should be put some three to four inches behind a vertical line drawn through the centre of the pedal crank, thus bringing the rider relatively over his work, and in a position to use his weight as well as his strength in the propulsion of the machine. It is almost certain that the youth will want to get further back, and will perhaps move his saddle, but for a time at any rate, a fairly forward position should be insisted upon. As soon as the rider begins to show some cleverness with his ankles he may be allowed to go a little further back, but should never be allowed to exaggerate the position. The reach, *i.e.*, the distance between the saddle and the pedal at its lowest point should never be too great, the rider should at least be able to put his heel upon the pedal when seated in the saddle, and if any tendency to wriggle or roll in the saddle is detected, it may be at once assumed that the rider is over reached, and the saddle should be put down. For some excellent reason, the young beginner appears to almost invariably try to ride his machine with the saddle much too high.

As soon as he has had some little experience, the youth should be permitted within certain limits, to adjust his saddle to his liking, but a very careful watch should be kept to avoid over reaching. When the saddle has been got into a satisfactory position, the real crux of good, as opposed to bad form, is to be found in the handle bar adjustment. As indicated above, 90 per cent of young beginners have their handles too low, and about the same proportion of machines are built with the handles too wide, and the

young rider is 'spreadeagled,' in a manner which must make him roundbacked and uncomfortable. The exact adjustment of the handle bars may be arrived at in this way, seat the rider on the machine, and let him sit upright in an easy attitude, with the shoulders fairly well open, then put the handles at such a height, that when he grasps them firmly the arm is bent at the elbow easily, at such an angle that when he throws his shoulders back, the arm becomes straight, this may take a little adjustment, but it is a safeguard against round shoulders, and "bicycle back" which are considered by some people as inseparable from cycling, and which are directly caused by the handles being put too low.

Here again the assistance of an expert friend and adviser, is of the very greatest value, and if such a one can be persuaded to take a ride with the beginner, and to watch carefully his action and pose on the machine, some modification of the adjustment may be found advisable, and of service; care should be taken that the foot rests are well within the users reach, and this is the more easily done, nowadays, owing to the general adoption of adjustable footrests. The juveniles machine should of course be fitted with a good bell, and good lamp, and a neat little luggage carrier, or luggage carrying arms on which a waterproof cape should always be strapped, there should be a wallet with oil and spanners, and the parental adviser should be careful to insist that they be taken always, the habit once properly inculcated will save the rider a great deal of trouble in his cycling career.

A very serious consideration in the matter of juvenile cycling is the companionship the young rider will have on his runs, a matter of immense importance. It is inadvisable for him to ride with a miscellaneous lot of cyclists, even though they may be all youngsters, as it is very likely that amongst them there may be some precocious lad possessing pace beyond his years, who will probably start fast riding, and utterly use up the low gear user. Youngsters of about the same age, and weight, may be encouraged to keep one another company, and very fast riding should be as far as possible forbidden.

It is for the reason indicated above, highly inadvisable that the beginner should be permitted to join a club, unless

his friends are fully assured of the class and conduct of its members, and those lads probably get more enjoyment out of cycling, whose good fortune it is to join a club, in which there is a good proportion of grey-beards and veterans, who use the tricycle, and whose pleasure it is to assist and instruct the young idea, in their quiet trips about the country. If, as often happens, the riding of the child induces the parent to cycle, the problem is solved, and those youngsters who are to be encountered touring through the more beautiful parts of the country, in company with their parents may be said to have the best opportunities of enjoying the sport of cycling, as it is to be enjoyed

CHAPTER IX.

Tyres.

CONTENTS—The first rubber tyre—The solid tyre—The racing tyre—The qualities of a successful road tyre—Defects of the earlier tyres—Difficulties of repair—New tyres—The Detachable Dunlop—The Clincher—The latest type—The Michelin—The Seddon—Smith's Flapped tyre—The Boothroyd—Tube tyres—Their advantages and drawbacks—Repairs and how to effect them—Pumps—Valves.

IN any work which discusses practically the sport of cycling it is absolutely necessary to deal, at some length, with the very important, if not vital question of tyres. In the earlier days of the sport the adaptation of rubber tyres to wooden wheels was regarded as a most remarkable advance. They usually took the form of flat strips of rubber fastened upon the iron rims of the hickory wheels. Needless to say these flat strips were constantly coming off, and causing great annoyance to the user. The next step was the suspension wheel which was, in effect, made possible by the invention, or perhaps one should say adaptation of the rubber tyre. The solid rubber tyre also had a trick of coming out of the rim; the question of suitable cement being only worked out after many painful experiences through this fault. Wire fixing of the tyres was successfully adopted by several of the makers, and many excellent plans for gripping the solid rubber to the rim were brought before the public.

The solid tyre was of course heavy, and this led to the gradual reduction of the amount of rubber placed on the rim, and in racing machines half inch, or even three-eights of an inch diameter, rubbers were fitted. The effect of this was to increase the vibration to a considerable extent, though of course this was less apparent on the racing path than on the road, where a number of men gradually got in the habit of riding machines which had little, or no protection, in the matter of tyres. Things had reached this stage when the practical re-invention of the air tyre alluded to in Chapter I. took place.

The history of that development is briefly dealt with elsewhere, suffice it to say that the new departure attracted much attention, and inventive minds were soon deeply engaged upon the question of inflated tyres. As in the case of cycles, it is impossible to assert that any one particular air tyre is the best. Many of the varying forms possess sufficient advantages under special circumstances, and the large number of patterns now before the public offer every choice to riders. It might be safely asserted, however, that the qualities necessary in a successful air tyre, for road use, are resiliency, stability, absence of side slip, sufficient strength to withstand the ordinary puncturing materials encountered on the highway, ease of dismounting when a repair is necessary, and further it is highly advisable that a repair should be easily effected, and when accomplished of a permanent character.

In the earlier forms of air tyre, while some of these qualities were peculiarly present, others were as noticeable by their absence. The earlier tyres possessed great resiliency, but were unstable, the tendency to burst was very marked, and the thinness of the walls permitted the tyre to shift laterally under the rider, a condition of things peculiarly productive of side slip. The thin walls also increased the liability to puncture, and in the case of a mishap it was a tremendous task to get at the internal tube. The several lappings of canvas had to be carefully removed, the inner wall of canvas pierced, and then the bladder searched over for the leak.

Anyone who has struggled with such a repair will admit that the many advantages the original tyre possessed were discounted by the complicated operations required to get at and repair the puncture. When the tube was satisfactorily patched the repair, in that respect, was an excellent one, being, if properly accomplished, permanent in every way; but the same cannot be said of the refastening of the canvas wrappings, together with the sewing or patching of the internal canvas. Very often when a rider, pressed for time, reinflated his tyre, after a complicated mend, the canvas attached would tear away from the hardly-set solution, and allowing the air tube to protude, it would burst, possibly with very much worse results than the initial puncture produced. It was for this reason that several new tyres which

presented an easier task in the dismounting for repairs, found much favour in the sight of practical road riders.

Amongst the many patterns produced a few signal themselves out for special notice, prominent amongst them being the Detachable Dunlop, the invention of Mr. Kingston Welch. This tyre is seated in a special rim, and has an outer covering, in the edges of which are placed continuous wire rings, fractionally smaller than the outer edge of the rim. They are got over the rim by placing them alternately in the deeper portion, and then pushing the other side over the edge of the rim, and when once on and inflated the rings are forced into grooves half way up the sides of the rim, and held firmly as long as the air pressure is continued.

The inner tube is of pure rubber and can be easily repaired, and the new tyre, appears to be a most material advance from the road riders point of view upon the original type.

Perhaps the most generally successful of all the tyres, for road use, which have been produced of late years is the well-known and reliable Clincher tyre, manufactured by a large company in Edinburgh. This tyre, as its name implies, is fixed by simply clinching into a specially shaped rim. This rim in the No. 8 Clincher is a very deep U section, having at its outer edges two angled lips, the tips of which turn in towards the centre of the tyre. A pure rubber tube is placed in this rim, and over it a moulded rubber arch, the edges of which are slightly thickened and fit into the angles of the rim. By simply forcing one edge into the deeper portion of the rim, the moulded arch can easily be removed when the tyre is deflated; but as soon as it is put in position and inflated it becomes firmly fixed, and remains so as long as the air remains in the tube. When deflated, the moulded arch of the No. 8 Clincher does not escape from the rim as the covers of the earlier Clinchers occasionally did, and the ease of repair is probably greater than in any other tyre.

One of the great advantages possessed by the Clincher tyre is its immunity from side slip, a frequent fault in the tyres seated in, or rather on, shallow rims. The broad seating of the Clincher, and the nature of the support afforded to the moulded sides, of the outer arch, give it a peculiar measure of stability, and side slip is very little apparent to the users

of these tyres, and in fact this one quality is peculiarly associated with the Clincher tyre which makes it particularly suitable for the use of ladies and children, as suggested in the earlier pages of this book. As to its pace, there is no question that the earlier examples of the tyre were too strong, and the rims were rather large and consequently heavy. The earlier tyres resisted puncture to a marked extent, but that result was attained by the use of thick arches, and canvass-strengthened inner tubes. These, though producing the results referred to, lacked pace, solely by reason of their thickness and weight, and the latest development, Clincher No. 8, has been so modified that its pace will certainly be as great as that of any other air tyre. The tube and arch can be made as thin as possible, whilst the new rim of this number of the tyre presents a peculiarly strong section, singularly suitable for use in racing machines, whilst the pure rubber inner tube makes a repair simple and permanent, and singularly easy to effect.

Another type which has found much favour with road riders is the "Michelin," a French invention, which possesses many special advantages of its own. In this tyre the outer covering or arch is fixed by means of two wire rings, drawn down by thumb screws into a deep groove made upon the outer edges of the rim, the section of which is simply three sides of a square with the corners turned out and up. The outer arch has thickened edges which are drawn down into the groove by the wires referred to, whilst the air tube of pure rubber reposes on nearly a flat rim, and is easily accessible in case of puncture, by releasing one of the fixing wires and lifting the arch. The advantage which this form, in common with the Clincher, possesses is that in case of puncture the whole tube can be released from the wheel with considerably less trouble than it takes to get at one portion of the tube in the case of many other tyres. The Michelin has found favour upon the road and path in France, and must undoubtedly be reckoned amongst the successful tyres.

Another tyre which possesses special features of advantage is the Seddon, constructed by a company established in Manchester. This tyre is fixed by wires in the edges of the arch which, however, are simply drawn tight by means of right and left screws, in the bottom of the rim. A special hollow rim of excellent section is made to carry the

Seddon tyre, but at the same time it can be put into almost any hollow rim in the market, an advantage which makers of cycles have not been slow to recognize. In other details the Seddon presents many features of novelty, and as the outer case can be made as thin as possible it is bound to attain success as a racing tyre, in fact some very fast times have already been accomplished on it.

The flapped tyre manufactured by Smith's Patent Ltd., is the latest and one of the best developments in this direction—the special merits of the contrivance only appeal forcibly to experts, but it combines strength, and lateral stability with speed—and remarkable ease of repair—the laced tyre made by this firm fits almost any sort of rim, and has found much favour in its latest shape on the continent.

Another tyre which, although not patented, seems likely to hold its own with any other, and which possibly contains the germs of the tyre of the future, is that known in the cycling world as the "Boothroyd," after its inventor the well-known Manager of the Crypto Cycle Co. This tyre may be simply described as the component parts of an ordinary air tyre firmly vulcanized together. It consists first of a tube of rubber surrounded by a canvas tube with another tube of rubber outside, but instead of all these parts being separately built up, a course which of necessity lessens the strength of the whole, they are in the Boothroyd vulcanized firmly together, and what is known as a tube-tyre is produced. This, it is obvious, possesses many advantages over other tyres, and as in the fable of Æsop concerning the bundle of sticks, the three sections welded together must of necessity possess more strength than when they are separate, when of course the strength of the tyre is only equal to that of its weakest part. The Boothroyd tyre is now made by many firms in one form or another under different titles. It is cemented into the rims in the ordinary way, and for road use is found very effective. The obvious difficulty in case of repair, however, has hitherto been a drawback to its general adoption, as, owing to the nature of its construction, repairs have been somewhat difficult to effect.

In the case of a puncture mended from the outside, the air would pass up until it touched the canvas, and would then find its way along the strands until one puncture might

produce a dozen points of leakage. This drawback has, however, engaged the attention of the original inventor, and methods of repair have now been devised which deal practically and satisfactorily with the trouble.

One of the writers of the present volume has had for a twelvemonth a Boothroyd tyre in use, and although it has met with misfortunes, it holds the air most satisfactorily at the present time, and has undergone clever repair at the hands of its original makers. This being so, there can be no question that the difficulties of dealing with tube-tyre injuries have been satisfactorily met, and that in the near future many more tyres of this type will be in use upon the road.

Many pages might be filled with descriptions of the various tyres of this type at present on the market, but it would appear that the tendency to simplification, in detail, and ease of dismounting will, in due course, produce what will practically be an ideal tyre.

Although many persons are of opinion that the tube-tyre will eventually rule the roost, there are others who are equally sure that a tyre of the Clincher type will in the end prove most satisfactory, both for the road and path use. The use of a pure rubber inner tube is regarded, as in most cases, an absolute necessity if pace is required. It then only remains to devise an arch covering which, while affording sufficient protection, shall be resilient and easily fixed and unfixed, and this is unquestionably the case in the Clincher type which will therefore probably prove the eventual development of the air tyre question.

Having made choice of one of the many tyres upon the market, the user will do well to obtain some practical instructions in the best and most effective methods of repair. One thing which militates more than another against successful repair is the presence in the rubber of the sulphur used in its working—the white powder which continues to work out of rubber in use is this sulphur—and it is easily understood how a coating of this sort will interfere with the proper adhesion of patches put on for the purpose of repairing.

In making a repair of an ordinary puncture it is advisable to first clean its edges by passing through it some smooth object, not too sharp, such as a blade of a knife or

a smooth piece of wood. Having thus removed any grit or foreign body which might possibly remain in the puncture, its edges should be carefully rubbed over with solution, the whole of the surface for a square inch over the puncture being thoroughly scraped with a knife blade until the white powder has been altogether removed. A little india rubber solution should then be rubbed over this square patch, and in and around the puncture, and the whole set aside for a few moments until it is what in technical terms is called "tacky." In the meanwhile, a similarly sized piece of sheet rubber supplied for patching purposes should be prepared in the same way, also covered with solution, and left for a few minutes to the same end. Then, the two surfaces being brought into careful contact, will adhere firmly, and the patch can be pressed evenly down so as to exclude any air bubbles and secure perfect contact all over the surface. Then, after as much time as can be permitted for it to set, powdered chalk may be rubbed over the patch, so as to prevent it from adhering to the outer cover, the tube replaced in the rim, the arch put into position and inflation proceeded with.

A practical repairer will soon give a novice several valuable hints in the handling of the tyre, and these should always be sought, especially where the rider has adopted a new form of tyre. In the matter of pumps, there is a large choice, many new ideas having been introduced in connection with the industry.

Here again some knowledge of the internal arrangement of the pump is absolute necessary, as without it some very easily remedied trouble may, for want of knowledge, cause a great deal of inconvenience. The nature of the valve, if the pump possesses one, should be ascertained, and any possible failure should be investigated. Great variety exists also in the valves fitted to the inflating nipples of the tyres themselves, and here again it is highly advisable for the prospective user to acquaint himself with the method of construction, and also the weak points, if any, of the valve used.

Thus in one particular type of valve it is not necessary to unscrew it more than a turn or two to allow the free passage of the air into the tyre; if it be unscrewed too far leakage will ensue, and the pumping will be less effective.

Then again, some valves are so constructed that a very little dust collecting in them will effectually block them, and much care will have to be exercised in cleaning them out before a satisfactory inflation can be secured. Then again, in the case of some valves, leakage ensues from the accidental loosering of a nut, and special knowledge is often required to deal with the mysterious escapes of air, which deflate tyres in the cases of persons who are not thoroughly acquainted with the internal arrangements of the valve adopted. All these and many other points can be best learnt from the vendors of the tyres themselves, and in many cases instructive little pamphlets are published to afford the information required.

There is no doubt that the tyre industry is rapidly going ahead. Many of the largest firms interested in the rubber trade are going actively and practically into the question of air tyres, and although many impracticable inventions will doubtless be brought before the public, yet the result of competition in this matter must, in the end, prove productive of the best results to the sport at large. Little has been said in this chapter about racing tyres, inasmuch as every racing man has his own fancy and will choose the tyre which he believes will productive of the best results. Moreover the racing community, at large, resembles in some respects a flock of sheep, and the average racing man will be found to adopt the tyre used by one or other of the more prominent and successful of the riders on the racing path.

All that is required in a racing tyre is lightness, thinness of walls and absence of side slip. Lightness and thinness in the walls are practically interchangeable terms, and absence of side slip can only be obtained by the adoption of one or other of the more broadly seated tyres upon the market.

The original Dunlop holds its own in all respects, and is for the time being at the top of the tree; but quite a large number of tyres, such as Preston Davies, Smiths, Seddon and Clincher bid fair in the immediate future to push the original tyre very closely indeed. The general lines, however, of the information conveyed in this chapter will doubtless guide the novice in his choice of his first tyre, and the experience thus gained will enable him in, due course, to form an opinion for himself.

CHAPTER X.

What has been done on the Cycle.

It often occurs to an outsider not conversant with the sport to ask, what is the advantage and object of the various record attempts, which week after week throughout the active season are reported in the papers, and the question from such an one is not altogether surprising. The object and the use of these records is in the main to bring about the asking of that very question. The wonderful feats performed upon the cycle, on road or path, are the means of attracting the attention of persons who have not hitherto been interested in cycling to that sport, and when they are informed as to the times and distances accomplished they are induced to make further investigations which, in many cases, result in the addition of another recruit to the cycling army.

Records may be regarded as indicating the high water mark of cycling achievement, and many a cyclist has been encouraged by them, who, conscious of physical inferiority, has still persevered, being content if in the end he attains but a tenth part of the distance covered by some notable expert in a given space of time. This then is the object and end of record making, outside the rider's desire to establish his reputation by a public exhibition of his capacity, and it becomes of interest to study the latest developments in this direction.

Weekly, throughout the active season, riders on our more famous paths and on the most suitable of highways, are to be found essaying to accomplish times and cover distances, such as have not been done before, and this emulation gets, if anything, warmer each season, more especially upon the racing path, where records at all distances, and on all types of cycles are eagerly sought after by constant and careful training on the part of the racing men. On the road the same activity prevails, albeit there can be no question that sooner or later organized racing upon the

public highways will be stamped out by the authorities, if it be not first abandoned by the cyclists themselves.

Records over long journeys, such as that from Land's-end to John-o-Groats will doubtless continue to be made, for a long while to come; but it is upon the racing path, properly prepared, that the times of the future will be made, and as they will assuredly remain far in front of any records which can be accomplished upon the road. They will in the end retain a hold upon the public mind which the—on paper,—inferior, though possibly actually and intrinsically better records upon the highways cannot be expected to do.

The great British public does not discriminate in such matters, and the longest distance accomplished in 24 hours, for example, will be regarded as the record, without any inquiry as to whether it was accomplished upon the road, or the path. History is rapidly made in cycling, the record of to-day being wiped out to morrow. But when we come to make a critical inquiry into the times accomplished, we find that the wheelman of to-day is vastly well served by the improvements made in machines, in tracks, and in methods of training, and to be fair to those who went before, the value of these aids to pace must be fairly estimated.

Thus, although, the record books now contain some very fine performances, these do not in any wise affect the merits of the earlier feats, which did so much to draw attention to and popularise the sport. Any inquiry then which deals with "what has been accomplished upon the cycle" must begin at an early period, and refer, however, briefly to those rides attempted and triumphantly accomplished when the bicycle was in its crude state, before recording those later feats, which have secured it so high a place in the opinion of the sporting world.

Almost at its very first introduction, from France, long distance rides were attempted, and quite early in its history, namely in January 1862, Mr. J. Mayall, junior, started from London, on his French "Boneshaker," with the intention of trying to ride to Brighton. Although he slept as far on his way as Clapham the night before, he only reached Redhill, barely 17 miles in all, and then relinquished the attempt. This trip, ludicrous as its details appear to-day, was but the pioneer of numerous road records, and when a few weeks later the hero of Redhill essayed, in

company with two others, the same feat he accomplished it successfully after many mishaps, and was thus the first man to ride on a bicycle from London to Brighton.

Thence forward the bicycle was frequently the subject of discussion and comment in the pages of the press, and the feats of H. S. Thorpe, the Hon. Ion Keith-Falconer, and W. Britten, and a large number of their successors upon the highway drew increasing attention to the new sport In the meanwhile cycle racing on the path began to be popular, Athletic clubs included cycle races in their sports, and the then ruling body of amateurism promoted an amateur championship distance four miles. From the date of the cycle's first appearance on the racing path the sport grew rapidly, and a long line of champions created records, and won races and were thus the means of attracting and interesting the public.

This rapidly growing sport had certain material advantages over other branches of allied athletics. The cost of the cycle was considerable, as compared with the outfit and paraphernalia necessary for the pursuit of other sports—rowing alone excepted—a sport materially limited by the condition precedent to its being followed, viz., navigable water. The cycle was not only costly, but further it was a vehicle which could be ridden by many who never contemplated racing. Thus its field of distribution was large, and these conditions made a press devoted solely to the interests of the sport possible. This press in its turn did the sport a vast service, it consolidated its votaries and brought them into touch. It encouraged organization and lent most valuable aid to clubs and similar bodies, it invited discussion on all points; and these discussions were of great value to the nascent industry, for the cycle press of earlier days spoke out with notable clearness, and in brief it may be safely asserted that the body politic of the sport of cycling is nourished by a circulation of printing ink. No other athletic sport has anything approaching, in vigour or importance, the cycling press and what has been accomplished has been made possible by its existence.

It was the cycling press which recorded, praised, and occasionally became laughably enthusiastic over the doings of the record makers, and at the present time the multiplicity of the "records" upon the road simply brings the whole

class of records into disrepute. Place to place records, qualified records, are very absurd. Local heroes strut about with the proud consciousness that they hold the "record" from Puddleford to Little Squelchington-in-the-Marsh, or The-South-Northern-Division-of-the-County-of-Swampshire, 23¾ miles-out-and-home-road record!

The cycling press took up the earlier road rides and duly recorded them, whilst the cycle racing path received a great amount of attention from the sporting press, and thus progress went on. Amongst the professors, John Keen made a great name, and was one of the most popular of riders, and a daily paper was quite angry because some thousands of people went to see "two men ride a bicycle race." When Keen was at the zenith of his popularity he was challenged by Cooper, and the pair rode many short distance races with varying results; but the interest was always maintained.

In the amateur ranks Keith-Falconer brought cycle racing well to the front, and it was for a time popular at the Universities, and then came a Saul amongst cyclists—a head and shoulders taller than his fellows—the late Herbert Liddell Cortis. He, like Keen, amongst the professors, was very popular with the public, he was a magnificent rider, and an undoubted and unquestioned champion at all distances—from one to fifty miles—and his remarkably brilliant career did a great deal to enhance the popularity of the sport. Cortis was the first man to cover 20 miles in one hour, a feat first accomplished on the Crystal Palace track; but which Cortis would have succeeded in accomplishing two years earlier at Surbiton but for an unfortunate accident. "Twenty miles an hour," though it may appear to the wheelmen of to-day ridiculous, was a marvellous performance in the days of cinder tracks without any banking. From Cortis' time plenty of good men have kept up this interest, and if it temporarily flagged some new wonder came to the front to re-excite it, and the path has certainly done its share in the popularising of the sport.

Not only did the ordinary bicycle create enthusiasm and excitement, but the tricycle came rapidly to the front, and tricycle racing — still a popular branch of the sport in Germany—was very closely followed in England. George Gatehouse was the first man to ride 20 miles inside 60

minutes on a tricycle, and at the end of 1892 the record for one hour on any sort of solid tyre cycle rested with E. B. Turner, who upon a tricycle covered 21 miles 226 yards in that time—a performance of marvellous merit, and an evidence of the capacity of the three wheeled cycle for pace.

In due course the rear driving safety was invented, and to Herbert Laurie belongs the credit of making the first safety hour's record, which was in front of the ordinary record for that time. The safety came rapidly to the front, and when air tyres were fitted its speed was vastly increased, and the attention of the public was forcibly drawn to a machine which enabled its user to cover 22, 23, nay! nearly 24 miles within the hour. The air tyred rear driver certainly did its share towards advertising and popularising the cycling sport. And then came the Geared Ordinary—upon which was accomplished the feat of riding nearly 414 miles in 24 hours. An extraordinary performance, and one thoroughly authenticated, not only by five experienced and accomplished time-keepers, but also by a system of public scoring. This record being absolutely the only one in which every lap was put up as accomplished under the eyes of hundreds of interesting spectators.

It would be easy to fill many pages with allusions to the feats performed, and the work done by riders upon road and path; but the information can be more easily and better conveyed by figures, with an occasional explanatory note, and in the following pages the various records, up to date of publication, will be found set forth at length.

100 MILES RECORD ON THE ROAD.

		Hours.	Minutes.	Seconds.
Ordinary Bicycle	J. F. Walsh	6	22	15
Safety Bicycle	T. A. Edge	5	27	38
Tricycle	M. A. Holbein	5	54	44
Tandem Tricycle	S. F. Edge J. E. L. Bates	5	30	31
Tandem Safety	F. Lowe J. M. James	5	53	7

12 HOURS RECORDS ON THE ROAD.

Ordinary Bicycle	J. F. Walsh	175½ miles.
Safety Bicycle	G. Smith	190½ ,,
Geared Ordinary	F. W. Shorland	194½ ,,
Tricycle	M. A. Holbein	183½ ,,
Tandem Tricycle	M. A. Holbein A. Brown	177½ ,,
Tandem Safety	J. P. K. Clarke H. Arnold	179 ,,

24 HOURS RECORDS ON THE ROAD.

Ordinary Bicycle	J. F. Walsh	312 ,,
Safety Bicycle	M. A. Holbein	359 ,,
Geared Ordinary	F. W. Shorland	366½ ,,
Tricycle	M. A. Holbein	337 ,,
Tandem Tricycle	G. P. Mills R. Tingey	298½ ,,

LAND'S END TO JOHN O'GROATS.

		Days.	Hours.	Minutes.
Ordinary Bicycle	G. P. Mills	6	1	45
Safety Bicycle	L. Fletcher	3	23	55
Tricycle	G. P. Mills	5	10	0

Distances varies according to the route followed, but is something over 800 miles.

THE COACH RECORD—*London to Brighton and Back.*

		Hours.	Minutes.	secands.
Ordinary Bicycle	R. C. Nesbit	7	42	50
Safety Bicycle	E. Dance	6	49	1
Tricycle	F. Lowe	7	56	38

James Selby drove the Brighton coach over this journey, about 108 miles, in 7 hours 50 minutes with 16 changes of horses. Cyclists going for it now start from Purley, ride to London—White Horse Cellars, Piccadilly—and back, through Purley to Brighton and back, finishing at Purley, a distinct advantage as compared with the task of the earlier riders.

London to Bath and Back.

		Hours.	Minutes.	Seconds.
Ordinary Bicycle	R. C. Nesbit	15	14	34
Safety Bicycle	J. W. Jarvis	15	16	42
Tricycle	C. A. Smith	16	13	11

Distance 212 miles, one of the earliest records attempted.

Wat Britten of the Clarence B.C. having covered the distance in 23 hours 54 minutes in September, 1878.

AMATEUR CHAMPIONSHIP promoted by the Amateur Athletic Club. Distance four miles. Carrying the title of Champion until 1878, when the Bicycle Union ran championships. This contest was abandoned finally after 1879.

1871	H. P. Whiting.	1876	The Hon. I. G. N. Keith Falconer.
1872	F. V. T. Honeywell.	1877	Wadham Wyndham.
1873	H. P. Whiting.	1878	R. R. Mackinnon.
1874	„ „	1879	Herbert L. Cortis.
1875	„ „		

The 2 MILES AMATEUR CHAMPIONSHIP run once only by the Bicycle Union, 1878.

1878 The . on. I. G. N. Keith Falconer.

THE AMATEUR CHAMPIONSHIP. Distance one mile. Run for annually under the auspices of the Bicycle Union, which subsequently became the National Cyclists Union.

1879	Herbert Liddell Cortis.	1886	Percy Furnivall.
1880	Charles Edgar Liles.	1887	William A. Illston.
1881	George Lacy Hillier.	1888	Herbert Synyer.
1882	Frank Moore	1889	August Lehr.
1883	Herbert W. Gaskell.	1890	Frederick J. Osmond.
1884	Herbert A. Speechley.	1891	Joseph Harris Adams
1885	Sanders Sellers.	1892	Joseph Harris Adams.

The 5 MILES BICYCLE CHAMPIONSHIP. Run under similar auspices.

1879	Herbert Liddell Cortis.	1886	Percy Furnival.
1880	„ „ „	1887	William A. Illston.
1881	George Lacy Hillier.	1888	Herbert Synyer.
1882	J. S. Whatton	1889	„ „
1883	F. Sutton.	1890	Frederick J. Osmond.
1884	Ruben Chambers.	1891	Ulic L. Lambley.
1885	M. F. V. J. A. Webber.	1892	Contest abandoned.

The 25 MILES BICYCLE CHAMPIONSHIP. Run under the same auspices. The oldest championship on the books.

1878	Archibald Alfred Eagles Weir.	1885	Robert H. English.
1879	Herbert Liddell Cortis.	1886	Joshua E. Fenlon.
1880	„ „ „	1887	William E. Illston.
1881	George Lacy Hillier.	1888	Joseph H. Adams.
1882	Frank Moore.	1889	Frederick J. Osmond.
1883	Charles E. Liles.	1890	„ „
1884	Robert H. English.	1891	Joseph H. Adams.
		1892	„

The 50 MILES BICYCLE CHAMPIONSHIP. Run under same auspices.

1879	Herbert Liddell Cortis.	1886	Joshua E. Fenlon.
1880	,, ,, ,,	1867	Joseph Harris Adams.
1881	George Lacy Hillier.	1888	Frank Peters Wood.
1882	The Hon. I. G. N. Keith Falconer.	1889	Joseph Harris Adams.
1883	H. F. Wilson.	1890	Frederick J. Osmond.
1884	F. R. Fry.	1891	Joseph Harris Adams.
1885	Robert H. English.	1892	,, ,, ,,

The 5 MILES TRICYCLE CHAMPIONSHIP. Run under same auspices.

1882	Charles Edgar Liles.	1888	Frederick J. Osmond.
1884	,, ,, ,,	1889	H. H. Sansom.
1885	Robert Cripps.	1890	,, ,,
1886	F. W. Allard.	1891	William G. H. Bramson.
1887	R. J. Mecredy.	1893	Contest withdrawn.

The 1 MILE TRICYCLE CHAMPIONSHIP. Run under same auspices.

1883	Charles Edgar Liles.	1889	H. H. Sansom.
1884	,, ,, ,,	1890	K. N. Stadnicki.
1885	Percy Furnivall.	1891	Peter William Scheltema-Beduin.
1886	,, ,,	1892	Willy Tischbein.
1887	E. Kiderlen.		
1888	Selwyn Francis Edge.		

The 10 MILES TRICYCLE CHAMPIONSHIP. Run under same auspices.

1883	Charles Edgar Liles.	1892	Fred. Bramson.

The 25 MILES TRICYCLE CHAMPIONSHIP.

1884	Charles Edgar Liles.	1888	Frank Peters Wood.
1885	George Gatehouse.	1889	William G. H. Bramson.
1886	R. J. Mecredy.	1890	Lewis Stroud.
1887	Frederick J. Osmond.	1891	,, ,,

The 1 MILE SAFETY BICYCLE CHAMPIONSHIP. Run under same auspices.

1889	F. T. Fletcher.	1891	Peter William Scheltema-Beduin.
1890	R. J. Mecredy.	1892	Arthur Augustus Zimmerman.

The 25 MILES SAFETY BICYCLE CHAMPIONSHIP. Run under same auspices.

1889	F. T. Fletcher.	1891	Frederick J. Osmond.
1890	R. J. Mecredy.	1892	Robert L. Ede.

The 50 MILES SAFETY BICYCLE CHAMPIONSHIP. Run under same auspices.

1889 Joseph Harris Adams.	1891 Frederick J. Osmond.
1890 R. J. Mecredy.	1892 A. A. Zimmerman.

The 5 MILES SAFETY BICYCLE CHAMPIONSHIP. Run under same auspices.

1890 R. J. Mecredy.	1891 A. W. Harris.
	1892 A. A. Zimmerman.

The above contests are the only recognized Championships, they have hitherto been open to all comers who could show satisfactory credentials as to their amateur status

The decadence of the Ordinary Bicycle has led the Union to discontinue the races for that class, and the one mile Safety Championship, which is practically open to all single track cycles, will now take the place of the one mile Bicycle Championship, as *the* Amateur Championship.

SAFETY RECORDS.

Names of Riders.	Date.	Distance. Miles.	Time.	Track.	Remarks.
	1892.				
A. W. Harris ...	Sept. 17	1	2.12 3/5	Herne Hill	Time Trial.
M. B. Fowler ...	Sept. 26	2	4.49 4/5	,,	,,
,, ...	,,	3	7.16 2/5	,,	,,
	1891.				
F. J. Osmond ...	July 15	4	9.47 1/5	,,	,,
	1892.				
M. B. Fowler ...	Sept. 26	5	12.16 1/5	,,	,,
	1891.				
F. J. Osmond ...	July 15	6	14.43 3/5	,,	,,
,, ...	,,	7	17.16 1/5	,,	,,
,, ...	,,	8	19.47 2/5	,,	,,
,, ...	,,	9	22.20 3/5	,,	,,
,, ...	,,	10	24.50 4/5	,,	,,
,, ...	,,	11	27.23	,,	,,
,, ...	,,	12	29.53 4/5	,,	,,
,, ...	,,	13	32.27 3/5	,,	,,
,, ...	,,	14	35.3	,,	,,
	1892.				
R. L. Ede ...	May 24	15	37.32 1/5	,,	,,
,, ...	,,	16	40.31 1/5	,,	,,
,, ..	,,	17	42.35 1/5	,,	,,
,, ...	,,	18	45.5 4/5	,,	,,
,, ...	,,	19	47.39 4/5	,,	,,
,, ...	,,	20	50.13 3/5	,,	,,
,, ...	,,	21	52.43 4/5	,,	,,
,, ...	,,	22	55.20 4/5	,,	,,
,, ...	,,	23	57.50 4/5	,,	,,
,, ...	May 24	24	60.21 1/5	,,	,,
	1891.				
,, ...	July 14	25	1.5.55 2/5	,,	,,
	1892.				
F. J. Osmond ...	Sept. 15	26	1.8.36 1/5	,,	,,
,, ...	,,	30	1.19.7 2/5	,,	,,
,, ...	,,	40	1.47.16 1/5	,,	,,
	1891.				
R. L. Ede ...	July 14	50	2.17.1 4/5	,,	,,
,, ...	,,	60	2.49.9 4/5	,,	,,
	1892.				Surrey B.C.,
J. H. Adams ..	Aug. 13	70	3.26.8 4/5	,,	100 miles.
,, ...	,,	80	3.59.26 3/5	,,	,,
,, ...	,,	90	4.33.25 2/5	,,	,,
,, ...	,,	100	5.4.18 3/5	,,	,,
	1892.				Cuca Cocoa
J. M. James ...	July 22-3	150	8.14.22 4/5	,,	Cup Race.
,, ...	,,	200	11.5.26 1/5	,,	,,
,, ...	,,	300	17.29.1 2/5	,,	,,
,, ...	,,	400	23.33.25 4/5	,,	,,
,, ...	,,	407 and 285 yds.	24	,,	,,

TRICYCLE RECORDS.

Names of Riders.	Date	Distance. Miles.	Time.	Track.	Remarks.
	1891.				
W. G. H. Bramson	June 25	1	2.31$\frac{3}{5}$	Herne Hill	Time Trial.
	1890.				
E. B. Turner ...	July 2	2	5.24$\frac{2}{5}$	Paddington	,,
,, ...	,,	3	8.6$\frac{2}{5}$	,,	,,
,, ...	Aug. 23	4	11.6$\frac{1}{5}$	Bristol	,,
,, ...	,,	5	13.50$\frac{3}{5}$	,,	,,
,, ...	July 28	6	16.48$\frac{4}{5}$	Paddington	,,
,, ...	,,	7	19.38$\frac{2}{5}$	,,	,,
,, ...	,,	8	22.31	,,	,,
,, ...	,,	9	25.22$\frac{2}{5}$	,,	,,
,, ...	,,	10	28.13$\frac{1}{5}$	,,	,,
,, ...	,,	11	31.4$\frac{3}{5}$	,,	,,
,, ...	,,	12	33.54$\frac{2}{5}$	,,	,,
,, ...	,,	13	36.46	,,	,,
,, ...	,,	14	39.37	,,	,,
,, ...	,,	15	42.27$\frac{1}{5}$	,,	,,
,, ...	,,	16	45.19$\frac{3}{5}$	,,	,,
,, ...	,,	17	48.13$\frac{4}{5}$	,,	,,
,, ...	,,	18	51.4$\frac{1}{5}$	,,	,,
,, ...	,,	19	53.58$\frac{1}{5}$	,,	,,
,, ...	,,	20	56.49$\frac{3}{5}$	,,	,,
,, ...	,,	21	59.39$\frac{1}{5}$	,,	,,
,, ...	,,	22	1.2.33	,,	,,
,, ...	,,	23	1.5.30$\frac{4}{5}$	,,	,,
,, ...	,,	24	1.8.27$\frac{3}{5}$	,,	,,
,, ...	,,	25	1.11.15$\frac{4}{5}$	,,	,,
	1892.				Cuca Cocoa
F. T. Bidlake ...	July 22	26	1.17.4$\frac{2}{5}$	Herne Hill	Cup Race.
,, ...	,,	30	1.29.7$\frac{1}{5}$	,,	,,
E. P. Moorhouse ...	,,	40	1.59.32	,,	,,
F. T. Bidlake ...	,,	50	2.32.22	,,	,,
,, ...	,,	60	3.15.22$\frac{1}{5}$	,,	,,
,, ...	,,	70	4.3.23$\frac{4}{5}$	,,	,,
,, ...	,,	80	4.40.19$\frac{2}{5}$	,,	,,
,, ...	,,	90	5.22.54$\frac{1}{5}$	,,	,,
,, ...	,,	100	5.59.50	,,	,,
,, ...	,,	150	9.50.28$\frac{3}{5}$	,,	,,
,, ...	,,	200	14.10.14$\frac{2}{5}$	,,	,,

BICYCLE RECORDS.

Names of Riders.	Date.	Distance. Miles.	Time.	Track.	Remarks.
	1890.				
F. J. Osmond ...	July 15	1	2.28$\frac{4}{5}$	Paddington	Race.
	1889.				
W. A. Illston ...	May 21	2	5.12$\frac{1}{5}$	Coventry	Time Trial
	1891.				
V. L. Lambley ...	Sept. 10	3	8.3$\frac{2}{5}$	Herne Hill	,,
,, ...	,,	4	10.51$\frac{1}{5}$	,,	,,
,, ...	,,	5	13.44$\frac{1}{5}$	,,	,,
B. W. Attlee ...	Sept. 2	6	16.36	,,	,,
,, ...	,,	7	19.26$\frac{4}{5}$	,,	,,
,, ...	,,	8	22.14$\frac{1}{5}$	,,	,,
,, ...	,,	9	25.1$\frac{4}{5}$	,,	,,
,, ...	,,	10	27.55$\frac{1}{5}$	,,	,,
,, ...	,,	11	30.46$\frac{2}{5}$	,,	,,
,, ...	,,	12	33.36$\frac{3}{5}$	,,	,,
,, ...	,,	13	36.28$\frac{2}{5}$	,,	,,
,, ...	,,	14	39.20$\frac{1}{5}$	,,	,,
,, ...	,,	15	42.13$\frac{2}{5}$	,,	,,
,, ...	,,	16	45.5$\frac{3}{5}$	,,	,,
,, ...	,,	17	48.1$\frac{2}{5}$	,,	,,
,, ...	,,	18	50.58$\frac{3}{5}$	,,	,,
,, ...	,,	19	53.53	,,	,,
,, ...	,,	20	56.51	,,	,,
,, ...	,,	21	59.43$\frac{4}{5}$	,,	,,
,, ...	,,	22	1.2.52	,,	,,
,, ...	,,	23	1.6.5$\frac{1}{5}$	,,	,,
,, ...	,,	24	1.9.23$\frac{3}{5}$	,,	,,
,, ...	,,	25	1.12.48$\frac{4}{5}$	,,	,,
F. J. B. Archer ...	Sept. 9	26	1.16.26$\frac{2}{5}$	,,	,,
,, ...	,,	30	1.30.2$\frac{1}{5}$	,,	,,
	1889.				
J. H. Adams ...	July 25	40	2.3.21$\frac{1}{5}$	Coventry	,,
,, ...	,,	50	2.33.37$\frac{2}{5}$	,,	,,
	1883.				
F. R. Fry ...	July 27	60	3.28.30	Crystal Pal.	,,
,, ...	,,	70	4.3.17	,,	,,
,, ...	,,	80	4.38.32	,,	,,
,, ...	,,	90	5.15.2	,,	,,
,, ...	,,	100	5.50.5$\frac{2}{5}$	,,	,,
G. Lacy Hillier ...	,,	146	10.0.0	,,	Match.

FOUNDED, 1878.

Chief Offices:
139 & 140, FLEET STREET,
LONDON, E.C.

INCORPORATED, 1887.

E. R. SHIPTON,
Secretary and Editor of the
MONTHLY GAZETTE.

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7.—He is supplied *gratis* month by month with a copy of the Club *Gazette*, a magazine of from twenty to forty pages, containing full details of the Club's progress, reports of the meetings of the Council and the membership, narratives of tours planned and undertaken, critical articles on the construction, and the reviews of machines, together with much other matter of interest.

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* On and from the 1st of January, 1894, the Subscription will be Three Shillings-and-Sixpence (Entrance Fee remaining the same).

TANDEM TRICYCLE RECORDS.

Names of Riders.	Date.	Distance. Miles.	Time.	Track.	Remarks.
P. W. Scheltema-Beduin and B. W. Crump	1891. July 25	1	2.31$\frac{2}{5}$	Herne Hill	Time Trial.
P. C. Wilson and E. Dangerfield	1890. July 15	2	5.33$\frac{2}{5}$	Paddington	,,
,, ,, ...	,,	3	8.23	,,	,,
,, ,, ...	,,	4	11.11$\frac{1}{5}$	,,	,,
,, ,, ...	,,	5	13.54$\frac{1}{5}$	,,	,,
P. W. Scheltema-Beduin and B. W. Crump	1891. July 30	6	17.5	Herne Hill	,,
,, ,, ...	,,	7	19.59$\frac{3}{5}$	,,	,,
,, ,, ...	,,	8	22.51$\frac{1}{5}$	,,	,,
,, ,, ...	,,	9	25.49$\frac{4}{5}$	,,	,,
,, ,, ...	,,	10	28.35$\frac{1}{5}$	,,	,,
,, ,, ...	1890. Sept. 20	11	32.33$\frac{2}{5}$	Paddington	,,
,, ,, ...	,,	12	35.35$\frac{4}{5}$	,,	,,
,, ,, ...	Sept. 25	13	39.6$\frac{3}{5}$	,,	,,
,, ,, ...	,,	14	42.4$\frac{3}{5}$	,,	,,
,, ,, ...	,,	15	45.18$\frac{2}{5}$	,,	,,
,, ,, ...	,,	16	48.10$\frac{2}{5}$	,,	,,
,, ,, ...	,,	17	51.6	,,	,,
,, ,, ...	,,	18	54.5$\frac{2}{5}$	,,	,,
,, ,, ...	,,	19	57.3$\frac{2}{5}$	,,	,,
,, ,, ...	,,	20	59.51$\frac{2}{5}$	,,	,,
F. T. Bidlake and W. C. Goulding	1891. July 16	21	1.4.6$\frac{2}{5}$	,,	,,
,, ,, ...	,,	22	1.7.14$\frac{2}{5}$	,,	,,
,, ,, ...	,,	23	1.10.26$\frac{4}{5}$	,,	,,
,, ,, ...	,,	24	1.13.41$\frac{1}{5}$	,,	,,
,, ,, ...	,,	25	1.16.56$\frac{4}{5}$	,,	,,
,, ,, ...	,,	26	1.20.15$\frac{4}{5}$	,,	,,
,, ,, ...	,,	30	1.33.21$\frac{3}{5}$	,,	,,

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Agents for Birmingham: Thos. Smith & Sons of Saltley, Ltd.

TANDEM SAFETY RECORDS.

Names of Riders.	Date.	Distance. Miles.	Time.	Track.	Remarks.
A. A. Zimmerman and F. G. Bradbury	1891. July 19	1	2.17$\frac{2}{5}$	Herne Hill	Time Trial.
C. L. Newland and J. Wass	Sept. 17	2	5.3$\frac{2}{5}$	,,	,,
,, ,, ...	,,	3	7.31$\frac{4}{5}$	,,	,,
,, ,, ...	,,	4	10.0$\frac{3}{5}$	,,	,,
,, ,, ...	,,	5	12.28$\frac{2}{5}$	,,	,,
,, ,, ...	,,	6	14.58$\frac{1}{5}$	,,	,,
,, ,, ...	,,	7	17.30$\frac{2}{5}$	,,	,,
,, ,, ...	,,	8	19.58$\frac{3}{5}$	,,	,,
,, ,, ...	,,	9	22.29$\frac{0}{5}$	,,	,,
,, ,, ...	,,	10	25.1$\frac{1}{5}$	,,	,,
,, ,, ...	,,	11	27.34$\frac{3}{5}$	,,	,,
,, ,, ...	,,	12	30.4$\frac{2}{5}$	,,	,,
,, ,, ...	,,	13	32.38$\frac{1}{5}$	,,	,,
,, ,, ...	,,	14	35.10$\frac{1}{5}$	,,	,,
,, ,, ...	,,	15	37.43$\frac{3}{5}$	,,	,,
,, ,, ...	,,	16	40.14$\frac{4}{5}$	,,	,,
,, ,, ...	,,	17	42.47$\frac{1}{5}$	,,	,,
,, ,, ...	,,	18	45.17$\frac{4}{5}$	,,	,,
,, ,, ...	,,	19	47.44$\frac{4}{5}$	,,	,,
,, ,, ...	,,	20	50.16	,,	,,
,, ,, ...	,,	21	52.44$\frac{4}{5}$	,,	,,
,, ,, ...	,,	22	55.10$\frac{4}{5}$	,,	,,
,, ,, ...	,,	23	57.36$\frac{2}{5}$	,,	,,
,, ,, ...	,,	24	1.0.3$\frac{1}{5}$	,,	,,
,, ,, ...	,,	25	1.2.29$\frac{1}{5}$	,,	,,
C. L. Newland and J. Wass	Sept. 26	26	1.7.33$\frac{1}{5}$	Putney	Time Trial.
,, ,, ...	,,	30	1.18.33$\frac{1}{5}$	,,	,,
,, ,, ...	,,	40	1.46.29$\frac{3}{5}$	,,	,,
,, ,, ...	,,	50	2.15.47$\frac{1}{5}$	,,	

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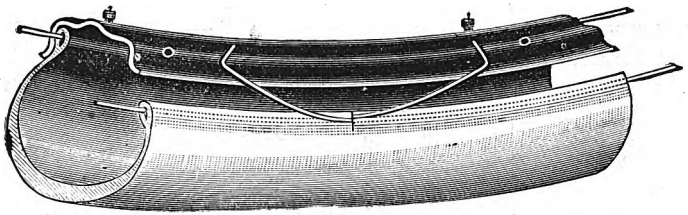
"DETACHABLE" TYRE.



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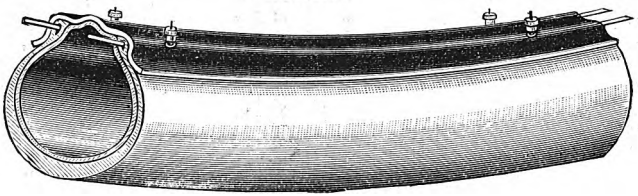

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ILLUSTRATED LIST ON APPLICATION TO

COOKE'S DETACHABLE TYRE Co., Limited,
88, Gray's Inn Road, W.C.

GEARED ORDINARY RECORDS.

Names of Riders.	Date.	Distance. Miles.	Time.	Track.	Remarks.
	1892.				
Selwyn F. Edge ...	July 11	1	2.41 3/5	Herne Hill	Against Time.
,, ...	,,	2	5.31 3/5	,,	,,
,, ...	,,	3	8.25 2/5	,,	,,
,, ...	,,	4	11.11 3/5	,,	,,
,, ...	,,	5	13.59 4/5	,,	,,
,, ...	,,	6	16.46 4/5	,,	,,
,, ...	,,	7	19.42 1/5	,,	,,
,, ...	,,	8	22.37 3/5	,,	,,
,, ...	,,	9	25.32 4/5	,,	,,
,, ...	,,	10	28.28 4/5	,,	,,
,, ..	,,	11	31.22 1/5	,,	,,
, ...	,,	12	34.7	,,	,,
,, ...	,,	13	37.0 4/5	,,	,,
,, ..	,,	14	39.53 1/5	,,	,,
,, ...	,,	15	42.48 1/5	,,	,,
,, ...	,,	16	45.38 2/5	,,	,,
,, ...	,,	17	48.24 1/5	,,	,,
,, ...	,,	18	51.9 3/5	,,	,,
,, ...	,,	19	53.58 1/5	,,	,,
,, ...	,,	20	56.48 1/5	,,	,,
,, ...	,,	21	59.45 1/5	,,	,,
,, ...	,,	22	1.2.39 1/5	,,	,,
,, ...	,,	23	1.5.26 1/5	,,	,,
,, ...	,,	24	1.8.14 2/5	,,	,,
,, ...	,,	25	1.11.2 2/5	,,	,,
,, ...	,,	26	1.13.52 1/5	,,	,,
,, ...	,,	30	1.25.25 2/5	,,	,,
,, ...	,,	40	1.54.25 2/5	,,	,,
,, ...	,,	50	2.23.57 3/5	,,	,,
,, ...	,,	60	2.55.38 4/5	,,	,,
,, ...	,,	70	3.27.4 1/5	,,	,,
,, ...	,,	80	4.8.43 2/5	,,	,,
Frank Shorland ...	July 22-3	90	4.34.20 2/5	,,	Cuca Cocoa Cup Race.
,, ...	,,	100	5.5.3 2/5	,,	,,
,, ...	,,	150	8.3.8 4/5	,,	,,
,, ...	,,	200	10.49.32 2/5	,,	,,
,, ...	,,	300	17.10.18	,,	,,
,, ...	,,	400	23.14.7 1/5	,,	,,
, ...	,,	413 and 1615 yds.	24	,,	,,

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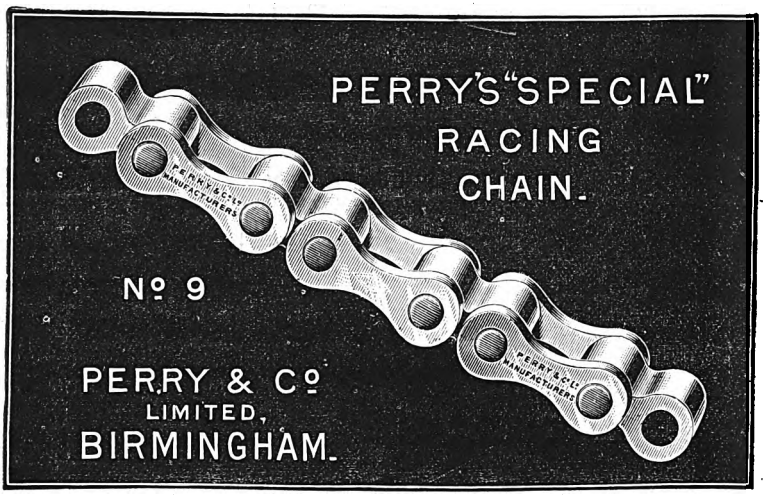

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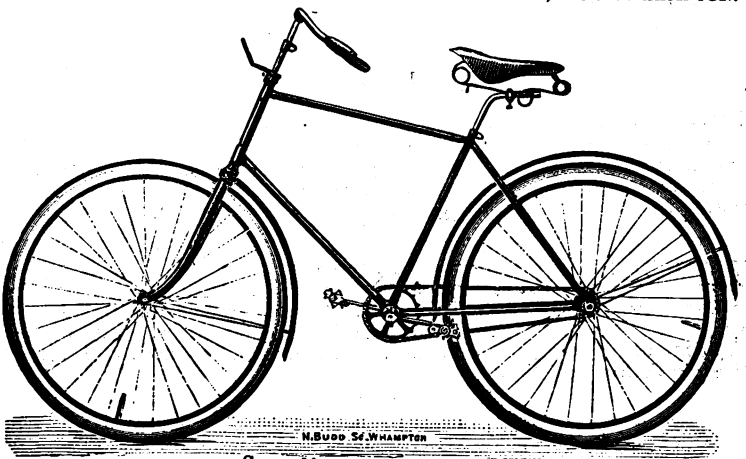

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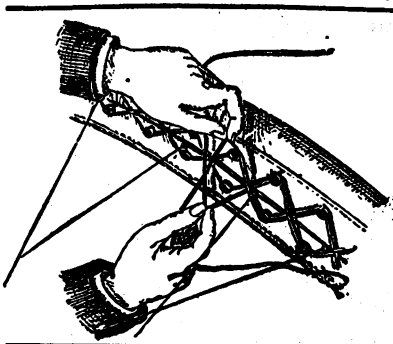

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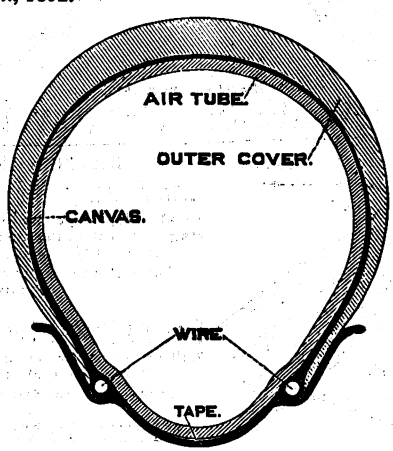
"According to the table of current road records recognised by the R.R.A., out of thirty-four different classes exactly half are held by riders of Dunlop Tyres, the remainining seventeen being divided between seven of the other kinds of tyres."—*Irish Cyclist, October* 26, 1892.

THE DUNLOP DETACHABLE TYRE for 1893.

"THE NEW DUNLOP TYRE. It is a daisy! At one bound the Dunlops jump from being the most complicated tyres in the market to the simplest; indeed so simple are they that any fool could mend a puncture in less than five minutes."—*American Cyclist, Oct.*, 1892.



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MEN MUST WEAR **BRACES** WHY NOT WEAR **THE BEST.**

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IMPORTANT.—The side bands are now self-adjusting, and the solid brass fittings cannot rust.

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It supports the back, and holds the body together like a corset. It prevents round shoulders. cures stooping, and gives its wearer a military carriage.

Being automatic, it not only perfectly suspends, but whatever position the body may assume *gives each muscle its fair share of work.*

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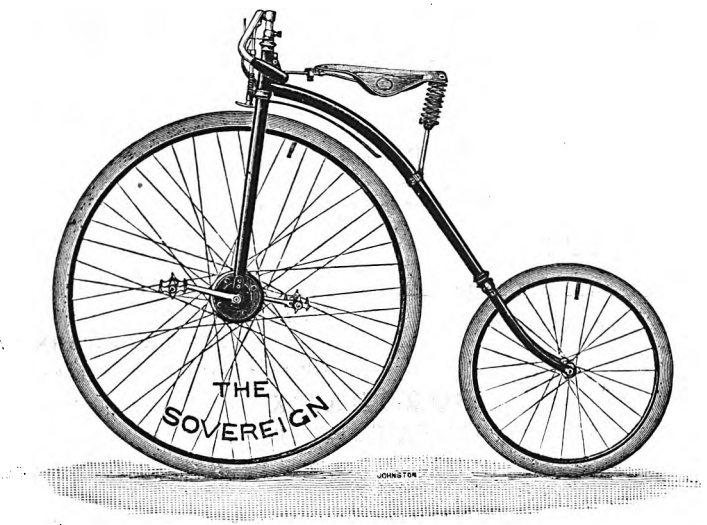

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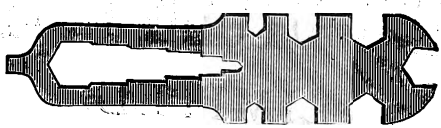

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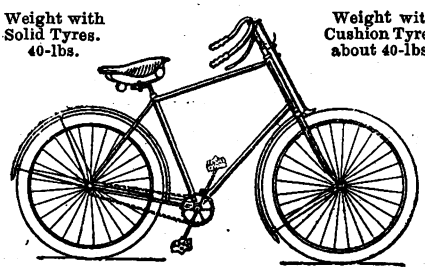

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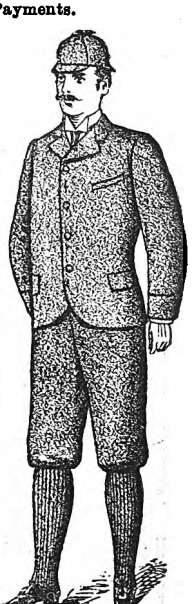

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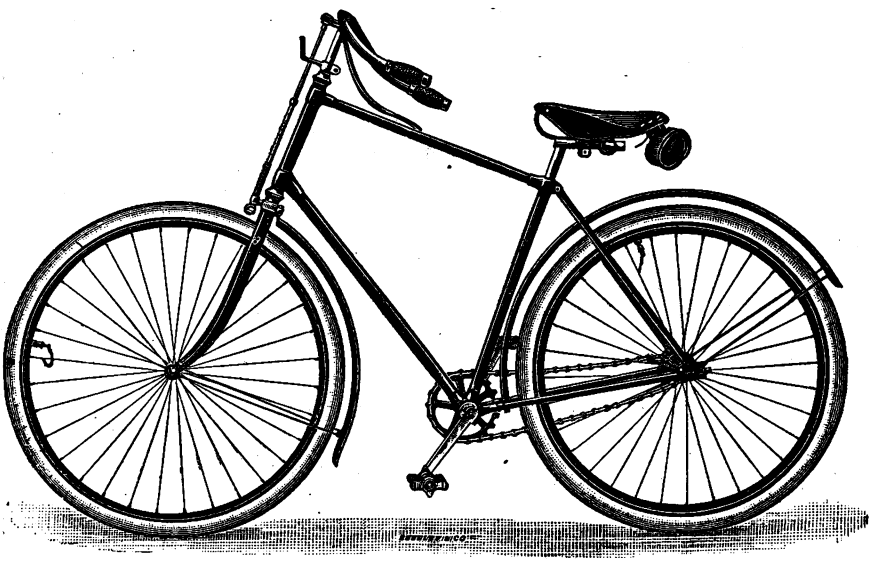

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