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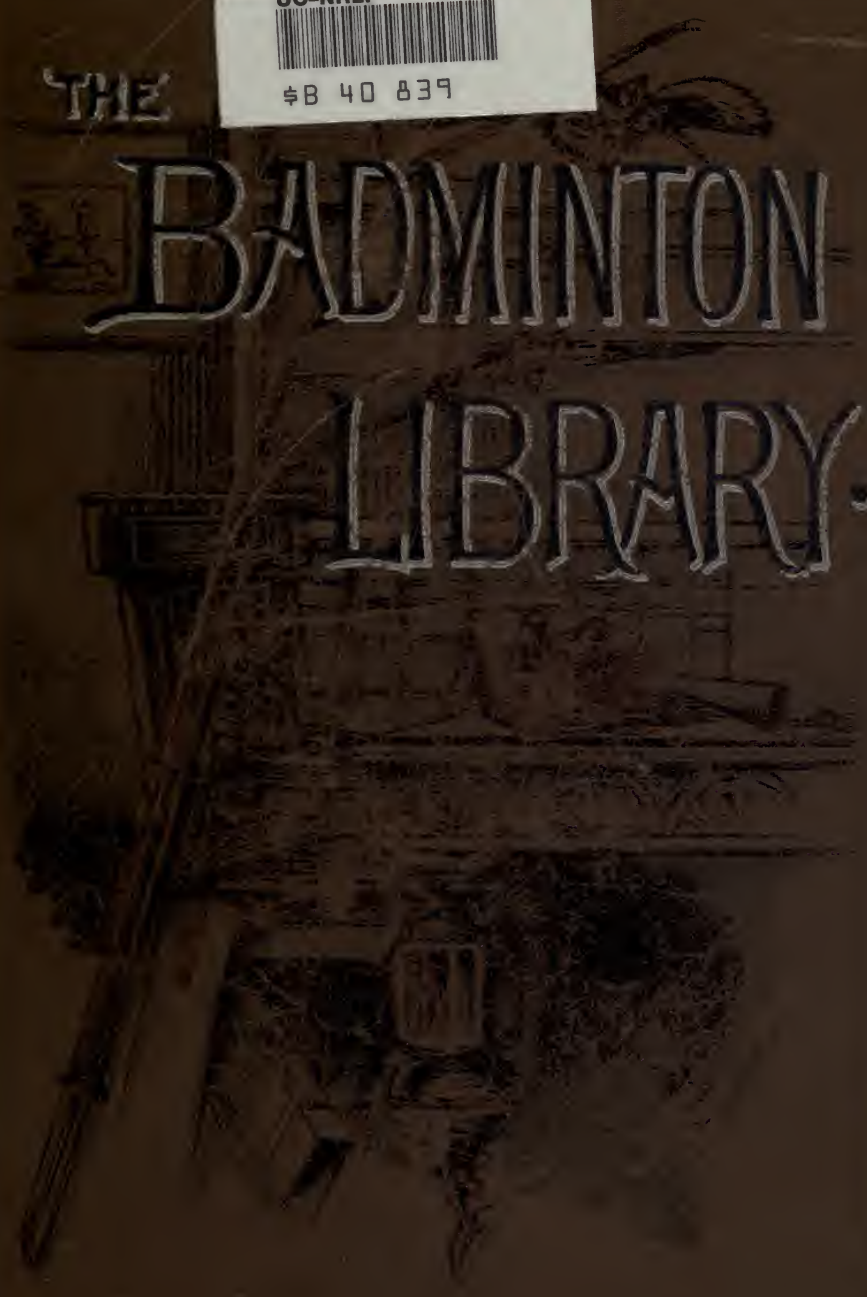


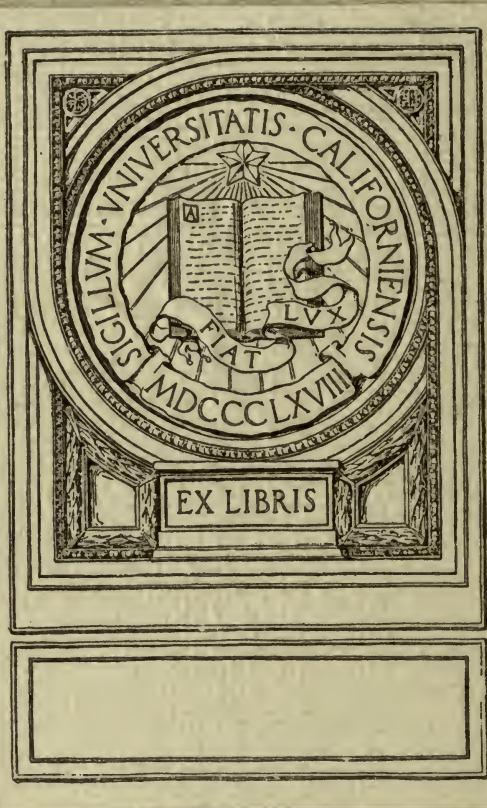
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CYCLING

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THE LATEST STYLE

CYCLING

BY THE
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AND
G. LACY HILLIER



AN EMBRYO CHAMPION

*WITH NUMEROUS ILLUSTRATIONS BY THE
EARL OF ALBEMARLE, JOSEPH PENNELL, S. T. DADD
AND GEORGE MOORE*

New Edition
THOROUGHLY REVISED (1893)

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DEDICATION

TO

H.R.H. THE PRINCE OF WALES.

BADMINTON : *March*, 1887.

HAVING received permission to dedicate these volumes, the BADMINTON LIBRARY of SPORTS and PASTIMES, to HIS ROYAL HIGHNESS THE PRINCE OF WALES, I do so feeling that I am dedicating them to one of the best and keenest sportsmen of our time. I can say, from personal observation, that there is no man who can extricate himself from a bustling and pushing crowd of horsemen, when a fox breaks covert, more dexterously and quickly than His Royal Highness; and that when hounds run hard over a big country, no man can take a line of his own and live with them better. Also, when the wind has been blowing hard, often have I seen His Royal Highness knocking over driven grouse and partridges and high-rocketing pheasants in first-rate

workmanlike style. He is held to be a good yachtsman, and as Commodore of the Royal Yacht Squadron is looked up to by those who love that pleasant and exhilarating pastime. His encouragement of racing is well known, and his attendance at the University, Public School, and other important Matches testifies to his being, like most English gentlemen, fond of all manly sports. I consider it a great privilege to be allowed to dedicate these volumes to so eminent a sportsman as His Royal Highness the Prince of Wales, and I do so with sincere feelings of respect and esteem and loyal devotion.

BEAUFORT.



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P R E F A C E.



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scious. Experts often differ. But this we may say, that those who are seeking for knowledge on any of the subjects dealt with will find the results of many years' experience written by men who are in every case adepts at the Sport or Pastime of which they write. It is to point the way to success to those who are ignorant of the sciences they aspire to master, and who have no friend to help or coach them, that these volumes are written.

To those who have worked hard to place simply and clearly before the reader that which he will find within, the best thanks of the Editor are due. That it has been no slight labour to supervise all that has been written he must acknowledge; but it has been a labour of love, and very much lightened by the courtesy of the Publisher, by the unflinching, indefatigable assistance of the Sub-Editor, and by the intelligent and able arrangement of each subject by the various writers, who are so thoroughly masters of the subjects of which they treat. The reward we all hope to reap is that our work may prove useful to this and future generations.

THE EDITOR.

PREFACE
TO
THE FIFTH EDITION.



THE Cycling Volume of the Badminton Library, first issued in March 1887, has now reached its fifth edition, and has undergone a thorough revision : no effort has been spared to keep it abreast of the times.

The Introductory Chapter remains unaltered, but the Historical Chapter has been carefully corrected and condensed, as it is obvious that the sport is growing with such rapidity and spreading so widely that anything like the close and detailed record which was possible in the earlier days is now impossible. The General must take the place of the Particular.

In 1887 that form of cycle known as the Ordinary Bicycle was most common ; the Dwarf or Safety Bicycle was only just beginning to make its way into popular favour ; and it naturally followed that throughout the

volume as then published the Ordinary Bicycle was dealt with, and the references to the Safety were relatively few and brief.

In 1895 all this is changed ; the Ordinary Bicycle has practically disappeared, and the Safety Bicycle reigns in its stead, and throughout the fifth edition has been put in the place previously occupied by the original type. The chapters on Mechanism and Construction deal with the Safety ; and such is the amount of detail and minute improvements introduced, and so many are the varieties of fitting, that, even though considerable space is occupied, nothing more than an effort to convey a general idea has been attempted.

One of the most important factors in the advance of the Safety Bicycle in public favour was the pneumatic or air-inflated tire, and its construction and uses are fully considered.

Throughout the volume the new conditions have been carefully considered, and their effect upon the sport noted and explained.

The growing popularity of Cycling amongst all classes has once again brought the discussion of its merits and demerits from a medical standpoint prominently to the front, and the present volume is enriched by a chapter dealing especially with the hygiene and

medical aspects of Cycling from the pen of Mr. E. B. Turner, an experienced athlete, who has distinguished himself on the running path, the football field, and the cycling track, and who, bringing his practical and professional knowledge to bear upon the question, has contributed a chapter which, condensing as it does the results of long-sustained and trained medical observation into a few pages, constitutes a very notable and valuable contribution to the literature of the sport.

The perfecting of the Safety Bicycle, and the advent of the air tire, have made Cycling a sport depending more largely upon skill and less upon mere physical strength, and as a natural consequence a very large number of ladies now ride. Chapter VIII. has been contributed by Miss L. C. Davidson, who, unlike many lady writers on the sport, is a practical and enthusiastic wheelwoman, and the chapter referred to should be found of special value to those numerous recruits from amongst the fair sex who have of late joined the ranks of the cyclists.

In the Appendix will be found much useful and interesting matter, especially as regards the records of amateur racing, and of the best performances accomplished. It is scarcely necessary to point out that alterations and improvements are constantly being made, but the continuity of the information will be kept up.

Since this volume last underwent revision, the world at large, and Cycling in particular, has unhappily become the poorer by the death of the Earl of Albemarle, who, as Viscount Bury, was one of the original authors, and who up to the last retained his interest therein. It is difficult to estimate the service which the co-operation of the late Earl, and his enthusiasm for the exercise, did for the sport ; he was ever ready to lend the weight of his influence in its interests. As the President of the National Cyclists' Union he was untiring in his efforts to secure its success, and the very name under which it is now known was adopted at his suggestion.

No history of Cycling in the future will be complete which does not do full justice to the efforts of the late Earl of Albemarle to further the interests and the well-being of the sport.

G. LACY HILLIER.

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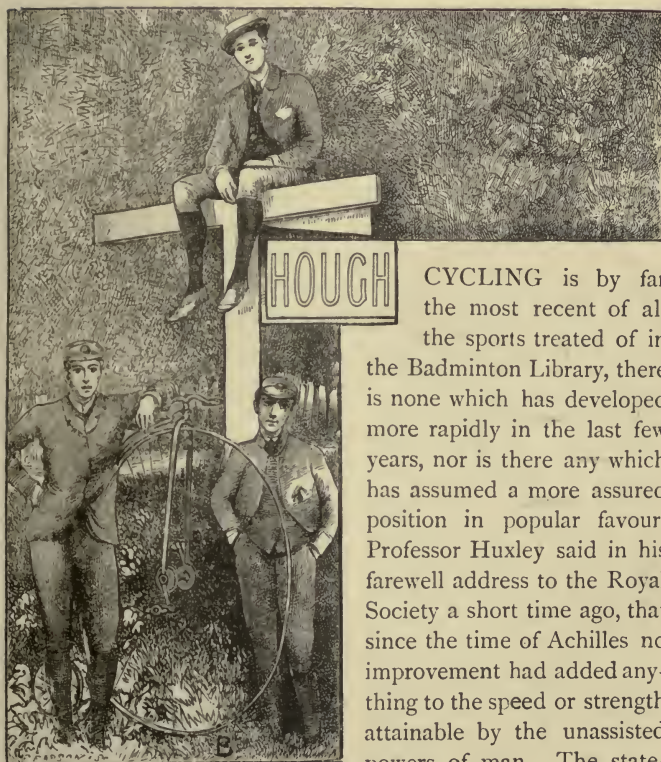
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CYCLING.

CHAPTER I.

INTRODUCTORY.



CYCLING is by far the most recent of all the sports treated of in the Badminton Library, there is none which has developed more rapidly in the last few years, nor is there any which has assumed a more assured position in popular favour. Professor Huxley said in his farewell address to the Royal Society a short time ago, that since the time of Achilles no improvement had added anything to the speed or strength attainable by the unassisted powers of man. The state-

ment is true in the sense which the Professor no doubt attached to his words, that neither the stature nor the speed of man had improved since Homer's day ;¹ but it is no less true that a man by his unassisted powers can propel one of the machines with which we are now familiar at a pace which would have put Achilles to shame, and over distances which would have utterly amazed the heroes of the Homeric world. The circumstances attending this revolution—for such indeed it is—cannot be considered unworthy of record, and the following pages are an attempt to perform the task.

England may be looked upon as the home of cycling ; the national habit of organisation which our countrymen possess in an eminent degree, and the national love for every form of strong personal exertion, combine to make it a pursuit in every way adapted to the taste of our people. The shady lanes of the south country, and the hilly roads of the north, appear to offer equal attraction ; and now, though scarcely ten years have elapsed since the first bicycle made its appearance, there are few districts in which some form of cycle is not a familiar object

In the streets of our great cities and in highways and byways throughout the land, carriages, swift and serviceable, propelled by the power of human muscles alone, have become common. The sight of a traveller of either sex, seated on a light machine, and proceeding with considerable rapidity and apparently but little exertion, is so usual that the wayfarer hardly turns his head to look at the accustomed sight. Yet it is but a very short time ago that the passage of a cyclist was wont to produce an exhibition of considerable excitement, and sometimes even demonstrations of hostility.

It is however not only as a means of locomotion that the cycle has produced a change in this and many foreign countries. The manufacture of these carriages has caused a considerable trade to come into existence, and a new and very exciting

¹ In recent times, however, the records have improved year by year both in walking and running. —ED.

mode of racing has been added to the sports of the world. The historian of cycling has therefore something to say of it as a trade, as a sport, and as a pastime : beyond this, again, there is something to be said as to the social organisation to which it has given rise, and the not inconsiderable industry to which the requirements of the cycling public give employment outside the limits of the cycle-builder's factory. It is difficult to say, with any approach to accuracy, what number of persons come within the designation of cyclists. In the year 1885 I set on foot some inquiries which led to the conclusion that they then numbered not far from 400,000. The estimate is a rough one, but it must still not be considered quite in the light of a random guess ; for it is founded on the reports of an organisation of which the reader who will accompany me through the following pages will hear a good deal—viz. the Cyclists' Touring Club, a body which has chief officers in every large town, and minor officials in every considerable village in England, and is therefore quite able to make an approximate estimate sufficiently accurate for our purpose.

The volume now in the reader's hand is designed not only to interest the general reader, but to form a useful handbook for all who are interested in any of the various ramifications of cycling. The intending purchaser may consult it as to the points about which he should satisfy himself before concluding his bargain. The racing man will find his prowess recorded, and be able to fight his battles over again ; the tourist will discover all that can help him to prepare for his intended outing, the advice given being founded on the accumulated experience of many predecessors. The young amateur who possesses a turn of speed, and proposes to become a candidate for the honours of the 'cinder-path,' will find minute directions as to his training and general preparations. The mechanic, and the rider who is interested in the details of the construction of his machine, will read descriptions of all the processes by which iron, steel and silver are made to assume the shape of the graceful piece of mechanism which

adds so largely to the power of locomotion possessed by unaided muscles.

Though there are many fancy varieties which do not come under either category, cycles fall generally into two divisions, those with three wheels and those with two. Riders also arrange themselves into two sharply defined classes: the speedy bicycle rider and the more staid possessor of the tricycle. The racing man comes in as a connecting link between the two; for almost as many races are ridden on one class of machine as on the other. The enormous improvements introduced within the last year or two in the tricycle have made the tricycle as available, if not quite so speedy, as the bicycle for racing purposes. As regards speed, there is a considerable, though not an overwhelming, difference between the two. A really first-class bicycle rider—anyone, that is, who is sufficiently prominent in the pursuit to hold his own in a long-distance championship race—can travel, when at his best, considerably over twenty miles within the hour; only one tricycle rider has yet accomplished twenty miles in the hour. But it has been done several times by tandems. It is evident that machines which can maintain such a rate of progression must be sufficiently fast to make a race between well-matched competitors amusing: and those who have been fortunate enough to witness a well-contested race will be the first to testify that it lacks none of the elements of excitement and of sport.

One of the questions most frequently asked by those who intend to purchase a machine is, What pace can a reasonable person expect to get out of it? and what distance can conveniently be covered in a day? The answer naturally varies very much according to the strength and skill of the person interrogated; but it is a fair question and deserves a candid answer. The Records Committee of the National Cyclists' Union can show duly authenticated performances which the average rider can only look at with respectful astonishment; 300 miles have been ridden on an ordinary high road by a wonderful young athlete on a bicycle, within twenty-four con-

secutive hours, and 264 miles have been covered on a tricycle within the same time. A hundred miles have been travelled by a bicyclist on a cinder racing path in 5 hrs. 50 mins. $5\frac{2}{3}$ secs. Fifty miles were ridden by Messrs. A. J. Wilson and G. P. Mills, on a tandem, in 2 hrs. 46 mins. 3 secs., along the Great North Road. The 'best on record' for a single mile at the moment these lines are penned is, for a bicycle 2 mins. $31\frac{4}{5}$ secs., and for a tricycle 2 mins. $41\frac{2}{3}$ secs. Before this book is in the hands of the reader these times will very likely have been surpassed ; for every day sees new and important, though minute, improvements in the construction of machines, and though riders may not be better than their predecessors, they are good enough to take advantage of all improvements that are offered to them. But the foregoing of course are extraordinary performances. The question is what an ordinary mortal can do.

One of the writers jointly responsible for the present work — need it be concealed that it was the author of this introductory chapter?—lately asked his colleague, in a careless manner, the following question : 'How far ought an ordinary man, in fair condition, to be able to ride easily in a day?' And the other made answer and said, with the air of a man who was absolutely giving himself away : 'If he intends to keep it up, say, for a week, he ought only to do a moderate day's work on the first day—say a hundred, or a hundred and twenty miles ; of course, you know, he can increase his distance as he gets into condition.' The present writer agreed with the speaker. 'Yes,' he said, 'a man ought to restrain his ardour at first ; he ought not to attempt to do more than a hundred and twenty miles on the first day.' He refrained from confessing, though perhaps it was disingenuous to do so,—that he himself looked back with some exultation to his own 'best on record,' which amounts to thirty-six miles in one day, and he takes this opportunity of copying from his private journal a few lines which have unconsciously assumed the form of an affidavit or vow. They run as follows :

And the said deponent further maketh oath and saith, that if he, the said deponent, *suadente diabolo*, shall at any time hereafter attempt to cut, break, surpass, or otherwise defeat, the said record of thirty-six miles in one solar day, he hereby giveth to any witness of such attempt, be the said witness credible or otherwise, free leave to mention the fact. And the said deponent doth further declare, that he is credibly informed, and doth sincerely believe, that many persons who make a great fuss about cycling have never done so much.

But this is a digression : there is no use in saying that sort of thing to a man who has ridden a hundred and forty-six miles in ten hours, and who holds half a dozen championships besides. A moderate rider, not being an athlete or a flier on the one hand, nor exceptionally weak on the other, can, when he is in practice, get over in an hour seven or eight miles of ground on a tricycle and from nine to ten on a bicycle without much exertion, and can keep it up about as long as he could comfortably walk with the same amount of exertion, say four or five hours. But there are many who cannot do so much as that, and who still manage to get a good deal of amusement out of their pursuit. Persevering riders cover enormous distances in the course of a year; and as most of them keep some sort of riding journal, we hear from time to time what their performances have been. A letter now before us from Mr. Whatton, a well-known member of the Cambridge University Club, contains the following paragraph :

The year has been memorable to me as an individual in one or two respects. The early part of it saw the completion of twenty thousand miles of cycling, the work of eight years' pleasure—pleasures such as no other bodily exercise, unless it be racquets, can, in my opinion, approach ; and, of course, that lacks the great glory of cycling, the multitudinous opportunities it adds for an intellectual and may one add—a spiritual appreciation of life.

This is the proper spirit in which to look at the pastime of cycling as it may be followed by ordinary individuals, though it is not everyone who can ride twenty thousand miles. It is, however, not only for amusement that cycling is avail-

able ; both in the pursuit of health and of business it is of great value. In many parts of the country labourers are able to live at a considerable distance from their work, and mechanics are to be seen in considerable numbers with their tool-bags slung at their backs riding home at the end of their day's labour. Not only does this imply a saving of rent—for it is cheaper to live in the country than in the crowded town—but it is a distinct gain both in health and, in many instances, in sobriety as well. The wife and children of a mechanic are sure to be more healthy if they live in the pure air of the country than in the crowded streets of a town. Rates and taxes are less ; and, as regards sobriety, a man who has to make his way home over ten or a dozen miles of road will be pretty sure not to handicap his chance of a safe arrival by lingering too long at the public-house. In Coventry, which may be looked upon as the peculiar home of cycling, it is fast becoming the custom for workmen to go home on their bicycles during the dinner-hour.



HOMEWARD BOUND.

As a vehicle for business purposes the tricycle has even a larger future before it than the bicycle. It will carry a considerable quantity of luggage, and can be drawn up to the side of the street and left unprotected until the owner returns.

The number of shopkeepers who employ the carrier tricycle for the purpose of distributing their parcels, or circulating daily supplies to their customers, is steadily increasing. The milkman, the news vendor, the butcher, send an active lad on their daily rounds. For light parcels it is especially adapted, and there has even been lately a talk of establishing in London a service of tricycle cabs—machines something like Bath chairs with a rider behind.

One is tempted to say with Horace :

Illi robur et aes triplex
Circa pectus erat, qui fragilem truci
Commisit——

But hold : 'pelago ratem' will not convey my meaning ; and I fear 'Pall-Mallo Bath-chairum' would neither scan nor construe. Harrogate, well known to cyclists as the scene of the Annual Cycling Camp, has already shown the way in this respect. There the terrors of the streets are disregarded ; even the steep pitches of the hills appear to have no deterrent effect. There among the long row of Bath chairs drawn up for hire may always be found three or four Coventry chairs. They appear very popular, and may be seen on fine afternoons in all the walks and drives round the fashionable watering-place, with their freight of invalids. If smiling faces and rosy cheeks may be trusted as an indication, the use of them is not confined to those who have the excuse of ill-health for adopting them. It is, no doubt, much more amusing even to an invalid to travel at a decent speed of six or seven miles an hour, and to get over a considerable stretch of road, than to crawl, at the pace of a walking funeral, backwards and forwards along the length of a parade. At Harrogate one sees parties of three or four of these machines going along in company ; the occupants of the chairs are able to converse in comfort, and the drivers encourage each other up the hills, which, as cyclists acquainted with Harrogate know, are not to be despised. They go long distances too. A lady, next to whom the present writer found himself at the table-d'hôte dinner one day, mentioned that she had just returned from an expedition in one of the chairs to Fountains Abbey, nine miles away ; and her driver told her that he often took his customers similar or even longer distances without thinking anything of it. I asked whether the man had dismounted at the hills, which are on that road long and steep ; the lady had not observed whether he had done so. I could not help thinking, though I did not give audible expression to the remark, that if the fair customer had

changed places with the driver for half a mile, the hills would have occupied a somewhat different place in her memory.

In our opinion, after seeing the practical working of these chairs at Harrogate, at any rate in health resorts where there is a large Bath-chair population, the ordinary form of that vehicle must die out. A thoughtful mind may not unreasonably wonder what, in that event, will become of the very old and decrepit persons who now man Bath chairs. The sole qualification for the post seems to be great feebleness and very restricted powers of locomotion; and it must be confessed that a Coventry-chair rider must be in possession of at least average physical strength.

But, after all, great as are the advantages of tricycles for business purposes, their principal claim on the gratitude of mankind is the large amount that is added by their means to the sum of human happiness. No one can fail to observe that such is the case who will take the trouble to station himself on some summer afternoon at one of the chief arterial outlets of any great city, and watch the stream of people going away into the country for their Saturday to Monday holiday. He who will take his stand on the bridge at Kew, or at Highgate Archway, will see a perfect stream of cycles speeding away into the country. Not only is there a light brigade of young men, bent on some favourite country resort forty miles away or more; but steady middle-aged citizens on sober tricycles, some of them on sociables, with wife or daughter at their side, are bound on less distant expeditions. As regards the younger men, it is more than probable that the light and swift machines upon which they are mounted make all the difference to them whether they pass the brief holiday at the week's end in the stifling city or among the free breezes and shady lanes of the country; and the advantage both to morals and health can hardly be over-estimated. Among young ladies, too, the tricycle is a source of enjoyment. It is better for any young creature with sound limbs and healthy spirits to speed away over heaths and downs than to pore over a novel under the trees, or even to play lawn tennis on one eternal acre of grass-plot. It may be said

that there are few country houses where some form of cycle is not to be found. The young ladies have their light machines, the boys have their bicycles; and in the stables there is sure to be found a bicycle belonging to some active young footman who will be delighted to get the chance to carry a note and bring back the answer in shorter time than it would take the groom to saddle a horse. No one who thinks of the confined indoor life led habitually by domestic servants would grudge him the outing.

If royal and imperial example count for anything, the practice will soon be universal; for there is not a crowned head in Europe who has not a stud of these useful iron steeds. Whether the grandees of Middle Europe personally career about the well-trimmed allées of their royal castles I do not know; but we may at least, from custom and precedent, infer the existence in dignified leisure of many a Kaiserliche-Königliche Hochoberhoffvelocipedenkurator.

The Khedive of Egypt has several tricycles; one in particular, which I have had the honour of inspecting, is so covered with silver plating, that one can hardly see the black enamel it is supposed to adorn. It will doubtless come in handy should His Highness take it into his head to ride across the Bayuda Desert. He would there 'scorch' after a fashion not contemplated by the North Road Club. The officials of that body should look to this seriously and without delay. No one knows more accurately than Mr. A. J. Wilson the perversity, to call it by no harsher name, of the N. C. U. executive; and if any claim were founded on His Highness's performance, backed as it might easily be by French or Russian intrigue, and such claim were disallowed by the Records Committee, no one can foretell the political complications that might arise. 'Faed' should at once communicate with the official time-keeper, and arrange that at least His Highness's watch shall be properly compared at the Kew Observatory, under N. C. U. rules. Among gorgeous tricycles some of the Indian princes possess vehicles which will hold their own, though after seeing the Khedivial state tricycle, I cannot affirm that they are pre-

eminent. I have seen a picture in which the Maharajah of an Indian state, together with the British resident at his court (an enthusiastic cyclist whose predilections perhaps somewhat influenced the royal taste), and all the great officers of the durbar, are seated on tricycles at the gate of the palace, and gaze at the lens of the camera with the breathless attention usual on such occasions. They present an odd effect of costume. Wearers of shawls and jewelled turbans sit on some of the tricycles, British shooting jackets and knickerbockers figure on others. I understood from the possessor of the picture that the whole party were going out for a 'club run,' and that His Highness is the president of that institution.

One of the great advantages of the tricycle over its two-wheeled rival is that it permits the rider to stop at will. A bicycle, on the contrary, only retains its stable equilibrium on the condition of being kept in constant motion. An attempt at a halt is instantly rewarded by an upset. An active rider can dismount very quickly ; but an elderly gentleman, however skilful he might be, would feel the impossibility of performing the necessary gymnastics if he should be so ill-advised as to ride a bicycle through crowded streets. The construction of the bicycle, too, makes it an impossible mount for ladies, to whom the tricycle offers no sort of difficulty. For town work and for the use of the gentler sex the tricycle is decidedly the more convenient machine. On country roads, and for young and active riders, it is a matter of taste which should have the preference.

Although the advantages and pleasures of cycling are open to all able-bodied persons, the choice of a machine is a matter of individual preference. Practically no one would ever hesitate to decide under which category, bicyclist or tricyclist, he himself ought properly to come. A lady, a middle-aged man, or a heavy father, will naturally go in for a tricycle. An active lad, especially if he lives in the country, would probably give his voice for the bicycle, unless, indeed, he had reached the age or attained to the condition of mind which might

prompt him to invest in a 'sociable,' on the chance of inducing some adorable being of the gentler sex to share his pilgrimage on wheels.

There is another form of double tricycle which has lately come into fashion, principally as yet among racing men, in which two performers sit one behind the other on the backbone of the machine, and pedal in unison. This is known as a tandem. The pace to be got out of this sort of vehicle is very great, and it will no doubt be still further improved ; but it can hardly be said that to an outsider it looks very comfortable. There is also a horrible engine in existence known as a bicycle tandem. It is formed by joining the large wheels of two full-sized bicycles one behind the other with a stout bar of iron between them, on which two saddles are fitted. It is said to be capable of being driven at a speed exceeding anything else on wheels. 'Il faut respecter tous les goûts,' as the French proverb teaches us, but Providence will surely so far intervene as to prevent the general public from succumbing to its attractions. I am bound to add that, with 'the owner (and inventor) up' in company with some efficient coadjutor, this machine is capable of being so handled as almost to convince the spectator that to ride it is neither dangerous nor difficult ; but then Mr. Rucker is not only a very clever and a very persuasive gentleman, but a first-rate rider as well. Full descriptions of every kind of cycle will be found in the following pages, and it is not now necessary to dwell upon them at length. Almost all the machines that now compete for public favour partake of the wonderful qualities of lightness combined with strength which is the distinguishing characteristic of modern workmanship.

It is remarkable how quickly both the bicycle and the tricycle after their first inception assumed the form which they have since retained. It is hardly too much to say that no material change has been made in the type of either kind of machine, though the new 'dwarf' and 'safety' bicycles may not improbably be found to herald a new departure. But it is yet too soon to speak positively on this point. As regards

the ordinary bicycle and tricycle, improvements in detail have been numerous and important ; subsequent makers still adhere very closely to the broad lines laid down by the first designers. This is the more remarkable, because it can hardly be supposed that the original form was reasoned out on strict mathematical principles. It would almost seem that the proportions of the original design were hit upon by intuitive perception rather than by close adherence to rule. But it is a curious fact that the more the question is subjected to scientific investigation, the more patent does it become that the first attempts embodied correct mechanical ideas. Of course I speak only of the type of machine now so common, and not of the various 'velocipedes,' as they were called, which enjoyed a short-lived popularity before the present class of cycles came into existence. In our account of what may be called the history of cycling, we shall show what the precursors of modern cycles were like. The *Draisnène*, the hobby horse, the dandy horse, and the four-wheeled velocipedes, resembled the modern cycle principally in this, that they all alike utilise the power of human muscles as a motive agent ; in the principles of their construction they differed entirely from the cycle of to-day. But when the first bicycle was made it came complete and perfect from the maker's hand, even as *Minerva* fully armed sprang from the brain of *Jupiter*. The new type differed from any mechanical adaptation that had ever been thought of before ; and the idea, once embodied in a machine, has since been improved constructively only ; the principle, so far as anything mundane can be so, is perfect of its kind.

The theory embodied in the two kinds of machine is this : the bicycle consists of a large front wheel, with pedals attached to its hub, over which the rider sits and works upright ; his saddle is arranged on a bar of iron, which droops like a tail from the head to the ground, the end of it supported by a small trailing wheel, which bears a part of the rider's weight and prevents him from falling backwards.

In the case of the tricycle all this is changed. The rider sits on a saddle suspended above the axle, between two wheels of moderate size ; a third point of contact with the ground is afforded by a smaller wheel, which, like the bicycle trailing wheel, bears a portion of the weight ; the third wheel sometimes follows, but more often precedes the other two. The rider's seat is arranged either slightly in front of, or behind, the axle, according to the position of the third wheel, which serves the purpose of a rudder, and gives to the machine the name of front or rear steerer, as the case may be. In the case of the tricycle, as the rider rests on three points, he need not trouble himself about his balance, which is secure whether the carriage is in motion or not. This is the main point which makes the tricycle easier to ride than the bicycle ; the rider need not dismount when it is necessary for any reason to come to a halt. He sits still and 'waits till the clouds roll by.' Nor is he compelled to maintain his balance by the sway of his body ; he sits quiet and guides the machine by the movement of his wrists on the steering gear.

Falling forwards from a bicycle is by no means a difficult exploit—indeed, the difficulty is to avoid performing it. The manoeuvre is so common that the peculiar form of tumble that ensues is known by the distinctive name of 'the cropper,' or 'Imperial crowner.' The habitual recurrence of the Imperial crowner is prevented by placing the rider's saddle a trifle behind the centre of gravity of the machine : his balance is secured, when the machine is in motion, by guiding the driving wheel slightly in the direction to which his weight inclines, in exactly the same manner as a skater executes his long and graceful curves on the outside edge. After a certain amount of practice, the skilful bicyclist ceases to think of his steering handles any more than a skater does of his skates. In both cases the steering is regulated by subtle action of the muscles, but in the case of the cyclist, as in that of the skater, so far as conscious action is concerned, his course is determined by the poise and sway of his body.

Endless are the stories told by bicyclists of the curious and complicated falls which are thus executed 'over the handles' Of them, as of Cleopatra's charms, we may say—

. . . Age cannot wither them nor custom stale
Their infinite variety.

A few, but fortunately very few, have terminated fatally. More frequently the active lads who form the main body of bicycle riders escape with bruises only, and learn caution from their escapes. The Hon. Arnold Keppel, late of the Scots Guards, had when a lad two most remarkable tumbles, concerning which, in reply to an inquiry for particulars, he writes as follows :—

In the year 1876 I was returning by night from Worthing with two friends to Storrington, in Sussex, where we were reading for the Army examinations. We were each riding a fifty-four inch Coventry Machinist bicycle. There was only one lamp among the party, and the owner of this was told off to ride in front. There is a long hill on this road, down which we had to come, and the night was very dark. Our friend with the lamp was fifty yards ahead, going at a great pace, when on nearing the bottom of the hill he saw a horse and fish-cart coming in the opposite direction. He had just time to go between the hedge and the cart. The horse was scared and turned suddenly right across the road. I was next, and, less fortunate than our leader, I struck the shaft of the cart fair and square. Before I had time to realise the situation I found myself lying in the road on the other side, the machine and I having fallen clear over the horse. The marvel was that not a bolt was sprung in the machine, and the only evidence it bore of a collision was a dent and scratches on the top nut of the head. I did not break my neck, but I broke my nose, and sustained other cuts and bruises which it is needless to particularise. I must confess that, if I have to tumble, I prefer to take my chance of the vicissitudes of the hunting-field.

The other tumble about which you ask sounds too like 'a yarn' for me to risk my reputation by narrating it. G. H. (naming a friend and relation, then a fellow-student at Storrington, and now an officer in the Life Guards) says positively that he saw it happen.

I cannot myself be considered an eye-witness ; for I remember nothing till I found myself in a cottage, being 'brought to' with restoratives.

The header in question came about in the following fashion :—The Storrington Army students were holding a race meeting among themselves, and the competitors were taking a preliminary canter before the start. Mr. Keppel, going best pace through a lane of spectators, ran over a piece of coal which had fallen from a passing cart. The machine turned a somersault—so complete a somersault that the rider came uppermost again, and the wheel went on several yards before it finally fell. Mr. Keppel, though still in the saddle, was unconscious of anything, as he says in his letter, from the moment his head and shoulders touched the earth. The handles of the machine were bent upwards in a very extraordinary manner.

The 'Imperial crowner' is of comparatively frequent occurrence. Dogs, pigs, fowls, and children share with sheep the honour of causing it. A course of bricks or a string across a road placed in the course of an approaching cyclist by playful youth has not unfrequently produced it ; and the British rough has discovered that a stick inserted into the moving wheel frequently inflicts sufficient damage to give the assailant time to escape bodily chastisement by flight.

There seems to be hardly any limit to the skill that can be acquired by assiduous practice on the bicycle, and the exhibitions of address and daring which sometimes take place fairly take one's breath away. The following appeared in the English 'Bicycling News' of October 10, 1886. I reproduce it in a slightly curtailed form, and before doing so have had the curiosity to inquire whether the event referred to really happened. I was informed that it actually occurred as described, and that the machine ridden on the occasion was a Star bicycle ; the peculiarity of which is that the small wheel is in advance and steers the machine, while the weight of the rider rests mainly on the large driving-wheel, which is of the

same dimensions as an ordinary full-sized bicycle—viz. fifty or fifty-two inches. This make of bicycle has enthusiastic admirers in America, and it may be noted that the extraordinary trick-riders Kauffman and McAnney, who exhibited in 1886 at the Westminster Aquarium, performed their wonders upon it:—

A daring and foolhardy feat was performed by a bicyclist the other afternoon at Cabin John Bridge, near the city, says a Washington telegram to the 'Pittsburg Dispatch.' The place is a general pleasure resort about twelve miles from town, over the military road built by Jefferson Davis while Secretary of War. The bridge is said to be the largest single span of masonry in the world. It is 125 feet high, and about 200 feet long, a single magnificent arch spanning a deep and rocky gorge. A good many people go out there to see the bridge, and the man who keeps the little hotel known as Cabin John, just at the end and across the bridge, does a good business, especially on Sunday. Every nice Sunday the sheds about the place are crowded with vehicles of every description, and sporting men, family parties, wheelmen, and gentlemen of leisure, are loafing about the house, getting country dinners or picnicking in the wild gorge below the bridge. As at all such places, there are always a few wheelmen lounging in and out, and a number of machines were stacked about the yard that afternoon, and a lively party within could be heard telling stories and boasting of their personal skill on the road. In the midst of the hilarity one young man suddenly came out alone, and, singling out his machine, mounted, and without a word rode towards the bridge. There is a brownstone coping on the three-foot wall on either side of the roadway. This coping is about a foot broad, and is bevelled on the two upper edges for an inch or two. On the inside of these walls is the solid roadway above the duct. On the outside is a perpendicular descent of about 125 feet in the centre of the bridge, and no less than 75 feet at either abutment. The young man stopped and dismounted at the end of the bridge and lifted his machine upon the coping. The act was noticed by a couple of gentlemen smoking under the trees, but it was looked upon as a freak, and no particular attention was paid to it. The next moment there was an exclamation of horror, for the young man was seen mounted upon his bicycle deliberately riding along the narrow coping. The sight froze the blood of the ladies and children picnicking in the gorge below, and was enough to appal the stoutest heart. The

gentlemen in front of the hotel started to their feet and called to the other wheelmen within. It was too late. The young man was already in the centre of the bridge. He never swerved a hair's breadth from his seat. From the end of the bridge he seemed a toy machine running by mechanism, so erect and motionless he sat, and so evenly he rode. 'Let him alone,' cried one of his companions, 'he could ride it if it was a rope!' Nevertheless, the fear that interference might hasten the horror that all wished to prevent left the party rooted to the spot. In two places the coping makes a zigzag by the widening of the roadway, and at these places the rider must steer his wheel through a very narrow space at nearly right angles with his course. The daring fellow had passed the first of these ticklish spots, and, when he carefully wore round the second, not a single one of the horrified spectators could draw a breath for fear. From thence to the end was a short and straight run, and in another moment the young man had completed his dangerous ride, dismounted, and was waving his hand laughingly at the frightened men and women and children who had witnessed it. The young fellow calmly remounted his wheel and rode on towards the city as if he had done a very common thing not worth mentioning. He was induced to undertake the feat because someone had doubted whether he had the requisite ability and nerve to perform it.

Kauffman and his companion McAnney mentioned above executed wonders almost beyond belief. One of their feats, though I witnessed it several times, still appears to me when I think of it almost incredible. Kauffman brought into the arena a common strongly built kitchen table; upon it he placed two chairs, one to receive the front wheel of his bicycle and the other the hind wheel. He then mounted on the table, climbed on to the chairs, and from thence slowly and carefully, with almost imperceptible motions, balancing his unstable mount the while, crept up the spokes of his machine and finally stood upright on the saddle, at a height of twelve or fourteen feet from the ground. The newspapers tell us from time to time that he is still performing to large and enthusiastic audiences in various parts of Europe, so that it may be supposed that he has not yet broken his neck. I asked the performer at the close of one of his performances whether in his learning stage

he had fallen or hurt himself much—his reply was somewhat characteristic. ‘No, sir,’ he said, ‘I perceived at a very early stage of my training that I should have “to quit falling,” so before I went any farther I trained myself to that.’ ‘What do you mean?’ said I; ‘you cannot prevent an accident.’ ‘No,’ said he with a smile, ‘but I have trained myself so to keep my balance at every stage of the performance that a slip, even though it should take place at apparently the most critical point of the performance, would almost infallibly land me on my feet.’ Several times he did fall—though not in the most dangerous feats, which were executed with extreme slowness of movement and care—and on each occasion he lighted, as he declared he would, on his feet.

It is needless to say that for people who are not in the enjoyment of that activity and elasticity which belongs mainly to youth, the tricycle presents many advantages. It has drawbacks; the machine is necessarily heavier in itself; having three wheels instead of two, it offers more resistance to obstacles on the road; and this is increased by the circumstance that in the case of the bicycle the two wheels follow each other, and so practically make only one track, whereas the three wheels of the tricycle make each a track of its own.

On the other hand, the tricycle can be made to carry a considerable amount of luggage; enough may be packed about the body of the carriage to supply the wants of a moderate-minded person for a tour of two or three days or even more. It is quite easy to stow away a bag weighing ten or twelve pounds. After all, a complete suit of flannels is all that a tourist absolutely requires, and the weight of such a kit is hardly felt on a tricycle. Many enthusiastic artists carry about a whole photographic outfit; and it is darkly rumoured that the members of the Tricycle Union, a select body who are the objects of a good deal of harmless ‘chaff’ among the main body of cyclists, and who love to combine various branches of science with their favourite pastime, secrete about the frame of their iron steeds all the paraphernalia of their several mysteries.

The late Sir Charles Napier used to declare that he considered a soldier amply provided if he started on a campaign with a piece of soap and a toothbrush. A bicyclist on a tour, unless he agrees with the hero of Scinde in his estimate of what are necessaries in life, can only provide for his requirements by elaborate prevision in the way of forwarding luggage to points ahead on the line of march. Bags christened by their inventors by the suggestive names of Saturday-to-Monday, or *Multum-in-parvo*, can be obtained in great variety from the stores of cycling outfitters. These little valises are said (by the makers) to be amply sufficient for the wants of a travelling cyclist ; but a kit, when packed in a *multum-in-parvo* bag, and strapped on the backbone of a bicycle, presents a very attenuated appearance, and a man's desires must be very strictly subordinated to the force of circumstances if he looks on such an outfit as sufficient.

One of the most remarkable characteristics of modern machines is the extreme lightness, it might almost be said the attenuation, of the parts of which they are composed. Every portion of the frame is made as strong and as light as possible ; and the greatest mechanical ingenuity is shown in adjusting the shape of the various parts so as to produce the maximum of stability with the least possible weight. It is an established axiom in mechanical construction that, weight for weight, a hollow bar of proper form is stronger than solid metal. Advantage has been taken of this circumstance by cycle constructors ; every part that can be made hollow is made so, and the resources of applied mechanics are exhausted to discover the form which most efficiently utilises the allotted material. The rims or felloes, for instance, which are the steel peripheries of the wheels, and which serve to form the stiff and perfect outside of the circle, are hollow, and though the exact form varies according to the taste of different manufacturers, they are all made by passing a tube of round steel between rollers of such construction that the tube is brought into a section of crescent form, the outer semilune serving for a bed to

contain the thick rubber tires, which are also invariably employed.

It is worth the while even of the most careless rider of cycles to pause for a moment over the construction of the suspension wheel. It is not too much to say that the ingenious invention designated by that name alone made it possible to construct the modern cycle. Before the invention of the suspension system, wheels were made of light and strong hickory or other wood, like the wheels of the ordinary carriages intended to be drawn by horses, which are still in use on the roads. In wooden wheels, the weight of the whole carriage rests on the particular spoke which happens to point perpendicularly downwards, and the stability of the wheel depends on the rigidity of that particular spoke. Exactly the reverse of this occurs in the case of the suspension wheel; in it the weight of rider and carriage rests on the centre of the wheel and is suspended from that part of the felloe which happens to be uppermost, by means of the spoke then most perpendicular. The weight is thus constantly shifted from spoke to spoke as the wheel revolves, and the lateral spokes, being all braced tight, prevent the wheel from buckling, or getting out of shape. The result of this most ingenious arrangement is, that comparatively fine steel wire is substituted for a stiff wooden spoke, and the cycle wheel presents the beautiful and graceful, though apparently fragile, appearance which everyone no doubt has admired. In order to realise the magnitude of the revolution which this invention has brought about, it is only necessary to fancy what the appearance of a bicycle would be if it had wheels like even those of the lightest Victoria. Some enthusiasts have seen and ridden upon machines made after that fashion, but if it had not been reformed, cycling would never have attained its present popularity. Mr. S. Maddison is said to have described, and Mr. Edward Cooper to have been the first practically to use, the suspension wheel.

From the moment that the cycling Columbus broke the egg — from the moment, that is, that the inventors of the suspension

wheel showed how a practical carriage could be made light enough to be worked easily by human muscles—manufacturers began to vie with each other in diminishing the weight of each minute part. This has been done with such assiduity, that at length, in the opinion of competent observers, the limits of attenuation have been pushed almost up to the border line which divides safety from instability. It is now no longer necessary, as it was even a couple of years ago, to enjoin upon the maker from whom a purchaser orders a machine, to make it as light as possible. He is sure to do that. The necessity is rather that the rider should make sure that his mount is up to his weight. A hundred, or even a hundred and twenty, pounds was recently thought a not unreasonable weight for a tricycle : but nowadays even these small weights are reduced by twenty or thirty pounds. The reader will of course understand that, whether the higher or the lower scale of weights is taken, the same type of machine will be made by a good builder considerably stronger and consequently heavier for a large man than for a small one. Indeed, to enjoy anything like the full amount of enjoyment that can be got out of the pastime of cycle riding, a man's machine should be built to his measure with the same solicitude that his tailor displays in producing his coat. It sounds, perhaps, like attributing selfishness to a very estimable class of persons to mention with approbation the fact that a practised cyclist is very unwilling to lend his machine to anybody else : but such is the case ; and though the non-cyclist may perhaps have tried a friend's machine without observing the look of agony with which the loan was unquestionably conceded, he may rest assured that, like the celebrated parrot, his friend, if he said little, thought a good deal.

A beginner who takes up cycling and does not at first find it as pleasant as he expected, should not give it up in despair until he has satisfied himself that he has fulfilled all the requirements which make success possible. He exercises a new set of muscles, so that after his first essays, even though

he be a practised athlete, he will certainly be stiff and uncomfortable. He will be certain to ride badly; he will turn out his toes, probably graze his ankles against the pedals, wriggle on his seat, twist his knees, or perform other cycling enormities; but even if he did not, there are obstacles which must be removed before success is possible. Even the winner of last year's championship could not ride twenty miles on a saddle that did not fit him, and that Great Being himself would stop from sheer agony, exhausted and leg weary, if his seat were at an inconvenient distance from his pedals; or, as he would probably himself phrase it, if he were not placed properly over his work. Let not the novice, therefore, whether of the gentle or of the sterner sex, be too easily discouraged. Let him ascertain, as may be done from a book as well as in any other way, what the essentials of the situation really are, and see that they are complied with, before giving way to the idea, erroneous in the great majority of cases, that in his case cycling is a forbidden luxury.

Actual demonstration and personal assistance of friends are useful. But almost as much is to be learned from books as from oral instruction. A book, unlike a friend, is always at hand with a complete account of the matter in all its bearings. Minute particulars assume a very different relative importance when the subject begins to be familiar than they did at first, and a matter at first dismissed or disregarded as unimportant can be referred to at leisure and reconsidered. Besides, in a book the accumulated and carefully noted experience of many beginners has been noted. A beginner, knowing nothing of details, does not know what information to ask for should a difficulty arise; the printed friend can always be summoned, which may possibly not be the case with the oral adviser.

But we are digressing from the subject of cycle building. The first point, as we said above, to ensure success and save a surgeon's bill, is to order a machine fully up to your weight, otherwise there will certainly be a breakdown, and probably an accident. Next take care that your machine fits you. If

these points have been attended to, and the small amount of practice be taken which is necessary to accustom the muscles to the new labours they are called upon to undergo, there will be no inclination to drop the practice in disgust.

Though we are not now going to enter into a disquisition on the mechanical theory of progression as exemplified in cycle riding, it would be well that every rider and purchaser of a machine should keep the first principles of that theory in his mind.

Those who wish to pursue it in detail cannot do better than consult the work of Mr. Warner Jones, a writer who very ably unites practical cycling and theory ; to his scientific little treatise we refer readers interested in the mathematical bearings of the subject.

It will be sufficient for our present purpose to note that the science of progression as regards cycling, as in all applications of mechanics, consists in a due apportionment of quantities in an equation, which deals with the three factors, weight, force, and time. A machine with a rider upon it offers a certain weight or resistance to be moved. If the strength that the rider can put forth be measured, and his weight and that of his machine be ascertained, it only remains to calculate to what distance the force at disposal can move the weight in a given time.

If, when a carriage is in motion, it is desired to quicken the pace, the force employed must be increased : because, from the conditions of the problem, the weight is a fixed quantity and the time within which it is to be moved is diminished. But in the case of a rider who is already putting forth all his strength, the force cannot be increased ; therefore, as he cannot increase the driving power, the rider must have a lighter machine, or be content to go more slowly. Every alteration of one factor is obtained only at the expense of another ; increased resistance from hills, for instance, requires more power or less speed, probably both ; and when, in cycling phrase, the rider has 'put in all he knows,' he comes to a standstill.

Hills are not the only obstacles that have to be overcome in cycling ; and when the mud, ruts, stones, and the general surface of the road have to be taken into account, all these may be classed under the general name of resistance to the performance of the work required. The best solution of the equation is to reduce the weight of the cycle to the lowest point consistent with safety ; to build the machine so as most effectually to minimise the friction of the road ; and to utilise in the best possible manner the strength exercised by the rider.

The first point in designing a machine is to make it of such form that it shall offer the minimum of friction, and support the weight of the rider in an attitude which will enable him with the least effort to put forth all his strength.

A man's natural means of progression are designed by nature in such a manner as to afford him a power of advancing under all the circumstances under which he is likely to be placed. This is a roundabout way of saying that the human leg is, so to speak, a compromise that fulfils varying and sometimes opposite requirements. It, or rather we must say they, are not constructed especially for speed : a pair of them will carry their possessor, though with varying rapidity, along a level road, across rough ground such as a swamp or a Scotch moor, or up an Alpine mountain. The bicycle or tricycle is designed to help him along under one condition only ; that is, over a moderately even road. An athletic man, putting forth all his strength, could perhaps walk five miles along a level road or three miles across a stretch of grouse ground, within the hour. Mounted on a bicycle, he could go fifteen or even twenty miles in the same space of time ; but if, still mounted on his bicycle, he transferred the scene of his operations to the moor or the mountain side, he would not advance a mile in a week. Yet the amount of force expended, supposing that he puts forth his utmost strength, must in each instance be the same ; and the motion of his legs, whether in walking or in cycling, is substantially the same. The human limbs practically act like the

spokes of a wheel, the thigh joint representing the hub, the leg on which the walker stands is the spoke perpendicularly beneath the centre ; when he advances, the hindmost leg comes forward, and as the centre of gravity is shifted the human wheel rolls forward through a certain portion of its periphery. The same action takes place when the man travels on a tricycle, only in that case with the same amount of exertion he goes faster, because he has employed mechanical devices to overcome friction. Instead of taking a succession of springs and shifting his balance at every forward step, he has interposed between himself and the ground a continuous bearing surface, namely the tire of his cycle wheels ; he has substituted a steady mechanical pressure for a forward jump, and his weight, steadily supported over the centre of gravity of the carriage, leaves his legs free to exert their strength to the greatest advantage, and adds momentum to his course in the exact direction of motion of the machine.

It hardly needs proof that if mechanical means are to be adopted to reduce friction, a wheel of some sort is the best device. It therefore only remains to consider what the size of the wheel is to be. The exact dimensions depend on the size of the obstructions that have to be overcome. A large wheel overcomes an obstacle more easily than a small one, as may be easily seen by moving the wheel of a child's toy cart against a brick, and then moving a carriage-wheel against the same object. The small wheel will stop dead short, and the larger wheel will mount over it, because in the first instance the whole or the greater part of the circle is behind the point of impact, and in the other a sufficient part of the circle is in front of the point of impact. This is not a scientific statement, because it does not take into consideration all the conditions stated, but it is sufficiently accurate for our purpose.

In practice, obstacles likely to be encountered on the road will probably not exceed two, or at the most three, inches in height. It is to be hoped that few stones of that size are ever found on a road : at any rate, if any are so placed the road

surveyor of the district ought to be summarily hanged. If ruts, mud, or anything else is encountered which exceeds three inches, the best plan for the cyclist who is condemned to meet such obstacles is to get off and walk till he reaches a part of the road that is under the management of a surveyor with some Christian feeling. But while the wheel must be made sufficiently large to surmount ordinary stones with ease, it must not be larger than is absolutely necessary; for not only is a large wheel unduly heavy, but it offers more surface to the wind—and wind is almost harder for a cyclist to encounter than a rough or hilly road. The limit of size as regards bicycles is affected by another consideration—the length of the rider's leg, and the limit of size in bicycle wheels is practically governed by that consideration. The same condition is also present in the case of tricycles, though in this case other circumstances must also be taken into account. The tricycle rider should when sitting on the saddle, with his leg extended to the full extent, have the pedal on which his foot rests three or more inches from the ground, in order to clear the inequalities of the road. Mathematical considerations, with which we need not trouble the reader, show that the centre of a wheel which will support the weight of the rider in such a position as to enable him to put forth his utmost strength should be about 24 inches from the ground. The saddle on which the rider sits is raised a few inches above the axle of the wheels; and as a matter of practice a 48-inch wheel has been found a convenient size. Recent experiments seem to indicate that a wheel of 40 inches in diameter is even better than 48. The decision will no doubt be made in the case of each rider on considerations which vary with individual tastes and requirements. There are some among the exponents of cycling who are hotly in favour of wheels greatly larger or smaller than this standard, just as there were, in the country discovered by Captain Gulliver, Bigendian convicts who were undergoing punishment for obstinately cracking the large ends of their eggs. But of their opinions we need take no note. Mathematical reasoning has also determined the theoretical best

position for the smaller wheel of the tricycle, as may be seen at large in Mr. Warner Jones's volume.

Up to a very recent period it was not possible to adopt the mechanical device called 'gearing up' to the bicycle; consequently it was necessary to have the driving wheel as large as possible consistently with the pedal being within easy reach of the rider's foot, in order that a single revolution of the wheel might cover as large a space of ground as possible. Any diminution of size of wheel necessitated faster pedalling or slower speed. Now that a means has been found to gear up bicycle wheels to any required pitch, the large wheel is no longer found essential, and a change has apparently set in in favour of small wheels. Numerous forms of dwarf bicycle have lately appeared, and the marvellous performances that have been made by their aid on the road shows the value of the change.

We shall describe farther on the construction of 'dwarf' or 'safety' bicycles, as they are sometimes indiscriminately called. But the two terms are by no means convertible. Many of the dwarf bicycles now offered for sale, though they have merits of their own, are anything but 'safeties.' It is true that if you tumble you do not fall so far as from a high bicycle. Still one class alone, that known as the 'Rover' type, offers immunity from the dreaded 'header.' And a machine of that type is now offered by a great many of the leading manufacturers. It is very desirable that the two terms 'dwarf' and 'safety' should not be confounded.

The term 'gearing up' occurred a few lines back; as it is a phrase which will often meet the eye of a reader of this book, it may be as well to explain the meaning of the term. It is a well-known principle of mechanics that by the use of large and small toothed wheels acting upon each other, power may be obtained at the expense of speed or speed at the expense of power. This principle has been adapted recently both to bicycles and tricycles. The revolutions of the driving wheels can be increased as compared with the pedals, or diminished, at the will of the rider, who by the turn of a handle

or the movement of a lever can throw either speed or power gear into action. Many machines are now furnished with apparatus by which the rider may drive his wheels 'level,' that is one revolution of the wheel for one of the pedal ; 'up,' by which one revolution of the pedal produces more than one revolution of the driving wheel, resulting of course in increased speed ; or 'down,' by which a revolution of the pedal produces only a part of a revolution of the driving wheel, and power for hill climbing and the like is obtained, at the expense of speed. This is a practical exemplification of the truth stated above, that when one factor of the equation, viz. the strength of the rider, is a fixed quantity, either speed or power must be sacrificed when the other conditions of the problem are varied. But this part of the subject will be more fully treated in future chapters ; it is only necessary here to say that the proportions and general form of the tricycle rest, not on caprice nor on mere guesswork, but on defined and well-understood rules.

When cycles began to increase and multiply in the land, it was natural that the riders of them should organise themselves and assume a corporate existence for mutual support and defence. This was no doubt a matter of more urgent necessity in the early days of cycling than it is now. Cyclists were at first looked upon with distrust, if not with positive dislike. It is possible that bicyclists, who were the earliest exponents of the art, were more aggressive and made their presence felt more acutely than is now the case. It was some time before horses got accustomed to them, and at first it was the fashion among some of the younger men to cover their coats with braid and blow bugles in the streets. The dislike with which they were regarded, if not deserved by the great majority, was in some instances sufficiently well merited. But these customs have long been things of the past. Cyclists now behave with the decorum of judges on the bench ; the equine race seems to have made up its mind that there is nothing in it ; and even in the wildest districts of the country the half-brick of welcome is now seldom heaved at the cycling stranger.

Though the number of wandering cyclists increases year by year, it is probable that none of them will ever again undergo the experience of an early martyr in the cause, who roused the wrath of the driver and guard of the St. Albans coach; the latter worthy provided himself with a lasso, and when the cyclist tried as aforetime to race the coach, he found himself dexterously lassoed and dragged in the mud. That guard is reported to have discovered by practical experience that a cyclist is a being not outside the protection of the law, and the incident is generally supposed to have contributed considerably to the development of the institution, then, and for a short time afterwards, known as the Bicycle Union, now merged in the larger and more important body called the National Cyclists' Union.

The organisation which was at first necessary for defence was continued for convenience; and side by side with it there grew up another institution called the Cyclists' Touring Club. They are independent of each other, but work together very harmoniously. The N. C. U. (for convenience' sake, the two ruling bodies are always spoken and written of by their initial letters) undertakes the legislation and legal defence as well as what may be called the police of cycling, while the C. T. C., as its name implies, attends to everything that conduces to the comfort of cycling tourists.

The cycling public, constantly moving along the roads and streets, finds itself in contact with all bye-laws and regulations which affect locomotion. The N. C. U. have been able to establish the fact that it is for the public convenience that they should be consulted whenever Parliamentary or local legislation deals with the question of street traffic. The relations between cyclists and the railway companies present another subject of attention; and the organisation of racing, race meetings, and championships, together with the legal business just mentioned, affords constant employment to the Executive of the Union.

The work of the Union is divided into two main sections :

first, the representation of cycling in its relation to Parliament, to other sports, or to the general public ; and, secondly, the internal regulation of cycling itself. The first embraces all legal matters concerning the cycle and its use on public roads and highways ; including questions relating to rights-of-way, legal obstruction, gate tolls, assaults, and other things affecting wheel riding throughout the country ; the second embraces the promulgation of rules and regulations for racing, the establishment and management of the amateur bicycle and tricycle championships, and the general supervision of the innumerable complaints and appeals which incessantly arise.

A very successful system of local self-government has been adopted, by the formation throughout the country of Local Centres, by means of which the Union maintains its central control without losing the practical usefulness which can only be acquired by detailed local knowledge of men and things. Several of these centres have been formed in the great centres of population throughout the country, and have worked well in practice. The Union is governed by a council, composed of members of affiliated clubs, together with the honorary secretaries and chairmen of the Local Centres. The operation of the Union being intended for the benefit of cycling as a whole, no direct personal benefit is obtained by membership : it differs in this respect considerably from the other great cycling organisation, the C. T. C., in which membership certainly does secure considerable advantages.

We have mentioned that the unit of formation from which the National Union has been formed is the Cycling Club. Almost every town and large village has one of these institutions, which are formed according to the exigencies of local society, and flourish in proportion to the energy of the elected captain and honorary secretary. Each club, provided its rules are in accord with the model rules formulated by the National Society, has the right to send, in proportion to its numbers, one or more members to the Council of the Union.

The Council meets at stated intervals and forms a very real

and workable Parliament for the discussion of cycling affairs. The national love for discussion, and the considerable aptitude for speechifying shown by many of the members, find full opportunity of exercise at the monthly meetings, and the temptation to a somewhat florid and lengthy style of oratory is found by many ardent spirits too great to be resisted. Time fortunately will not permit questions of mere detail to be discussed, and only matters in which some principle is involved are put on the agenda paper ; details are left to the consideration of an executive elected from among the members, which meets weekly at headquarters. Before this body are brought in the first instance all complaints, appeals, and projects of cycling legislation. The system, order, and expedition with which a large amount of detail is examined and disposed of offers an example which might without any disadvantage be followed by more pretentious assemblies. The National Union rests on the widest basis of publicity, and commands general allegiance and support. There was a time, it is true, when it was threatened with dissensions from within. This danger was, perhaps, almost inseparable from the constitution of the society. The original organisation belonged to bicyclists, who were first in the field, and who, in fact, began to organise themselves before tricycling was invented. But the development of tricycling brought another and, as a rule, an older set of men to the front, who were not quite ready to acquiesce in the leadership which priority of possession had placed in the hands of their juniors in years. *Beati possidentes* was not unnaturally the motto of the bicyclists, and the situation was one which at first presented some obstacles to harmonious working. It seemed possible, at one time, that tricyclists would break off and form an organisation of their own. But wiser counsels prevailed, and the united association has now for some years past offered a solid front to the world. A large, and perhaps in the eyes of some persons an undue, amount of the attention of the executive is taken up with racing ; but this is not to be regretted. Even those who do not care for racing in itself

may agree that the racing path is the place where a new invention is sure to be tested to the utmost ; and if the invention be really an advantage it will be adopted. The opinions of the best riders and the keenest wits are concentrated upon it, and if it successfully undergoes the severe tests to which it is sure to be subjected by racing experts, it will certainly be adopted by manufacturers, to the manifest advantage of the general body of riders, who, if not so assisted, would have had to wait long ere the natural conservatism of the workshop was overcome ; for new patterns mean fresh outlay of capital, and the remodelling of existing traditions.

While the National Union takes under its cognisance the police, the legal defence, and the legislation of cycling, there devolves upon a kindred, but at the same time quite a separate, institution, the care of individual comfort. The C. T. C. exists for the mutual aid and protection of those among its members who travel along the Queen's highway, and sojourn temporarily in the towns and villages along its course. Although the rules of the Club contain the usual provisions for the election of President, Vice-Presidents, and other officers of a large organisation, all these dignified posts are vacant, and the club flourishes under the control of an energetic and most efficient secretary, assisted, rather than controlled, by a somewhat shadowy council. It is true that at long intervals, once or twice a year, the secretary is called upon to meet the council of the club. He often passes through several—perhaps eight or nine consecutive—*mauvais quarts d'heure de Rabelais*, during which he listens, not unmoved, to the bottled-up grievances of 20,000 members, detailed by their choicest grumblers. But, like the lead-keeled racing yachts that one sees in the Thames, he lies down on his beam-ends and lets the storm blow over him. When the council adjourns, the Secretary resumes his sway, and continues to rule despotically—till next meeting.

The Touring Club, like the National Union, was in the first instance founded by bicyclists. It was formed in the provinces in the year 1878, and was enlarged to include tricyclists in

1882. The defined objects of the club are to promote touring by bicycles and cycles amongst amateurs (a term which has supplied an endless source of dispute both to the N. C. U. and the C. T. C.), and arrange for mutual defence, assistance and support. The plan of operation is as follows : a map of the British Isles is divided into districts, twelve of which are in England, four in Ireland, and seven in Scotland, and each is placed under the charge of an officer called a Chief Consul. This consular system is quite original. The Chief Consul, chosen always for his special knowledge of the requirements of cycling, selects assistants, known as Consuls, from among the local members of the club, in the towns and villages of the district. He also appoints hotel headquarters, conducts correspondence with members asking information, attends the meetings of the Council, and generally is responsible for the interests and working of the club in his immediate district. Consuls acting under the direction of their chief give information as to the state of the roads, and the places of interest within the district, to any member applying for it. They are expected to assist the Chief Consuls in filling up any vacancies that may occur in the list of hotels or repairing smiths, to look up subscriptions in arrear, and to secure new adherents for the club. All this organisation having been achieved, the chief consuls, consuls, hotel headquarters, recommended houses and repairing smiths appointed, the result is embodied in a handbook, convenient for carrying in the pocket, which, after being carefully revised every year, is supplied to members at a nominal charge. In any strange place, if a member's machine breaks down, or he is assaulted, or in any way wronged, even if he is only benighted, he sees by a glance at his handbook who is the nearest friend to whom he can apply, where he can sleep and eat, and where he can get his damages repaired. The cases are few within the British Isles where a member of the C. T. C. cannot get all his wants supplied by his own club, within four or five miles distance from the place where any misadventure occurs to him. A member wishing to travel

in any direction through the country, applies to the Chief Consul of the district through which his intended journey lies, and obtains every information necessary respecting roads, hotels, best route to pursue, &c., besides being speeded on his way by the Consuls of the chief towns through which he passes : for part of a Consul's duty is to keep a watchful eye to the comfort and interest of any touring members who may be temporarily sojourning in the hotel headquarters. These last are by no means the least important part of the organisation ; the club has either headquarters or recommended houses in all the chief towns and large villages of the kingdom. Recommended houses, as opposed to hotel headquarters, are houses which can in many cases hardly be designated hotels. Sometimes they are snug roadside inns in remote country villages. In such places it is often of great importance to the wet or belated traveller to find rest, refreshment, and recognition, even though a sanded parlour may be the only sitting-room, and a smiling maid may represent boots and waiter. The proprietor of a C. T. C. house enters into a contract with the club, specifying that he will at all times 'receive and entertain any members of the club, whether ladies or gentlemen, who produce a valid ticket of membership for the then current year, and that he will charge them a tariff of prices,' which the contract then proceeds to set forth.

These agreements are mutually beneficial. They suit the innkeeper, because to him it means practically the monopoly of the trade to be done with cyclists, the number of whom would hardly be believed. Many hotels fell into sleepiness and decay when railroads took the place of coaches, and have now through the medium of cycling tourists revived, and do a profitable business, though teams of galloping posters have disappeared for ever. But the arrangement is by no means one-sided. The cyclist also profits by it. He is a new creation ; his wants are novel and strange, and a specimen of the class descending on an hotel not specially prepared for his reception would probably cause more consternation than delight. The cyclist's hours

are uncertain ; he is as likely as not to arrive in the middle of the night, or long before breakfast. Whatever the hour of his arrival, he is quite certain to be very tired, very hungry, and very hot. He will have very little luggage ; and though he should arrive at midday, he will certainly want to go to bed ; not necessarily to sleep, but for the practical reason that bed is the best place for him to wait in while his clothes are being dried. To the good people at a cycling inn, these vagaries are the merest matters of routine ; equally a matter of course is the request of the guest to be called and have breakfast ready at an unearthly hour of the morning ; for the favourite plan of the younger spirits, who go careering over the country at the rate of eighty or a hundred miles a day, is to get over thirty or forty of them before breakfast. Great is the convenience to these young athletes of finding houses all over the country at which their requirements are studied, and their arrival hailed not only with cheerfulness but with welcome, and many are the travellers who have found the little silver badge of the club a passport to cheery kindness, which no agreement for special tariffs would alone suffice to secure.

Nor is it only the young athletes of rapid journeys and abnormally early hours who may benefit by the C. T. C. agreement. It is not necessary for a member to avail himself of all his privileges. Older and more steady-going persons, as well as those of a higher social grade, may wish for more accommodation and a more diversified table, and so may not choose to avail themselves of the special tariff ; yet if the cyclist be journeying for health or pleasure, which I take to be the true definition of touring, he will not carry any considerable quantity of luggage, and the demands on the resources of his hostelry will not differ much from those of his more rapid brother of the wheel. Every one in fact who uses bicycles or tricycles and who takes pleasure in wandering by road and lane may at some time or other find himself glad to take advantage of the C. T. C. arrangements, which place at his disposal skilled assistance and intelligent comprehension of his

wants. Half a crown a year can hardly be considered an exorbitant sum to pay for these advantages. The Club last year numbered over 20,000 members.

The only obstacle that I know of to the use of the cycle becoming universal in this country, is that year by year the roads seem in many parts of England to be getting worse and worse. But, as we shall have occasion to point out further on, even in that respect there is likely to be improvement. A revolt against the present system of road repair and road surveying is being organised, and is likely to have a considerable success.

In fact, among the best of the works that have been accomplished by the two cycling organisations is the change which they are attempting in the direction of road reform. Their efforts are young as yet, and there has not been time for more than an attempt to rouse public opinion. But it has been a move in the right direction, and it is to be hoped will bear fruit ere long. No one who knows what our highways were in the coaching days can deny that road-making has greatly deteriorated since then. In many districts it seems to be almost a lost art. Any local busybody is considered good enough to act as road surveyor, and apparently the very last thing that occurs to those who appoint the road surveyor is the necessity of inquiring whether the candidate knows anything of road-making or not. Yet every one must admit that it is an art ; and an art that requires a considerable amount of study to acquire. Everybody is interested in having good roads, yet our highways are allowed to go from bad to worse. What is everybody's business is nobody's business ; wasteful, futile, and ridiculous methods of road repair are allowed to continue, till even the tradition of good road-making is well nigh lost. McAdam, the great father of our road-making system, used to say that no stone ought ever to be cast upon a road, for the purpose of repairing it, which could not be put in a man's mouth. The reason is obvious ; small stones under the pressure of the traffic fit each other's angles, and in a short time form a mass nearly as hard as solid granite. Large stones, on the contrary, leave great

gaps between their angles which hold the wet and break up the roadway, and, finally grinding upon each other, force the upper layer out above the surface. Carriage wheels are thus alternately lifted up into the air and brought down with a jerk, till the whole surface of the road is roughened. Not only is the present plan inefficacious, it is expensive as well. Twice as much material is used as would make a good roadway, and repairs have to be done very much more frequently than would be necessary if a proper system were adopted from the first.

Though the whole community are interested in the goodness of the roads, it is easy to see that the man who is dragged through ruts and over stones by the labour of his horse is not quite so keen in his appreciation of a bad road as the man who feels its effects in an aching spine and twisted muscles. So cycling roadsters, after a considerable amount of preliminary growling, have girded up their loins for action. At the beginning of 1885, or the end of 1884, a meeting was called by the Birmingham Local Centre of the N.C.U. to discuss the question, and, if possible, devise a remedy. Somewhat to the surprise of those who called the meeting, it was attended not only by cyclists, but by horse-owners and horse-users in considerable numbers; and it was generally agreed, after lengthened deliberation, that the law was not so much at fault as the administration of it. The great difficulty was, and will no doubt continue to be, to get public opinion to bear upon a matter of rather dry detail. I venture to suggest the formation of a National Society for road reform, and I am sure that we can promise the hearty co-operation of a large body of cyclists to anyone sufficiently patriotic to set the scheme on foot. The Birmingham meeting made a small, but only a small, beginning. Eight road surveyors were summoned for neglecting to keep their roads in proper repair. The magistrates, who were informed that the prosecution was undertaken in no spirit of vindictiveness, but only to test the state of the law, eventually gave the defendants time till the second week of February in the following year, 1886, to put their roads in order. I have not learnt what the result

of the proceeding has been, or whether the Birmingham roads are any better than they were. In any case a national movement is necessary if anything is to be done on an effective scale. Since these lines were in type the N. C. U. have appointed a special Committee to act jointly with a similar Committee of the C. T. C., and the joint Committee have commenced active operations under the title of the 'Roads Improvement Association,' which earnestly requests advice and co-operation from influential members of the two cycling institutions.¹

Several meetings have been held in various parts of the country, pamphlets on road repair have been circulated by the N. C. U. and C. T. C., and the work is being pushed steadily ahead. With the Halesowen precedents to quote, the road surveyors in many districts are listening to the N. C. U. requests for the improvement of the highways.

That something worth doing could be achieved if proper action were taken is proved by the following instance. In the Donington Trust road, at about the time when the old road trusts came to an end, it was found that on the highways which for the last six years of the trust had been in the skilled hands of a civil engineer instead of a non-professional road surveyor, an annual saving had been accomplished of over 267% per annum over twenty-six miles of road; while at the same time the roads were so much improved that a horse could draw twice as great a load as before.

It is now about four-and-twenty years since the old Turnpike Trust Acts began to expire. Sir George Grey was then at the Home Office: about the same time the formation of highway districts became permissive. Owing to that permissive character, and to the fact that the rating in unions and parishes is very unequal, only about one-third of the parishes in England are included in highway districts. From the year 1864 annual Turnpike Trust Continuance Acts have been passed. In the Bill of 1870, a clause threw the maintenance of the

¹ The result has been the formation of an Association for Roads improvement, under powerful auspices.

disturnpiked roads, of which there were at that time about 1,800 miles, not upon the parishes through which they ran, but upon the highway districts, wherever such existed. The entire cost thrown upon the county rate by the Disturnpiking Act has been computed at 200,000*l.* annually, and in many districts the highway rate has been increased threefold.

It will thus be seen that there are plenty of anomalies to be dealt with and many hardships to be redressed by the action of such a society as we have suggested.

That part of the cycling sport which relates to racing no doubt appears to assume, from its public character, a degree of importance disproportionate to the numbers of those who engage in it. Yet it is well worthy of attention, being both amusing in itself and productive of great good to the general body of cyclists who care nothing about racing. It is on the racing path where new inventions are tried, and improvements accepted.

If a new machine or a new detail for adding to the efficiency of an old one passes the fiery ordeal of the cycling experts, it is sure to come into favour with the outside cycling public within a short time. A cycling race meeting is in itself a spectacle well worth seeing. We cannot help thinking that many who know and care nothing about such meetings would, if once they attended a good one, think well of the sport they afford. The pace is good, indeed considering the distances run it may fairly be called unequalled. The best horse ever foaled would be beaten to a hopeless standstill not only by the winner, but by the last man who passes the post in a fifty miles championship race. Still more would this be the case if the race were for a distance of a hundred miles ; in fact, recorded times of horses and cyclists show that after about twenty miles the horse slowly but surely falls behind.

The racing path is usually a cinder track, about a quarter of a mile in length, and square, or rather oval, in form. Owing to the high speed maintained the corners must be rounded off, even though the general shape of the ground should be square.

The cinder track is carefully prepared, and on the morning of a considerable race meeting presents a beautifully firm and even surface. The distances are scrupulously measured at a distance of one foot from the inside of the track, and a small block of wood, let into the turf at the side, records the number of yards from the starting-post. These permanent marks are necessary, because at all race meetings, excepting only the annual championships, each competitor is allowed by the official handicapper of the N. C. U. a certain number of yards start, according to the nature of his public performances. In championships all start level, and if, as is generally the case, the competitors are sufficiently numerous, the races are run in heats with seldom more than three competitors in each. The result is that in races of five or ten miles the best men left in, who perhaps have to compete in two heats and a final, have to cover a great distance at top-speed before their evening's work is over. The tricycle 25 miles championship of 1885 was one of the prettiest contests ever seen. It was fought out between G. Gatehouse, of the Cambridge University Bicycle Club, and R. H. English, of the North Shields B. C.

The scene of the contest was the ground of the Crystal Palace, where the track lies round the ornamental water known as the Intermediate Lake. The ground slopes sharply up from the track in all directions, making a large amphitheatre of somewhat more than a quarter of a mile in diameter. On the north side nearest to the Palace are situated the grand stand and various other buildings which are used by the spectators or the competitors. A little on one side are the stands allotted to the press and the public, and further on again are the dressing-rooms in which the competitors arrange the shower-baths, rubbing-rooms, and other toilet requisites dear to the athletic mind. This description will stand with few variations for that of most of the tracks where cycling races are decided ; but it is rare on this or any other path to see a contest such as that of which we are now speaking. It is not unusual for one or other of the competitors

to decide on riding a waiting race. The leader not finding himself pressed, does not hurry himself—a comparative term, not inconsistent with the keeping up of a good steady pace of eighteen or nineteen miles an hour. The result is, or so say the public (who could not themselves go ten miles an hour to save their lives), a slow race. But in this particular instance nothing of the kind took place. Both men started at a pace which was simply astonishing. In a few minutes, competitors, noted for their powers of speed and endurance, were left hopelessly behind by the two riders who alone, as was seen from the first, were 'in it.' Mile after mile was passed in the fastest time on record, and still the speed of these marvellous young athletes kept on undiminished. Twenty-four miles and three-quarters were thus covered, and the leaders never at any time were more than three yards apart. They occasionally passed each other, and in the intervals the leading man had his opponent close to his hind wheel. The spurt which the winner put on at the end of the last quarter-mile, which landed him the winner by a few yards, was a sight to be seen once in a lifetime. Mr. Gatehouse has since ridden twenty miles and more—the details will be found farther on—within the hour on a tricycle; the first who has ever performed the feat, though it has been done many times on the bicycle.

I never can understand why cycle racing has not yet become more in vogue than it is among fashionable people, who are always on the look-out for some new excitement. The scene is generally a pretty one, the grounds on which the meeting is held are usually picturesquely situated, the racing is first-rate, and, unlike some other competitions of which we occasionally hear, one may be perfectly certain that the best man will win.

It is greatly to the credit of cycling that nothing in the nature of a 'ring' has ever been allowed to be established. There is little or no betting, and there are none of the sights which make many racecourses, especially racecourses in the vicinity of towns, unfitted for the presence of ladies. They are meetings

purely for sport, and if once their attractiveness was discovered, I do not doubt that they would take a very prominent place among the sports which people crowd to see.

So jealous have cyclists been as to the purity of their favourite sport, that a battle royal has been waged in recent times on the subject which no doubt has occasionally attracted the reader's attention in the newspapers, and caused him to wonder what all the disturbance was about. It is that which is known among cyclists as the 'maker's amateur' question. One of the fundamental canons of cycling law is, that no man, calling himself an amateur, may compete for a money prize, or in any way make a money profit, out of his cycling prowess. If he does, he forfeits his amateur status, and can thenceforth only race as a professional. Makers of cycling machines naturally look upon it as of great importance to have their machines ridden by the best performers, and to see them win as often as possible. To build a machine good enough to win a championship race is the best form of advertisement that could possibly occur to a maker, and he would adopt any honourable means of achieving that distinction. This is only reasonable, and indeed praiseworthy; but it came to pass in process of time that a line of conduct was adopted which, though not discreditable to the makers, who might naturally be supposed to do the best they could for their own interests, was not quite so worthy of praise when practised by racing cyclists. A class of men calling themselves amateurs and competing in amateur races, were known, or at least shrewdly suspected, to accept money from manufacturers for riding their machines. If anything of the kind was really done, it was obviously a matter very difficult to detect, and also one that was very unfair to the real amateurs who raced for a love of the sport, and for honour and glory only. The latter were at a great disadvantage; occupied during the day in business pursuits of various kinds, they were unable to give the same exclusive attention to training as those who devoted their time to it professionally. Besides, amateurs naturally

wished to keep amateur races to themselves, not merely for social reasons, but because it might reasonably be supposed that persons who would race under false colours would not improbably carry their inaccuracies even farther. The result was a series of protests, an examination by a committee of the N. C. U., and the disqualification of a considerable number of the racing men whose names had been prominently mentioned.

Besides the amateur performers, there is, especially in the Northern and Midland counties, a considerable professional body, to whom, as to professionals in other sports, the rules about money prizes and gate-money do not apply. It is, however, remarkable that the best performances of the professionals do not, except in a very few distances, exceed that of the amateurs. Cycling is not like billiards, in which professional performers are far and away in advance of all competitors. The performances of amateurs surpass at most distances those of their professional rivals, and, as a rule, at distances over twenty-five miles up to a hundred the record is held by amateurs.

I do not know whether any other opportunity will present itself of discussing a subject on which a considerable amount of nonsense is occasionally talked. I mean the possibility of applying electricity to tricycles. We often read that such a machine is on the point of being perfected, and there follows incontinently a great deal of quite unwarranted speculation in the newspapers as to the way in which the new adaptation of motive power will revolutionise locomotion. Fancy runs away with enthusiastic scribes, who declare that a man will be able to run from the Land's End to John o' Groat's, surmounting the most difficult hills that are encountered on the way, with an ease greater than the most accomplished cyclist can now attain to. This assumption is altogether beside the mark. The truth is that it would be quite easy to construct such a carriage, but that, as far as the ordinary cyclist is concerned, it would be absolutely useless when made. As a toy to run over a track, fitted beforehand

with the necessary appliances, or between two points at which ample engine and electrical-power was available, the design of such a carriage would present no difficulty. I will produce a dozen members of the 'Dynamicable Society' who will be happy to construct one at the shortest notice. There is only one objection. It would be utterly useless when made. It would not pay. That is, for the same expense that the cost and maintenance of it would require, greatly superior modes of locomotion could be provided, whether horse or steam power, that would be available for general use, instead of the extremely limited service which could be obtained from the electric machine. The limitations of which I speak depend on electrical considerations which may in future be somewhat modified but can never be entirely removed. It must be clearly understood that I am not speaking of electrical traction generally, in which I am a firm believer, and which I think is destined at no distant time to revolutionise our known modes of locomotion. I speak only of electrical traction as applied to tricycles such as are now in ordinary use.

The reasons on which these remarks are founded will be better understood if we examine the conditions on which electrical traction is possible. To make an electrical carriage travel you must have two things—(1) a motor to communicate motion to the wheels, and (2) either a dynamo or a battery of electrical storage cells popularly known as accumulators, to communicate energy to the motor, and (3) a steam engine or gas engine, to drive the dynamo, and charge the accumulators. It would be impossible in practice to carry on the tricycle itself a dynamo to impart mechanical energy to your motor, because the dynamo must itself be driven by a gas or steam engine, and if you employed either the one or the other, it would be easier, cheaper, and more economical from a mechanical point of view, to drive by steam or gas power direct, without any dynamo at all. Besides, the weight would put an engine and dynamo out of the question for a tricycle. Accumulators only need be taken into consideration.

The electrical energy to be obtained from a given accumulator is proportionate to the weight of the metal plates forming the cell. At present one of the best known and trusted forms of storage cell in the market is that known as E.P.S. : the cell made by the Electric Power and Storage Company. I do not say it is the best. Who shall decide when doctors disagree? I am myself inclined to believe, and indeed have reason experimentally to feel convinced, that we can get a greater power in proportion to weight than is given by this cell ; but in our present state of electrical knowledge the E.P.S. is a fair cell to take as a standard. A single E.P.S. cell is known when fully charged to give one electrical horse-power of energy for one hour, with a weight of between 70 and 80 lbs. If used at full power for an hour this cell will run down, and will have to be re-charged from a steam-engine and a dynamo before it is again used. If used at half-power the cell would last without re-charging for two hours ; and so on in proportion.

Suppose the weight of your tricycle to be 90 lbs., and a single cell, or a lot of small cells, to be 70 lbs. ; your motor and machinery could not possibly be less than 50 lbs., which makes up 210 lbs. Taking the rider at ten stone, the total weight to be driven would be at least 350 lbs. ; and as an ordinary cyclist finds it as much as he can conveniently do to propel his own weight and a machine of 80 lbs., we may fairly assume that the electrical tricycle would require half a horse-power to drive it efficiently. The one horse-power of electrical energy at the rider's disposal would therefore last about two hours, and would then be exhausted.

For electrical reasons, it would be requisite to have more than one cell, because you could not get the full amount of efficiency out of your motor unless it was wound in such a manner as to take a current of higher tension than would be given by a single cell. But it is not necessary to go into that. I assume that one horse-power for one hour can be got with a weight of 70 lbs. If at any time the electrical energy fails, the rider will be obliged to drive by his unassisted exertion a

machine of 210 lbs. ; which, as any cyclist knows, would be too much for the strength of any ordinary person. The ordinary machine weighs no more than between 85 and 90 lbs.

But the contingency of the electric energy failing would occur as a matter of course at the end of a couple of hours, for by that time the stored electricity would be exhausted. Unless at the end of that time the traveller was fortunate enough to find himself in the immediate neighbourhood of some person possessed of (1) a steam-engine, (2) a dynamo, and last, but not least, the accommodating disposition which would prompt him to place these advantages at the disposal of the passing cyclist, he would have to stop, or else trust to his muscles. Even if a good Samaritan with an engine and dynamo were available, the traveller's troubles would by no means be at an end ; for he would have to wait while his accumulators were being re-charged. This is a long process taking eight or nine hours. If his two hours' run had taken him twenty miles from home, by the time he started on his journey for another stage, he would have been ten hours on the road, and would have travelled at the average speed of two miles an hour. At this rate he would take nineteen days, travelling day and night, to go from the Land's End to John o' Groat's ; and as the distance has already been performed in five days and some hours on a tricycle, and in even less time on a bicycle, the existing record time would not be broken by such a performance ; and to do the journey even in nineteen or twenty days he would have to provide an engine and dynamo ready to his hand at the end of every twenty miles ; which is absurd, as the great mathematician Euclid learnedly remarks in his celebrated thesis '*De ponte asinorum.*'

Doubtless it would be open to the owner of the electric tricycle to disregard electric horse-power, and proceed on his journey by the aid of such man-power as nature has gifted him withal ; but in that case he had better discard his electric carriage, and get a lighter one. It is possible, no doubt, that in the distant future, the use of electricity may be so generally

diffused that accumulators may be found everywhere available and ready charged ; as a glass of beer and a crust of bread and cheese are now. It is, however, hardly worth while to speculate about possibilities which depend for their fulfilment on a total reversal of the present habits of the people.

As regards *the construction* of an electric carriage, there is really no insurmountable difficulty whatever. It is quite possible that along given lines of road electric carriages, whose arrivals and departures are carefully arranged for beforehand, may travel expeditiously and economically, but that has nothing to do with what men usually mean when they talk of electric tricycles.

It is also quite possible that even now a proprietor or manager of works where steam and electric energy are always available and constantly in use, and who has a round of twenty miles or so to make every day, might conveniently adopt an electric tricycle as a means of locomotion. In that case all the conditions of success would be at hand. After the daily round the accumulators could be re-charged ; but even here there is a good deal to be said in favour of a horse and a comfortable carriage behind it. The insoluble problem of an electric tricycle may be stated in a few words as follows : *How to have electric energy always at hand, and always available.*

Among other institutions which have been called into existence by the requirements of the cycling world, are a number of newspapers, magazines and annuals which deal almost entirely with the events and gossip of cycling life. With the exception of one or two which have a more stable existence, the newspapers die, amalgamate, and reappear in new dresses so often, that it is difficult to say with any certainty how many of them there are. In the early days, when everybody was learning to ride, and all who had taken to the wheel were busily engaged in designing new dresses, and inventing new dodges to add to the comfort of the rider, letters, editorial comments, and leaders appeared from week to week which were amusing and readable. But the best way of doing everything was at length fairly

established, and it became more and more difficult from week to week to write anything new. It was a critical time for the Cycling press, and it has not as yet finally discovered a way out of the difficulty. The imperative demand for 'copy' is sometimes satisfied by personalities, which are inexpressibly dreary to outsiders. Even more dreary are the jokes, which refer to persons and events not generally intelligible, and are worse than the personalities. There is evidence that the leading cycling papers have been induced, by the good sense of their editors, and the opinions of the majority of their subscribers, to turn away from these defects, and revert to the healthy condition which distinguished cycling journalism when it was in the hands of a small knot of clever pioneers. As the sport spreads and cycling events of various kinds take place in all parts of the kingdom, it is increasingly difficult to supervise the lucubrations of an extended staff: but if cycling journalism is to become all that its well-wishers hope and anticipate for it, the effort must be resolutely made.

The thoughtful observer may draw for himself, from the pages of these weekly papers, a tolerably vivid picture of the social organisation which has sprung up through the intervention of cycling. The first point that suggests itself is the extent to which club life has taken possession of the younger members. Almost every village now has its cycling club, and in the towns, the accidental camaraderie afforded by a common pursuit seems to have afforded just that degree of impulse which was necessary to induce the formation and preserve the cohesion of such associations. Apart from politics as cycling necessarily is, and apart too from mere sociality, though it lends itself easily to the encouragement of social meetings of the youth of both sexes, it is difficult to find outside of cycling any inducement, operative all the year round, for the formation of clubs such as are now so common. A cricket club in January would be an absurdity, and, besides, cricket, good game as it is, does not include the gentler sex among its votaries. The reverse is the case with cycling; and anyone who will take the trouble to study the

cycling papers in the winter time will see that not only do the ladies of the cycling world join in the club life to which they are by this means almost for the first time admitted, but they make their presence and influence felt in a variety of ways. In a number of a cycling paper now before me, dated on a certain winter day, there are descriptions of not one, but of half a dozen, dances given under the auspices of one or other of the well-known cycling clubs. The ladies' column, edited generally by a lady, does not omit to chronicle amongst other and less weighty matters the pretty toilettes which have figured at these entertainments, or to discuss with an authority to which male writers could never pretend, details of feminine cycling outfit.

Besides these dances every club has its dinners and social meetings of various kinds, and the speeches at these entertainments figure often at a considerable length in the cycling papers. It may be noted as a matter of satisfaction that, although all shades of politics must almost necessarily be represented at gatherings like these, the toasts and speeches are, without any exception that has ever come under my observation, enthusiastically loyal. The speeches naturally refer for the most part to local matters, the merits of the energetic Captain of the club, the perfect amiability under provocation of the long-suffering Honorary Secretary, or perchance the health is proposed of some local flier who has carried off an important contest on road or path. These and trade advertisements, descriptions of mechanical improvements, or of patented nicknacks related to cycling machines, and in some instances a well-written series of papers on mechanics, photography, or some branch of physics which might prove valuable to the cycling public, form the staple of the weekly sheets. In the number which chances to be before us the festivity fixtures occupy a whole closely printed column. There are three or four columns of editorial gossip about cycling matters, not only in this country, but also on the continent and in America. Then follow half a dozen columns of paragraphs twenty lines long giving an account of the proceedings of the more important

clubs, their dinners, elections, and preparations for the next season, a balance sheet of the N. C. U. Reserve Fund, with a stirring appeal from Major-General Christopher, a veteran who with almost boyish enthusiasm has devoted a large amount of his leisure, and his experience gained in the larger field of Indian administration, to the advancement of the interests of cycling. Then come columns devoted to the reports of 'own correspondents' in the various local centres of the N. C. U. There is a column devoted to inventions and inventors, and a goodly array of illustrated advertisements which shows that the circulation of the paper must suggest satisfactory reflections to the proprietors.

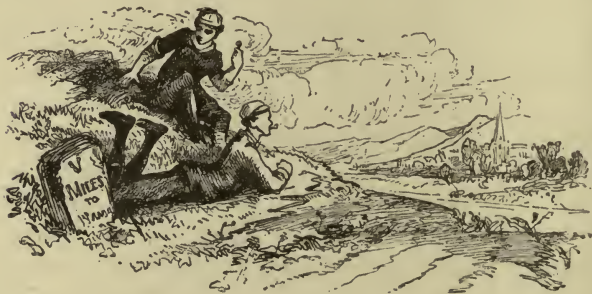
There is one reflection which can hardly fail to suggest itself to a recent arrival in Cyclonia, and that is the strange but undeniable fact that every third cyclist is a photographer. Perhaps photographer is too harsh a term to apply to these well-meaning persons ; the justice of the case would be met in most instances by describing them as dabblers in photography. They are for the most part harmless, and operate chiefly on each other, and on their friends and relations. It is to be hoped, by those who are interested in such matters, that future generations may not be reduced to the necessity of taking their impressions of the personal appearance of the greater lights of cycling from these libellous productions. The advertising columns of the cycling papers are full of announcements of photographic materials fitted for conveyance on tricycles. The way in which cameras fold up into impossible dimensions, and so to speak almost annihilate space, is among the things no fellow can understand. I have never myself encountered one of these artists at work, but I have been told that the camera is designed to screw on to the wheel, the machine itself forming a tripod stand, and that a number of sensitive plates can be stowed away inside the backbone, or at least quite out of sight : but that perhaps is an exaggeration.

It should not be omitted while discussing the subject of cycling journalism that some of the periodicals are adorned with

excellent illustrations. It is not so easy as it might seem—or if it be easy it is not often done—to draw a tricycle correctly ; it need not be said that any carelessness in that respect would not be tolerated by a society of experts like those to whom the artist referred to appeals, and so his tricycles, and other cycles too, are models of correct design, and what is more, the riders of them satisfy by their correct positions on their iron steeds the strictest requirements of the most classical masters of the art. The Christmas number of 'The Cyclist' for 1885, written by Messrs. A. J. Wilson and Morrison, and illustrated by Mr. George Moore, illustrated in verse and prose, and with pen and pencil, a journey through the imaginary kingdom of Cyclonia. It was a clever squib on things and persons best known among the world of cyclists. Among notable cycling productions there should also be mentioned one which has gone through several editions, and is indeed almost, as its title indicates, indispensable to those who wish to understand the mechanism of tricycles, or to know the history of the trade—I mean Mr. Henry Sturmeys 'Indispensable Handbook both for the Bicycle and the Tricycle.' But the bibliography of the sport will be found elsewhere in these pages, so here I will say no more.

1887.

B.



REST ON A RIVER BANK.

CHAPTER II.

HISTORICAL.



CYCLING, in view of its recent developments, cannot be excluded from any comprehensive list of athletic sports. But at the same time it must at once be admitted that it differs in very many points from all other branches of athletics. Thus the walker, the runner, the jumper, and all other votaries of pedestrian sport, find their alpha and omega in public competitions, on the cinder path or the grass

plot, and their exercises for the development of their powers, in one direction or another, are engaged in solely with a view to complete their preparation for some forthcoming contest. Although these exercises undoubtedly conduce to a healthy habit of body, sound wind,

and strong, muscular limbs, yet beyond this very great gain, athletics, as such, fulfil no purpose of value to the community at large, and least of all an economic one. The cycling sport.

on the other hand, has an economic side, which in real value, in its relations to everyday life, far exceeds the merely competitive developments of the pursuit ; and were cycle racing, in all its branches, utterly abolished to-morrow, the interest in, and more particularly the practical value of, the sport would still continue unabated, owing to the fact that it possesses certain solid advantages which really constitute the life and soul of its particularly vigorous and healthy existence. The economic side of the sport so much insisted on may be found in the practical use of the wheel in daily life ; its hygienic value as a means primarily of healthy exercise is recognised and proved by the personal and practical experiences of thousands of people throughout the world, to whom a little exercise, combined as it is with a little pleasurable and stimulating excitement, is of the very greatest value from a medical point of view. Last, but by no means least, must be considered its great convenience in the stern business of life, whether as a means of economy in time or in money. The number of clergymen who use the tricycle in the discharge of their parish duties, and find in the silent carriage, always ready at a moment's notice, the most useful and convenient of vehicles for their work, is very large ; but no more need be added to what has been already said as to the economic side of the sport, as the most casual investigation will at once demonstrate clearly the growing value of the machine.

It is intended to chronicle in the following pages the past of the sport which promises to have so remarkable a future, and we may begin by remarking that the bicycle of the present day is a descendant in the right line of the 'dandy,' or 'hobby horse' of 1819, so successfully and unmercifully caricatured in the facetious prints of about that date. The 'hobby horse' was a foreign introduction, having been brought from France, where its use had been almost stopped by the bitter satire and the fierce ridicule which met its users. The machine was introduced under the name of the 'Draisene,' or 'célérifère,' the first name being derived from the alleged inventor, but probably

only the first introducer of the hobby horse into England, who is in contemporary records called impartially Baron von Draise, Baron de Drais, M. Draise, and is said to have come from Mannheim, or from Frankfort-on-the-Main. He at any rate introduced into England from France the 'hobby horse.' This machine consisted of two stout equal-sized wooden wheels



CARRIER TRICYCLE.

held in iron forks, the rear fork being securely bolted to a stout bar of wood, 'the perch'; whilst the front fork passed through the perch, and was so arranged that it could be turned by a handle, so as to steer the machine after the manner of a modern bicycle, though of course the construction was much more clumsy and complicated. In the middle of the perch or longitudinal bar was placed a cushion, on which the rider sat; and just in front of this was another and smaller cushion raised

on a bracket, on which he leaned his chest. The feet, when the rider was seated astride this contrivance, just touched the ground comfortably, and he propelled the machine by running with long and forcible strides, the machine of course progressing between the strokes and of its own accord down hill. If the contemporary sketches are any guide, this was always done at a breakneck pace ; in fact, none of the earlier dandy horses had any breaks fitted to them, and, owing to their great weight, there is little doubt that they must have rushed down the hills in a somewhat startling manner. As may easily be imagined, the exercise was by no means graceful, and those who indulged in it got unmercifully laughed at, one wit defining hobby-horse users as riding in their own carriages and walking in the mud at the same time. A glance at the caricatures of the period, of which there is a good collection in the British Museum, will show to what an extent the novel exercise must have been taken up. In one graphic sketch the blacksmiths of a posting village are seen pursuing the hobby riders, upsetting them and smashing their machines to pieces with hammers, the inscription showing that this was done because the hobby never required shoeing, whilst a glance at a genuine hobby, several good specimens of which exist, demonstrates the fact that, unlike their successors of 1895, the blacksmiths of 1819 could hardly have earned anything for the repair of break-downs, the sturdy proportions of the machine looking as if they would defy all attempts to injure it ; albeit the spectator naturally wonders what would have been the fate of an unfortunate rider who got mixed up with the clumsy and heavy vehicle in the case of a fall. Unmercifully lampooned and ridiculed, the beaux and dandies of the day soon dropped this somewhat laborious exercise, and the hobby disappeared almost entirely from public view. A few yet remained, and were ridden by a small body of enthusiasts who still hoped to popularise the sport. But the jar of the iron-tired wheels, and the peculiarly awkward position (which tended to produce hernia), soon obtained for the machine

a very bad name, and its use gradually lapsed. Still, eleven years after the great hobby year of 1819, namely in 1830, it is recorded that certain 'improved dandy horses' were issued to the postmen in a rural district, where, doubtless, they were used for many years, but they were not replaced as they wore out, and the postmen had once again to trudge on foot.

It was not until two or three years prior to the Great Exhibition of 1862 that the first real advance is recorded towards the production of the bicycle of to-day. 'Velocipedes' or 'carriages to go without horses,' 'manivelociters,' 'bivectors' 'trivectors,' 'accelerators,' 'allepodes,' had one after another been brought before the public, as the latest and most valuable invention in this direction. Some of the designs were marvellous in their impracticability. One, for example, was a full-sized coach with accommodation for six persons, one of whom steered from the box, four passengers sat inside, and the whole was to be driven by means of two foot levers *by one footman*, who was to stand in full uniform at the back of the coach as footmen usually do. This unfortunate is represented in a three-cornered hat and a laced coat, and cyclists of to-day will doubtless be ready to sympathise with the unfortunate persons who were called upon to attempt this light and easy task. A glance at some of the scientific journals of the time will show that in the early days of velocipedes inventors were as enthusiastic, in their belief in their designs, as the most impracticable of modern geniuses. Our manufacturers claim for the machines they make the highest qualities of lightness, strength and speed, ignoring the fact that the last named qualification depends upon the man, and not on the machine he rides. Inventors nowadays invariably pooh-pooh opposition, and assert the great advantages possessed by their last invention; and so, we find, did their prototypes before the bicycle was invented. Thus the following appears in No. 57 of the 'Mechanics' Magazine, Museum, Register, Journal, and Gazette,' published on Saturday, September 25, 1824:—

SELF-MOVING CARRIAGE.

Mr. D. McDonald, of Sunderland, informs us that he has invented a 'Self-moving Machine' for travelling on roads, which has carried seven persons. It is propelled by means of treadles. A man sits behind working the same, and there is a fly-wheel operating upon two cog-wheels, which operate on a square axle. You will, perhaps, think the man behind has hard labour—not so. From the velocity of the fly-wheel, together with the aid of a lever, which is in the hand of a person in front steering, he has not often to put his feet to the treadles. Mr. McDonald intends, when he shall have improved the friction of the body of the carriage, to present the same to the Society of Arts; and as he desires to receive no emolument for the same, he hopes it will come into general use.

How charming was the confidence, how great the magnanimity, of Mr. McDonald! Perchance he 'improved the friction of the body of the carriage' too much; for, strange to say, it never seems to have come into the general use anticipated by its inventor. 'You will perhaps think the man behind has hard labour?' Perhaps! With seven persons in the 'self-moving' carriage it would have been doubly interesting to have heard the sentiments of 'the man behind.' In the same magazine, in its issue for September 6 of the same year, there is a record of another of these facetiously named 'self-moving carriages,' invented by a carpenter of Buckland, near Chard, which is said to have been of 'very light construction,' whilst 'K. W.,' a Welshman, describes a lever-action machine, which accommodated two persons besides 'the one who conducted it,' and it is further stated by its inventor that it 'went with ease eight miles per hour.' This must have been under favourable circumstances, say down a very steep hill, for a steep hill only would have sufficed to overcome the friction of the numerous cogs and chains introduced into the Welshman's design. All the 'self-moving carriages' of this early date were to be propelled by levers, but there seems every probability that the credit of first applying the crank action to velocipedes belongs to an English firm, as Messrs. Meheuw of Chelsea showed in the Exhibition of 1862 a three-wheeled velocipede, the front wheel

steering as in a modern bicycle or the old dandy horse, the other two wheels, which were of course somewhat smaller, being placed side by side behind. This type is to be seen to-day in children's toy tricycles, and also at the Crystal Palace and other places where velocipedes are let out on hire by the hour. This English-made machine was fitted with a pair of cranks to the front wheel.

The hobby horse of forty years before was not forgotten, and it is more than probable that several of the visitors conceived the idea of fitting the cranks to the dandy horse from seeing the Chelsea firm's velocipede at the Exhibition, albeit there is pretty good evidence forthcoming to prove that the crank had been so adapted previously to 1862. Gavin Dalzell, a cooper of Lesmahagow, Lanarkshire, was for a long time given the credit of being the first user of a crank-driven bicycle ; but after an exhaustive investigation Mr. James Johnson of Glasgow has been able to establish the fact that Kirkpatrick Macmillan, of Courthill, Keir near Penpont, Dumfriesshire, rode such a machine between 1830 and 1840. The cranks were fitted to the rear wheel, and long bars were attached to them and jointed to swinging levers in front. About 1866, a Parisian firm, MM. Michaux et Cie., sent over to England a perfected bicycle, which was considered at that time the acme of ingenuity and lightness—it is scarcely necessary to add that the same machine would nowadays excite amusement and derision by its weight and clumsiness. The first machines imported found their way to the gymnasiums, and one of the earliest arrived, in January 1869, at a gymnasium conducted by Mr. Charles Spencer, who was destined to do much towards the introduction of a sport which has now taken so great a hold upon the public favour. The account which is given in an old magazine¹ of the arrival of this machine may be briefly epitomised as follows :

In the early part of January 1869 (writes 'John M., jun.,' who may now be identified with Mr. John Mayall, jun., the photo-

¹ *Ixion.*

grapher of Regent Street), I was at Spencer's Gymnasium in Old Street, St. Luke's . . . when a foreign-looking packing-case was brought in. . . . As the case was opened I recognised a piece of apparatus consisting mainly of two wheels, similar to one I had seen not long before in Paris, but the one I saw in Paris was much smaller, and a lad being mounted upon it who drove the machine by putting his feet easily to the ground, I looked upon it as a mere *jouet d'enfant* such as the Parisians are so clever in designing. It produced but little impression on me, and certainly did not strike me as being a new means of locomotion. A slender young man, whom I soon came to know as Mr. Turner of Paris, followed the packing-case and superintended its opening; the gymnasium was cleared, Mr. Turner took off his coat, grasped the handles of the machine, and with a short run, to my intense surprise, vaulted on to it, and, putting his feet on the treadles, made the circuit of the room. We were some half-dozen spectators, and I shall never forget our astonishment at the sight of Mr. Turner whirling himself round the room, sitting on a bar above a pair of wheels in a line that ought, as we innocently supposed, to fall down immediately he jumped off the ground. Judge then of our greater surprise when, instead of stopping by tilting over on one foot, he slowly halted, and turning the front wheel diagonally, remained quite still, balancing on the wheels.

'John M., junr.'s' experiences are curious as illustrating the fact which so few can realise nowadays, that at that time the possibility of remaining on two wheels arranged bicycle-wise was not recognised. This writer's ideas of riding at this early stage were confined to a conviction that he must hold the handle straight, in a most unyielding manner; but he soon mastered the machine sufficiently to ride from London to Red Hill, in an attempt to get to Brighton, and he returned from Red Hill by train, exhausted and covered with dust and glory.

Such, then, was the advent of the bicycle. These earlier machines were of great weight, a radical fault which speedily began to be corrected, the riders of the machine, even at this early period, having a very clear appreciation of the value of lightness in the vehicles they had to propel. English manufacturers very soon began to take up the business, and, with

characteristic thoroughness, went in for improvements from the first. Capital was invested, plant laid down, and a rapid change took place. The French vehicles, light as they were by comparison with the old velocipedes and dandy horses, were soon surpassed by the English-made goods. The French machines were indeed regarded merely as toys, and the manufacturers, with the experiences of the dandy horse before them, thought that the new fancy would die out as rapidly as did the earlier one ; but their English *confrères* with greater perspicuity saw that the new machine had a great future before it, and made their arrangements accordingly.

The earliest enterprises of note in connection with the manufacture of cycles were started in Coventry. The trade in woollen and worsted stuffs of this city and of the county of Warwickshire was at one time very extensive, but it gradually decreased owing to the establishment of an important branch of the ribbon trade, employing at one time 17,000 or 18,000 looms. This latter branch of industry had in turn been much depressed, partly through foreign competition, and other branches of business were similarly affected. The city was therefore eager to welcome a new enterprise, the manufacture of the bicycle was taken up, and Coventry soon became noted for the excellent machines which were despatched from its workshops. 'The city of spires,' as Coventry is called, from the three spires which stand close together, forming a conspicuous landmark from whichever direction the place is approached, thus became the metropolis of the cycling trade, and the centre from which thousands of the best machines are distributed annually throughout the civilised world ; and, as a natural sequence, the head quarters of the largest and most widely circulated of the many papers devoted to the interests of the sport, 'The Cyclist.' The three and four wheeled velocipedes of a former day fell rapidly into disuse, and the light and speedy two-wheeler grew as quickly in public favour. The bicycle was soon encountered in every part of the kingdom. Many a good story is told of its first appearances in out-of-the-way places.

Punch's benighted countryman, bolting from an apparition which 'looked like a man a-ridin upon nawthin,' illustrated but one phase of the astonishment with which people regarded the novelty. The growth of the sport in public favour was very rapid, and cautious observers again began to remind manufacturers and cyclists of the fate of the hobby horse, and to prognosticate the early fall of the bicycle from its mushroom elevation ; but, just at this time, when a slight lull in the interest occurred, the records of several feats of long-distance road-riding found their way into the papers, and at once opened the eyes of the public to the fact that the toy of the hour possessed solid advantages which would insure for it a permanent place amongst the pastimes of the age. A machine, of whatever type, which would enable a man to ride forty, fifty, or even sixty miles in a day, with comparative ease and comfort, must, the observers argued, be of some service, and accordingly every day brought fresh pupils to the cycling teachers to acquire a practical acquaintance with, and take an active part in, the new sport.

In the meantime the makers were by no means idle, and various modifications of the original machine were rapidly introduced. Wooden wheels and solid iron frames were replaced by 'spider' or suspension wheels constructed entirely of metal and tubes of the same material. India-rubber superseded the iron tires, and improvement after improvement was devised until the invention of the step made it possible to mount still higher wheels.

Many ingenious mechanics laboured at this time in the field of cycling invention, prominent amongst them being Mr. James Starley. Keen of apprehension, fertile in expedients, Mr. Starley had settled down in the employ of the Coventry Machinist Company, then devoted to the manufacture of several classes of sewing machines, the trade having been encouraged in Coventry to find employment for a number of persons hitherto engaged in the watch trade, which was then at a very low ebb. As far back as 1865 Starley had made a

velocipede with suspension wheels. It was not so marked a success as to encourage him to persevere in that direction, but in 1868 he saw a bicycle for the first time, a French-made machine having been brought to Coventry by a nephew of Mr. J. Turner, the manager of the Coventry Machinist Company. This gentleman, Mr. Rowley Turner, is probably identical with the 'Mr. Turner, of Paris,' who took a velocipede to Spencer's gymnasium. Mr. Turner was anxious to place an order for a number of these machines, and the manager of the company happily accepted it. Thenceforward the cycle-manufacturing trade grew rapidly, and many hundreds of firms in all parts of the kingdom are now engaged in producing cycles and their accessories, Coventry, Birmingham and Nottingham being perhaps the most important centres of the business.

Competition is very keen, and the result is that each maker tries to excel the others in some way. One firm makes a speciality of one class of machine, another of another, and in all cases the result is of direct benefit to the active cyclist, for any point which requires attention is instantly looked into by ingenious and clever mechanics, and a remedy or improvement suggested. To those who have not carefully investigated the matter the price paid for machines seems high, but it must be remembered that before the cycle can be brought to the necessary pitch of excellence a vast amount of money has to be spent in experiments, and any small item of alteration or improvement may throw out of use machines or parts which lie ready to hand: thus the manufacturer is constantly finding himself burdened with obsolete patterns in castings and machines which, but a few weeks before, represented the 'latest improvements.' Moreover, the skill employed in the construction of a trustworthy machine has to be paid for, and paid for highly. Skill has much to do with it. It is perfectly well known that two workmen may be working side by side with the same materials, and that one will make a wheel which may last ten years, whilst the other may make one which will not stay true for ten days. The exact reason is difficult to

discover, but the fact remains ; and, as no test but a practical one is of any service in these cases, it will be easily understood that the services of a good workman are not to be obtained for nothing, whilst a visit to any large cycle works will show that many machines and much skill and ingenuity have to be exercised before the modern machine can be placed satisfactorily on the market.

A trade thus rapidly developing necessarily implied a steady and increasing demand for its productions, and that demand could only be legitimately fostered and encouraged by the performance of some noteworthy feats upon the newly introduced machine. In the earlier days of the sport these took the form of long rides upon the roads. One of the first of such performances was a trip undertaken by certain members of the Middlesex B.C. from London to John o' Groat's House, the most northern point of the British Isles. The four tourists were Messrs. C. Spencer, Hunt, Leaver, and Wood, and the ride was begun on June 2, 1873. The machines were of the most approved type, although of course very unlike the vehicles of to-day. The four adventurous riders were accompanied for a few miles of their way by friends, but they soon distanced their escort, and, pressing on, reached Buckden in the evening, having rather injudiciously ridden sixty-five miles in the first day, this being a very notable performance at that period. On the 3rd the party rode on, and, after encountering a rustic who upset one of their number, they eventually reached Newark, the second day's journey being forty-three miles. On the 4th, Wentbridge was reached, the distance covered being forty-seven miles. June 5 proved wet and windy, and the wayfarers suffered accordingly, only accomplishing twenty-three miles, and reaching Wetherby very much exhausted. The 6th of June was more favourable, and the party covered forty-seven miles ere resting for the night at Darlington. On the 7th Newcastle was reached, distance for the day thirty-two miles ; 8th, Alnwick, thirty-four miles ; 9th, Dunbar : the roads and weather being very favourable, the riders went fifty-five miles ;

10th, Edinburgh only, in very bad weather, twenty-eight miles ; 11th, Birnam, a journey of seventy miles, some part of it however being represented by the Ferry across the Firth of Forth ; 12th, Kingussie, a good ride of sixty miles ; 13th, Moy Inn, forty miles ; 14th, Dingwall, a distance of twenty-three miles ; 15th, Helmsdale, seventeen miles ; and on the 16th, fifteen days from the start, the party reached John o' Groat's House, and thus brought to a conclusion the first long-distance road ride on record. This of course attracted a great deal of attention at the time, and did much to bring home to the observant public the real value and capabilities of the bicycle.

In 1869 Mr. Mayall, jun., after his early experiences with the bicycle, determined to ride to Brighton, and this he did on February 17 of that year. He started in company with some friends, but was the only one of the party who accomplished the feat. He reached the popular watering-place in about twelve hours ; and it may be noted, as an illustration of the improved pace now achieved, that Mr. C. G. Wridgway went there and back in a few minutes more than five and a half hours.

Some notable distance rides were also accomplished by C. A. Booth, F. V. T. Honeywell, J. H. Palmer, C. Mansell, G. Croft, and others.

The interest excited by the road rides was soon diverted into parallel channels, and bicycle racing became a popular branch of the sport, the public evincing great interest in the new form of athletic exercise. Early in 1869 some cycling races were held at the Crystal Palace on the top terrace (the paved one), on which the Sphinxes stand, the races being straight away, without a turn ; whilst inside the Palace a velocipede show was held, in which were exhibited some wonderful manumotive carriages, notable amongst them being an eight-oared boat, mounted on wheels, and propelled by levers arranged to represent oars, the coxswain sitting at the stern of the boat and steering with straps which passed to the bow, so anxious were its inventors to maintain the aquatic parallel. On the

same occasion some sports took place, riders in fancy costumes tilting at the ring and the quintain in front of the Handel Orchestra.

This description of entertainment, however, soon gave way to the more legitimate forms of racing, and meetings were held in the Agricultural Hall at Islington, and also at Nottingham, Wolverhampton, and elsewhere.

From 1869 until to-day the sport of cycle racing has continued to increase in popular favour with only one slight check in 1883, when interest somewhat waned, only to become all the stronger in 1884. The inclusion of cycling races in the programmes of athletic sports has increased the popularity of those gatherings to a marked extent, and the rapid spread of cycling has of course been much encouraged by the public performances of the racing men.

Thousands of followers of the sport first had their interest aroused by the performances of our leading path riders, noticeably by the deeds accomplished by John Keen during the time he held championship honours or shared them with F. Cooper, and also by the fine riding of the late H. L. Cortis. When that splendid cyclist first accomplished the feat, on which he had so long set his heart, of riding twenty miles in the hour, the fact was widely commented on in the public press, and of necessity drew the attention of many an outsider to the sport.

In the earlier days the doctors were very much opposed to cycling, a prejudice having arisen against it owing to the fact that the jerks and jars of the original boneshaker induced headache and sometimes hernia, which latter result was very common amongst constant users of the original hobby horse ; but ere long many of them saw reason to modify their prejudices against the bicycle. It was not, however, until the advent of the perfected tricycle that the faculty gave their support with anything like unanimity to cycling ; but when the tricycle was sufficiently perfected, a large number of medical men adopted it for their own use, and very soon saw that the sport pos-

sessed special advantages from a merely health-giving point of view. Many a business man has found that the use of the tricycle combines healthy exertion with a certain amount of excitement and novelty, an amusement which affords the necessary exercise without being monotonous, and many instances could be quoted of its value in this connection. One will perhaps suffice. A medical man through ill health occasioned by an accident suffered from headache and nervousness, could not bear to sit in either a carriage or a railway train, and often walked long distances to avoid the dreaded methods of conveyance. One day at a friend's house he saw a tricycle, and becoming interested he ventured to try it. The exercise pleased him. He investigated the details of the machine and occasionally rode it, and one day awoke to the fact that he had covered ten miles without suffering, although his common sense told him that there was more jar about it than there would be in either a railway train or a carriage. Confidence thus established, he purchased a machine and rode continuously; his nervous affection was quite overcome, his own remark being that he was so concerned to know whether he was going to run over a chance half-brick in the road that he quite forgot that his head ought to be aching; and he eventually was able to subdue the trouble which threatened seriously to interfere with his comfort in life. This is but one of the many instances which might be quoted of the special value which the tricycle more particularly possesses in such cases. The novelty, mild excitement, and gentle exercise, all combine to make the pursuit so fascinating that the rider becomes expert while interest in the new pastime is fresh, and then, being expert, finds new pleasures in the pursuit.

The popularity of the new vehicle continued to increase whilst its economic capabilities were also fully recognised by the press. In the issue of the 'Daily News' for August 23, 1876, there was a leader upon the bicycle, pointing out its various advantages, and emphatically endorsing its claim to notice. It contained *inter alia* the assertion that the bicycle

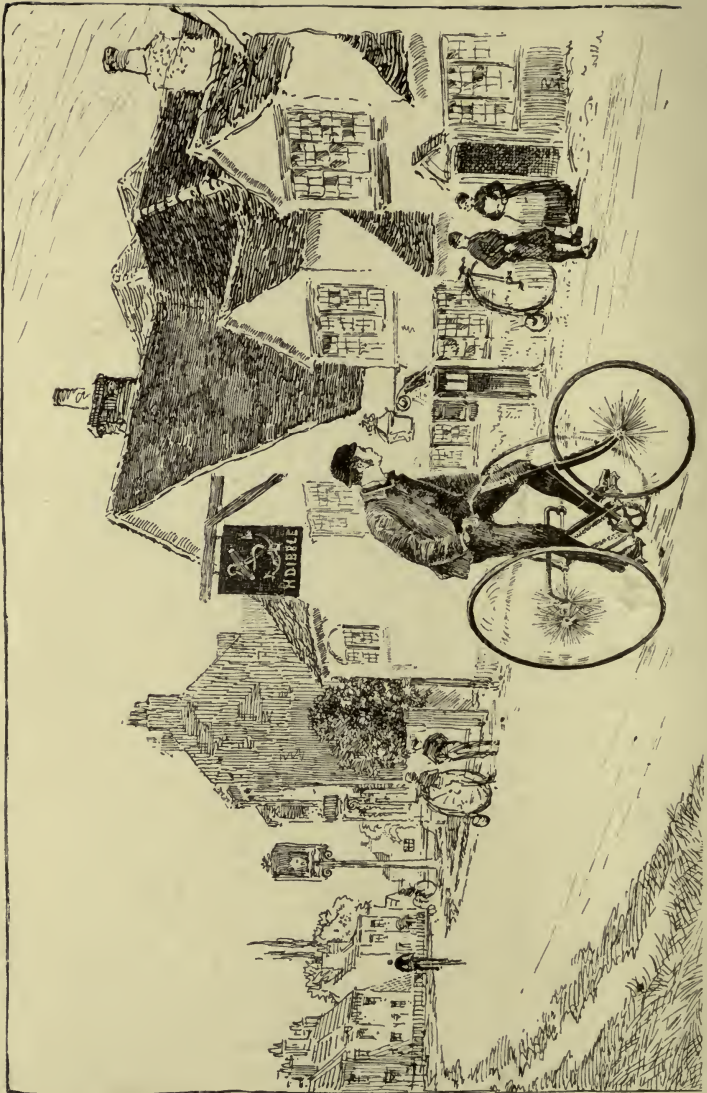
'ought to be regarded not as a mere plaything of the hour, but as a substantial addition to the conveniences of life.' A considerable advance this upon the 'Jouet d'Enfant,' from Paris !

On September 2, 1876, Messrs. Frank Smythe and W. E. N. Coston (the latter afterwards became a celebrated amateur walker) rode 205 miles in 22 hours on the road, the actual time in the saddle being 17 hours 17 minutes. This feat eclipsed Mr. H. S. Thorp's ride from London to York in $22\frac{1}{2}$ hours, the distance being $195\frac{1}{2}$ miles, which may be amusingly compared with the following announcement, a copy of which is still preserved at the 'Black Swan' at York :

YORK FOUR DAYS COACH BEGINS THE 18TH OF APRIL, 1703.

All that are desirous to pass from London to York, or from York to London, or any other place on that road, let them repair to the Black Swan in Holbourne, in London, and to the Black Swan in Coney Street, York, at each which places they may be received in a stage coach every Monday, Wednesday, and Friday, which performs the whole journey in four days, if God permits.

Rides like these naturally attracted much attention, but unhappily, then as now, there existed a number of evil-disposed persons who seemed to imagine that the bicycle had no right upon the roads, and who constantly seized every opportunity of hampering and interfering with any cyclists they chanced to meet. One very flagrant case occurred on Saturday, August 26, 1876, when the driver of the St. Albans coach lashed, with his whip, a bicyclist who was passing, whilst the guard, who had provided himself beforehand with an iron ball on the end of a rope, threw it between the spokes of the machine and dragged it and the rider to the ground. The driver was fined 2*l.* for the assault, and also paid the rider 10*l.* towards the damage to his machine, while the guard was fined 5*l.* As an outcome of this case 'a protection society for cyclists,' the embryo N.C.U., was discussed at some length in the contemporary press, but without producing any immediate result. The popularity which



THE 'ANCHOR,' RIPLEY, SURREY

the little Surrey village of Ripley and its neighbourhood now enjoys (thousands of cyclists being accustomed to visit the place on holidays and such-like occasions) renders the following extract from a journal published in October 1876 very amusing : 'As some proof of the hold bicycling is taking as an exercise,' writes the editor, 'despite the fearful state of the roads and sky overhead, no less than thirteen men rode to Ripley and dined there on Sunday last, including two of the racers at the Oval on the previous day.'

On October 9 John Keen, the then almost invincible professional champion, rode 50 miles in 3 hrs. 6 mins. 45 secs., which was at that time a best on record. No fewer than 102 race meetings were held in 1876, which demonstrates clearly the advance made, amounting to an increase of just 50 per cent. beyond the previous year, and the season closed with a marked increase in the number of cyclists and in the interest taken by the general public in the new branch of athletic sport.

In 1877 the rivalry between John Keen and Fred Cooper ran high. The pair contested frequent races for the One Mile Professional Championship, and one athletic paper grumbled because 'twelve thousand people attended a Wolverhampton meeting to see two men ride a mile'—a somewhat amusing commentary on the rapid spread of the sport which had but a few months back been superciliously patronised by the athletic section. W. Tomes of the Portsmouth Club succeeded, in April 1877, in beating the one-mile bicycle record by no less than five seconds, his record, which was, however, soon eclipsed, standing at 3 mins. 5 secs.

The 'West Sussex Gazette,' one of the largest provincial newspapers, was much taken to task for its assertion that 60,000 machines were in use at this time in the United Kingdom, and the calculation does appear somewhat excessive for 1877. On September 7 of this year the 'Daily Telegraph,' in the course of a leader, said : 'Bicycling is a healthy and manly pursuit with much to recommend it, and, unlike many foolish crazes, it has not died out ;' and during the following week the

West Kent B.C. held a race meeting on the terrace of the Crystal Palace, Sydenham, at which the late Lord Sherbrooke presented the prizes to the successful competitors. In the course of his remarks he praised the bicycle as a pleasing and healthful method of recreation, and claimed to have ridden a dandy horse in the reign of George IV. Lord Sherbrooke differed, as will be gathered, from the editor of the 'Percy Anecdotes,' for he speaks of the Marquess of Worcester, who lived in the sixteenth century, as having suggested 'that foolish thing of modern—though now almost obsolete—use, the velocipede.' In this year, on the August Bank Holiday, the first meet at Harrogate was held; the Cyclists' Camp, which afterwards became so popular, being still in the clouds. The Amateur Championship of the year fell to Mr. Wadham Wyndham, of the London B.C.

Even at this early date the cyclists were complaining of the position assumed towards the sport by the athletic associations and clubs; energetic protests were made, and cyclists were urged to combine to promote their own championship contests in place of the A.A.C. competition 'with its half-guinea entrance fee and half-guinea medal.'

Mr. Wyndham's was the last contested A.A.C. Championship, as, after two walks over, the race was finally dropped in favour of the championships then started and since carried on by the N.C.U., first established as the Bicycle Union in 1878, a complete return of which will be found in the Appendix to this volume. Meets also helped to draw public attention to the sport. A great gathering of riders was annually organised at Hampton Court. Mustering in Sandy Lane or on the Green, the riders started in a procession in pairs, each club being headed by its captain, and rode round a course previously set forth, some four to five miles in extent, ending at the top of the Chestnut Avenue, Bushey Park; this the riders passed down, and, going to right and left of the Diana Fountain, rode out through the double gates and dismounted. The press and the public took much interest in the demonstration, which, at its best, attracted

some two thousand riders, and the sport and trade received a valuable fillip just at the right time of the year.

Judged by the light of subsequent events, June 16 was a red-letter day in the history of cycling, as on that date the late Mr. H. L. Cortis, of the Wanderers B.C., made his *début* at a private meeting of his own club, held in the grounds of the Caterham Asylum, where the future champion at all distances ran second in a one mile handicap, with 100 yards start, and first in a five mile handicap with 350 yards start, the scratch man being Mr. A. P. C. Percival.

The 'cycling press' was now crowded with letters suggesting the formation of unions, associations, or leagues, for the furtherance and development of bicycling, and letters appeared weekly in support of various plans for the consolidation and organisation of the cycling interests, with results which will be found duly set forth in the chapters devoted to the N.C.U. and the C.T.C., those great associations of which cycling is so justly proud. In this year the proprietors of 'The Sporting Life' placed in the hands of the proprietor of Lillie Bridge Grounds (as representing the Amateur Athletic Club, which was at that time promoting the Four Miles Amateur Championship of Cycling) a fifty-guinea cup, to be run for over a distance of fifty miles, under the title of 'The Sporting Life' Cup. This gift was duly announced to the cycling world, and was first competed for on October 27, when it was won by Mr. Harry Osborne of the Surrey B.C. after a very fine race. The cup was put up annually for a time after this first contest, but the assumption by the A.A.C. of the Four Miles Championship as *the* championship, and the subsequent claim that this cup represented the Fifty Miles Championship, clashed unsuccessfully with the claims of the fifty miles championship established by the Bicycle Union, and caused loyal supporters of the latter body to oppose the event. It ultimately collapsed, and nothing has been heard of the cup since 1883.

1877 had shown a steady advance in the position of the sport. New clubs had been formed, more races run, and

generally more interest awakened. The makers were reaping the natural results of increased demand, and everything presaged a good cycling season in 1878. Early in that year a good deal of fun was made out of the fact that, at the annual meeting of the Society for Promoting the Employment of Additional Curates, the Bishop of Manchester stated that he understood a brother bishop had suggested the use of the bicycle to curates in his diocese; the Bishop of Carlisle, following in the same strain, regretting the hilliness of the country where he held sway, and facetiously remarking that if there was one thing a bicycle objected to, it was going up hill. The bishops could not foresee the practical use that would be made of the cycle by hundreds of the clergy throughout the length and breadth of the land to-day.

On June 10, 1878, Mr. F. E. Appleyard made his magnificent record between Bath and London in the London B.C. 100 Miles Road Race, his time (see Appendix) being 7 hrs. 18 mins. 55 secs., and his actual time in the saddle but 6 hrs. 38 mins. 55 secs., a splendid performance, more especially as for many miles towards the end of the journey the rider suffered severely from cramp, and on one or two occasions had to dismount, so great was the pain. Appleyard scarcely did anything afterwards; but his record was left undisturbed until 1884. On the day on which Mr. Appleyard performed this feat another very well-known rider, who still takes an active interest in cycling, Mr. G. Pembroke Coleman, the official timekeeper and handicapper to the N.C.U., traversed the 100 miles in 7 hrs. 25 mins. 20 secs., finishing third, Mr. W. T. Thorn, the well-known racing man, being second. Mr. Coleman's performance stamps him as a sound and practical exponent of a sport in which he holds so important an office.

In this year the tricycle was first really advertised as a practical vehicle. Messrs. Haynes & Jeffries, of the Ariel Works, announced the 'New Patent Coventry Tricycle,' which had been invented for the firm by James Starley. Several tricyclists can remember their first essays on this, one of the earliest and

best machines obtainable before the introduction of the balance gear. Long rides again marked the close of an important season. W. Britten, of the Clarence B.C., rode from the Marble Arch to Bath and back, 212 miles, within 24 hours on September 12, and in the same month Mr. Smythe, who rode with Mr. W. E. N. Coston in a similar attempt some time before, again essayed the 24 hours road record on the Wisbech Road, and covered 218 miles ; but as he picked his ground, and simply traversed it over and over again, the performance cannot compare with that accomplished by the captain of the Clarence. On the 13th, the day after Mr. Britten's feat, Mr. W. T. Thorn, the London B.C. racing man, made a bold and nearly successful attempt to ride from London to York in the 24 hours. He succeeded in reaching Doncaster, 162 miles, in 17 hrs. 10 mins. from the start, having thus 6 hrs. 50 mins. in hand in which to cover the remaining 35 miles, and he felt both well and confident of accomplishing the feat with nearly two hours to spare, when the felloe of his wheel unfortunately broke under him, thus destroying his chance of putting on a record which would have stood nearly as long as Appleyard's 100 miles.

On September 5 an event occurred which drew a vast amount of attention to the bicycle. 'The Times' on that date published an appreciative leader upon the new vehicle, containing the following remarks upon the steel steed :

The bicycle has come to the front, and is fighting for existence. Dimly prefigured in the mythical centaur, and then in the hobby horse of mediæval games, and attempted in the velocipede, now half a century old ; long prejudiced by the evident superiority of wings to wheels, the bicycle has now surmounted the difficulties of construction, and adapted itself to human capabilities—it augments at least threefold the locomotive power of an ordinary man. A bicyclist can perform a journey of a hundred miles in one day with less fatigue than he could walk thirty ; fifty miles—that is, from London to Brighton—as easily as he could walk ten ; and a daily journey to and fro between London and the distant suburbs with just the usual results of moderate exercise.

After alluding to possible ills which might arise from indulgence in the sport, the writer says :

Bicyclists are aware they run dangers, and suffer a percentage of casualties ; but they have counted the cost and found it worth while running the risk. From other points of view the objections are loud and numerous, but have upon the whole a striking family resemblance to many former objections, such, for example, as those made at the introduction of railways. The chief objection reappears in great force. Horses, it must be admitted, do not like bicycles, but neither do they like railways, and they will probably like street locomotives still less.

Going at length into the question of the dangers to the public arising from the use of the bicycle in the public streets, the writer winds up an essentially favourable article by saying :

The Legislature would be very unfaithful to the courageous principles which have hitherto guided it in the treatment of discoveries and improvements if it showed any prejudice in this matter. That would be a great injustice to the men, most of them still young, who have won for themselves a great convenience, and no less pleasure, at no cost whatever, it may be said, and without drawing upon the common fund of the food of man. Society used to be divided into the equestrian and the pedestrian orders : these people have found a third rank. Their success proves, as Johnson says, what man can do.

The closing event of 1878 was the practical retirement from the Presidency of the Bicycle Union of Mr. G. F. Cobb, who had undoubtedly been the means of establishing that body upon a firm basis, and of arranging the conditions under which it has since become so marked a success.

1879 was destined to see a still further spread in the popularity of the sport and the initiation of many new votaries into its mysteries. Early in the year the now celebrated Surbiton path, upon which the late Mr. H. L. Cortis did several of his finest performances, was thrown open to the public, and found much favour. Its fastest rival, the Cambridge track, was the scene of some further alterations of the record table, as on

May 21 Mr. Fred T. East of the Surrey B.C. won the University Ten Miles Invitation Race in 30 mins. 45 secs., then a best on record, and on the same occasion by special permission a mixed contest between amateurs and professionals was held, the distance being two miles. The selected riders were John Keen and Fred Cooper for the professionals, and the Hon. Ion Keith-Falconer and Mr. H. L. Cortis for the amateurs. The race was a very remarkable one. Cortis dashed off from the start at a rapid pace, closely followed by Keen, Keith-Falconer, and Cooper, in the order named, and these positions were maintained up to the three-quarter mile post. Cooper, who was essentially a sprinter, waited until two hundred yards from the completion of the half distance, and then dashed away, leading the quartette by some yards at the mile, reached in 2 mins. $47\frac{2}{3}$ secs. ; best on record. Keith-Falconer dashed after Cooper, with Keen on his hind wheel, and Cortis was left a yard or two in the rear. In this order they covered one mile and a half. Still keeping in front, Falconer stalled off a tremendous spurt on Keen's part, and won by about three inches in the marvellous time of 5 mins. $36\frac{3}{8}$ secs. If any evidence was wanted of the extraordinary nature of the feat, it is to be found in the length of time it stood in the record books, as it was not till the autumn of 1884, more than five years after it had been accomplished, that the flying Tynesider, R. H. English of the North Shields Club, beat these figures by covering two miles in the race for the Fifteen Miles Crystal Palace Challenge Cup in 5 mins. $33\frac{2}{3}$ secs. English's record was in its turn defeated after but a short existence by Webber, who on the Cambridge track, in the Two Miles Invitation Race, in which he defeated W. A. Illston, covered the distance in 5 mins. $30\frac{2}{3}$ secs.

On June 28, at a race meeting promoted by the Druids B.C., G. Lacy Hillier made his first appearance on a London cinder path (his *début* having been made on the gravel track at the Alexandra Palace). At Lillie Bridge, in the One Mile Handicap, receiving 155 yards start from Cortis, after winning

his heat he ran into the fence at the grand stand end of the track and fell. He was unplaced in the final.

In August yet another record was established between London and John o' Groat's, H. Blackwell, jun., of the Canonbury B.C. having covered the distance in 11 days 4 hours, arriving at John o' Groat's house on Aug. 27. In September the Surrey B.C. offered for the first time a fifty-guinea cup, to be won three times in all, for competition in their scratch race, distance ten miles, and H. L. Cortis placed his name upon it, making a best on record for ten miles on grass—34 mins. 31½ secs. The tricycle had now begun to make its way steadily in public opinion, and as a result a Kensington agent decided to promote a fifty miles road race, the course being from Kew Bridge to Blackwater and back. The winner turned up in A. E. Derkinderin, who covered the distance in 4 hrs. 55 mins. This race was carried on from year to year by a committee, until it was stopped by the police, near Caterham Junction, as a nuisance.¹

In October Cortis did the Alexandra Palace managers a good turn, as on the old path, which was by no means in good condition, the 'Long Wanderer,' as Cortis was called, made a three miles record, covering that distance in the final of the Three Miles Open Handicap in 8 mins. 55½ secs. All who saw the race must remember how the white-vested athlete flew down and up the hill and dashed at top speed round the, then unbanked, lower corner, whilst the last lap was a magnificent effort, and the victor well deserved the cheers which welcomed his return to the dressing-room.

The celebrated Over Turnpike case, in which the gate-keepers were fined for demanding an exorbitant toll, five shillings, from a bicyclist, upsetting him and detaining his lamp because he would not pay it, was decided about this time in favour of the rider, and the decision encouraged the cycling fraternity considerably.

The Cortis-Keen matches, which created such a sensation

¹ For details of the contests till prohibited see Appendix.

at the time, were run off in 1879. Much discussion had taken place in cycling circles as to the relative merits of the acknowledged champions of professional and amateur cycling. Keen possessed fine speed, and his judgment was far more matured than that of Cortis, who the next year lost the mile championship through want of 'head.' The Union showed its real strength by granting a permit for a series of contests at one, five, and twenty miles, and as Keen's old friends in Wolverhampton of course wished to see him ride, the twenty mile race was run there. The idea that the amateur had a ghost of a chance with the professional was scouted by the *habitués* of the Molyneux Grounds. The professional adopted waiting tactics, and Cortis made all the running at a good pace. Three hundred yards from home Keen made a tremendous effort, but the amateur won handsomely by three yards. Times: five miles, 16 mins. 10 $\frac{2}{3}$ secs.; ten miles, 32 mins. 11 $\frac{2}{3}$ secs.; fifteen miles, 48 mins. 19 secs.; twenty miles, 64 mins. 43 $\frac{1}{3}$ secs. Keen rode a 56-inch and Cortis a 60-inch 'Keen's Eclipse' bicycle.

The one and five mile races were run off at Stamford Bridge. Keen had been taking much care of himself after his Wolverhampton experiences, whilst Cortis had without doubt been made anxious by the over-solicitous attentions of his friends, and he was conspicuously nervous on coming to the mark. Keen, inured by a larger experience, was by far the cooler of the two, and as usual was content to wait. Cortis cut out the running in the mile at a fair pace, and no change occurred until rounding the corner into the straight for home, when Keen drew up and going wide spurred in marvellous form. Cortis, probably from over-anxiety, seemed to go to pieces, and was very erratic in his steering, and suffered defeat by a foot. Time, 2 mins. 52 $\frac{1}{3}$ secs. This result upset Cortis altogether, and in the five miles (in which his only chance lay in forcing the pace) he sat up to make Keen lead at 1 $\frac{1}{2}$ mile, Keen being forced to the front only crawled round, and Cortis in disgust did what he should have done at first and

sported marvellously. When the bell rang Cortis went for the last lap, but Keen timing his effort to a nicety won by a yard.

Times.

	mins.	secs.
One mile	2	56 $\frac{1}{2}$
Two miles	6	14 $\frac{3}{5}$
Three miles	9	14 $\frac{3}{5}$
Four miles	12	27 $\frac{1}{5}$
Five miles	15	30
Last lap, 440 yards	0	39 $\frac{1}{5}$

Cortis was dreadfully upset at his defeat, but it was, without doubt, a lucky thing for his cycling reputation that he was defeated, as had he proved victorious he would probably have finally retired from the path, and the grand performances which he subsequently accomplished would not have been placed to his credit.

It was about this time that a course of action regarding highway by-laws was adopted, and this has since been steadily followed out by the N.C.U., to the great advantage of the cycling public. A memorial, opposing certain by-laws, was presented to the justices of the county of Cambridge, signed by upwards of seventy persons, of whom sixty were fellows or late fellows of colleges, including *inter alia* four fellows of the Royal Society, three professors of the University, eight past or present proctors, six deans of colleges, and several holders of the highest legal honours, chancellor's medallists, Whewell scholars, &c. &c.

In the course of an article published about this date Mr. Charles Spencer claims to have taught the late Charles Dickens to ride a bicycle, but he fell into an error; his pupil was Mr. J. C. Parkinson, who wrote one or two papers on the subject at the time, and who, seated on the Brighton Coach, saw John Mayall, jun., struggling along a few miles outside the Southern watering-place on the occasion of his succeeding in riding from London to Brighton in one day.¹

¹ See page 65.

In February 1880 the season was duly opened according to precedent by the holding of the Stanley Show at the Holborn Town Hall ; this locale replaced the Foresters' Hall by reason of its greater accommodation—soon, however, to be found in its turn too small. The show was an immense success, though the machines then exhibited would now be considered sadly heavy and old-fashioned.

In March the Surrey B.C. by resolution decided to accept no protest against any rider who had not broken the rules of the Union. This action was taken in consequence of a threat on the part of some of the anti-Union party to protest against Cortis because he had competed with Keen under Union sanction.

On April 24 a most important athletic gathering was held at Oxford, whereat the Amateur Athletic Association was formed. The cyclists of the two Universities desired to be represented at this meeting, but the athletes decided not to admit them, having in view the fact that the cyclists already possessed a ruling body, and it was pretty generally understood amongst wheelmen at that time that cycling was to be left alone. Yet the only sport specifically mentioned in the first small leaflet circulated, containing a report of the proceedings, was cycling, a fact which raised a vast amount of feeling, which was only subdued when the Treaty of Fleet Street, as the arrangement now well known among cyclists was called, put things on a clear and indisputable footing between the N.C.U. and the A.A.A.

Coventry at this time mounted its police officers upon the Silent Steed, and the fact was duly commented upon at some length in the 'Daily News,' the writer facetiously suggesting that 'a defaulting debtor pursued by a constable mounted on a tricycle, and armed with a summons, sounds more like a horrible dream than a probable reality,' and quoted Tennyson's

New men who, in the flying of a wheel,
Cry down the past,

as appropriate to the occasion.

The Hampton Court Meet was a great success, a large number being present, and distant towns—Tynemouth, Hull, Portsmouth, and others—were represented by a contingent of riders. Over 2,000 cyclists took part in the parade. In June Mr. Frank W. Weston, an Englishman domiciled in the United States, and the pioneer of American cycling, brought over a party of four Americans, the most prominent amongst them being Mr. (now Judge) J. S. Dean of Boston. The visitors made a somewhat lengthy tour through the Midland and Southern districts, and were entertained at dinner in Coventry and London.

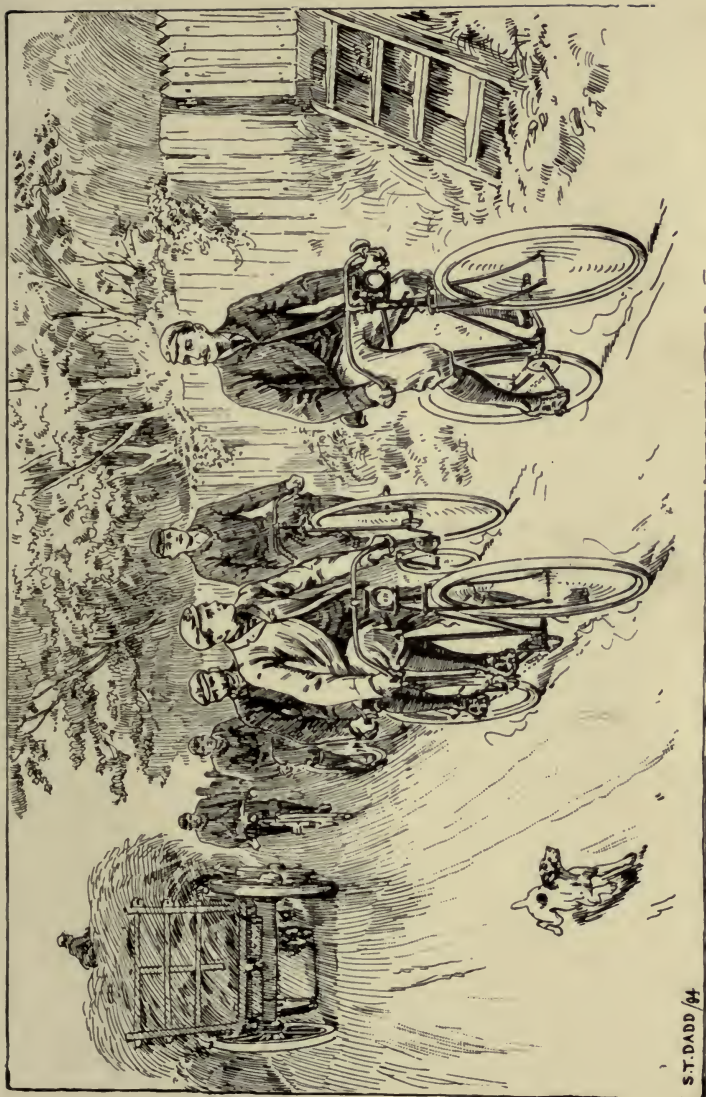
A mysterious association, known to fame as the Connaught Rangers B.C., held a race meeting late in August on the Surbiton track, and in the Ten Miles Scratch Race, H. L. Cortis rode in magnificent form, establishing a record for ten miles inside 30 mins. for the first time in cycling history, his time being 29 mins. 54½ secs.

In August the North of England meet was held under the auspices of the Bradford B.C. at Harrogate, in Yorkshire, and led to the establishment of the Northern Cyclists' Camp, which under the energetic management of the same club has each year been a great success, a large number of wheelmen from all parts of the United Kingdom mustering under canvas for four days, at the beginning of August. In connection with this notable meet, a general meeting of the then Bicycle Touring Club took place in the concert-room of the Spa Grounds, Low Harrogate, at which an agenda of considerable length was submitted to the assembled members, some of whom had come long distances for the purpose of taking part in the deliberations. After a comparatively short session, it was suddenly announced that the room must be vacated for the evening concert, and the meeting was asked to adopt the rules submitted without consideration. A very heated discussion ensued, and was continued in a smaller room to which the meeting adjourned; a party dubbed the 'Malcontents' was formed, and they eventually secured the necessary reforms in the organisation of the club.

In riding southward from this meet, Mr. Henry Sturmev, of 'The Cyclist,' took particular note of the 26-inch handle-bars which Mr. Hillier had had fitted to his bicycle, and on August 10 his journal contained an able leader on the value of long handle-bars. The fashion thus set withstood the test of time and experience, and has proved of value to young riders, a long handle-bar, as will be seen in the following chapters of this work, being particularly serviceable in assisting the novice to acquire a good style.

On September 2 Cortis made his first attempt to cover 20 miles in the hour, encouraged by his success at 10 miles above recorded. The Surbiton path was chosen and every effort was made to get it into good condition. This track was—in common with most London paths—then ridden right hand inside. A number of well-known cyclists were asked to assist as pacemakers. At 6.10 P.M. when the start took place, a very slight breeze was blowing which went down with the sun. The weather was warm, and singularly favourable. C. E. Liles started with Cortis and covered two miles in 6 mins. $5\frac{3}{4}$ secs., when the record-breaker not being satisfied with the rate of progression went in front and covered the third mile in 2 mins. $59\frac{2}{3}$ secs. Liles made a dash at the end of four miles, when he gave way to J. F. Griffith, who with a flying start rode the next four miles in 11 mins. $54\frac{4}{5}$ secs., and thus knocked off the odd seconds for Cortis, whose time for eight miles was 24 mins. $0\frac{3}{4}$ sec. Sidney Kemp then came on, but he, like Liles, could not make pace, and at twelve miles Cortis was $24\frac{3}{4}$ secs. outside even time. G. Lacy Hillier took up the running, and forcing the pace for two miles he assisted the record-breaker to knock two seconds off his loss. Hillier then gave way to Griffith, who took Cortis along in excellent style, so that at sixteen miles he was but eight seconds outside. Liles joining in, he and Griffith raced hard against one another, and the seventeenth mile was a very good one, being covered in 2 mins. $52\frac{3}{4}$ secs., Cortis being only $\frac{1}{2}$ second outside even time; Kemp joined the trio, and the eighteenth mile was completed

in 52 mins. $56\frac{3}{8}$ secs., or $3\frac{2}{5}$ secs. inside evens. In the third lap of the nineteenth mile, Liles on the inside swerved from exhaustion and came into collision with Griffith, the pair falling heavily right in front of Cortis, who came down over them, Kemp escaping in the most marvellous manner, just getting clear of Cortis' machine. Cortis was not very much hurt beyond flesh wounds, but J. F. Griffith broke his ankle, and the shock of the fall severely injured his heart; although this was not discovered till much later. The mile times from eleven to eighteen were then best on record. The 'Daily Telegraph' based a lengthy and amusing article upon Cortis' feat, in which, amongst other remarks emphasising the value of the new sport, the writer said, 'Not the worst thing that they have done, these knights of the road, has been to rehabilitate and set on their legs again many of our old posting-houses and decayed hostelries all over the country. Bicycles have to a certain extent taken the place of coaches; they frequent all our great main roads, and gladden the hearts of innkeepers, who look out for the tinkling bells which herald the advent of a "club" of wandering velocipedists, just as they anticipated of yore the gladsome tootling of the horn that bespoke the approach of the Enterprize, the Highflyer, or some other well-known conveyance of the old coaching days.' A fortnight later Cortis made another attempt to ride twenty miles in the hour, but he had in the interval had another fall whilst racing at Lincoln, and was decidedly unfit; under these circumstances he failed to approach his former times, falling very weak in the fourteenth mile, and being $38\frac{3}{8}$ secs. outside the hour when twenty miles had been covered. The rider was awfully disgusted when Coleman told him that he was outside the limit, but doubling testily to his work he dashed on for five miles more, covering twenty-five miles in 1 hour 16 mins. $41\frac{3}{8}$ secs., which stood as a best on record until 1886, when the time was beaten on a modern path by J. E. Fenlon. Cortis won the Surrey Cup for the third time at the autumn meeting, and thus became its absolute possessor.



A CLUB RIDE IN THE COUNTRY

S.T. DADD / 94

On October 9 the once celebrated Crystal Palace track was opened by a grand race meeting, the programme including a challenge cup for a club team race, and a one mile handicap. The day was a dreadful one, and the new track very heavy in consequence. G. Lacy Hillier won both events from scratch in very slow time. On November 6 the second Fifty Miles Road Tricycle Championship was promoted by the Finchley and London T.C.'s jointly, the course being from Tally Ho Corner, Finchley, N., to a point just this side of Hitchin and back. Fifteen men in all started. The morning was very foggy, and the trains were late. Consequently Hillier, who had been training for the event, and who practically introduced the double-steering Humber tricycle to London riders in this contest, eventually started thirteen minutes after the other competitors, but at twelve miles from the start he had passed every one except Vesey, who was only one minute in front of him at this point. Vesey was riding a 'bicycle' fitted with two small hind wheels, which public opinion universally decided was an unfair machine, and eventually won somewhat easily, Hillier finishing second, C. Crute third, R. C. Baker fourth, G. D. Godbolt fifth, and H. L. Cortis sixth. The Tricycle Association, then recently formed, established a remarkable and utterly impracticable 'amateur definition,' but this body—minus its definition—was eventually absorbed into the Bicycle, or as it is now termed the National Cyclists Union.

Yet another great advance is that recorded for 1880. 'The Cyclist,' started in the last month of 1879, came very strongly to the front, and, supporting the governing body of cycling in contradistinction to the attitude assumed by some of the other papers, took a leading place in that section of journalism.

In February 1881 the season was opened in the orthodox manner by the holding of the fifth Stanley Show—for the second time at the Holborn Town Hall. A steam tricycle, the invention of Sir Thomas Parkyns, was shown on this occasion, but the requirements of the law as regards steam-driven vehicles

put a complete check upon the development of the invention, of which nothing has since been heard.

News from Cairo about this time recorded the fact that a Mr. E. F. Rogers had ridden from that city to the pyramid of Cheops, thus bringing two vastly distant cycles into close approximation, whilst within a week or two it was announced that Prince Yeo, son of the King of Siam, Lord of the Thousand White Elephants, &c., had purchased a bicycle for his own use.

The Union accepted the principle of movable championships for the first time, and ran two of its four contests in the Midlands. The principle then adopted has proved of inestimable value to the ruling body of cycling, as it has brought the leading men of the various sections and districts into actual contact, and extended and developed in a most valuable manner the resources of the Union. Much of the accord which now exists between the various centres and the Executive is due entirely to the intercourse in connection with the promotion of the championship contests.

On May 21, 2,050 riders attended the Hampton Court meet, and the weather being fine the sight was an exceedingly picturesque one, whilst later on 136 tricyclists met on Ealing Common and paraded with great effect, the tricycle lending itself much more easily to that sort of work than the unstable bicycle.

On June 25 the third Fifty Miles Road Race for the tricycle championship was run under singularly unpleasant conditions, and over muddy and stony roads, from Hounslow *via* Maidenhead and Cookham to a point twenty-five miles out and back. The race fell to G. Lacy Hillier in 4 hrs. 53 mins.

On July 6 the N.C.U. held at Surbiton its first championship for 1881, the Five Miles, which fell to G. Lacy Hillier by eighty yards, after a good race with Liles, Palmer, and Milner, this being the first occasion on which a really representative Midlander had visited London to compete for championship honours. C. A. Palmer, waited on by Liles, stuck closely to Hillier's hind wheel during the first four miles, Milner making all the run-

ning. $2\frac{3}{4}$ laps from home Hillier dashed to the front, and sustaining his spurt, Palmer cracked just after the bell, and Hillier drew away and won easily in 15 mins. $39\frac{4}{8}$ secs.

On the 16th Hillier won the One and Twenty-five Miles Championships at Belgrave Road Grounds, Leicester, the final of the Mile being a match between Hillier and Liles. A very slow pace was set by the former till the bell rang, when he sprang off at top speed and won by six yards, making a best on record for a flying $\frac{1}{4}$ mile, viz. $36\frac{1}{2}$ secs. In the Twenty-five Miles he also won easily by forty yards; C. Crute second, C. E. Liles third. On July 21 Hillier established a mile grass record, covering that distance, at Priory Park, Chichester, in 2 mins. 51 secs. On July 27 Hillier won the last championship of the year, the 50 miles, by 30 yards from C. Crute, J. F. Griffith third; time, 2 hrs. 50 mins. $50\frac{3}{8}$ secs., best on record by nearly 4 minutes. He thus won the five open championships of 1881.

The first Northern Cyclists' Camp was held at Harrogate in August. Although rain fell heavily most of the time, the campers so far managed to enjoy themselves that the camp has become one of the best and most enjoyable holidays a cyclist has to look forward to.

On June 3, 1882, H. L. Cortis, who had been doing a good deal of riding, competed at the Crystal Palace in the West Kent B.C.'s Open Mile Handicap, of course from scratch, and in the sixth heat beat the mile record, covering that distance in 2 mins. $43\frac{1}{2}$ secs., the last lap being a marvellous one. The previous records were: amateur, Keith-Falconer's 2 mins. $46\frac{3}{8}$ secs.; professional, Fred Cooper's 2 mins. 46 secs.; whilst on the 7th Cortis again reduced the time on the Surbiton path in the One Mile Invitation Handicap of the Wanderers B.C., covering the mile in 2 mins. $41\frac{3}{8}$ secs. On the same evening Cortis had a try at Keith-Falconer's two-mile time, but failed to beat it by $2\frac{4}{8}$ secs. The Hon. Ion Keith-Falconer, who is practically the father of Land's End to John o' Groat's rides, went over the celebrated route in

12 days 23 hours 15 mins., a very grand performance at the time, though it looks very small alongside later developments. About this time an Oxford man, H. R. Reynolds, went over the 'Turpin route,' from London to York, a distance of $196\frac{3}{4}$ miles, in 21 hours 43 mins. His predecessor was W. T. Thorn of the L.B.C., whose machine broke down some few miles out of York as previously related.

The first Union championships ever held in Birmingham came off on July 8, when Frank Moore won both the One Mile and the Twenty-five Miles. On the 9th W. F. Sutton, of the London Scottish, on an ordinary bicycle covered 222 miles on the Great North Road in 23 hrs. 55 mins., riding time $21\frac{1}{2}$ hours, which it is needless to say was the best on record. On July 22, J. S. Whatton, the flying Cantab, won the Five Miles Amateur Championship on the Crystal Palace in 15 mins. $12\frac{4}{5}$ secs., Keith-Falconer being second, and C. Crute third; whilst on the 29th Keith-Falconer handsomely won the Fifty Miles Amateur Championship from C. D. Vesey and W. K. Adams in 2 hrs. 43 mins. $58\frac{3}{5}$ secs., a best on record by nearly seven minutes. Vesey broke a spoke two miles from the finish. This was indeed a busy week at the Crystal Palace track, as W. K. Adams covered 3 miles in 8 mins. $41\frac{1}{2}$ secs., a best on record; and H. L. Cortis at last accomplished the feat he had so often attempted, and covered twenty miles in the hour. It was a model evening, with not a breath of wind. The flags hung motionless against the posts. Cortis was assisted by Woolnough, Hunter, Vesey, Tacagni, Adams, and last but by no means least Alfred Thompson. Well coached, led and clocked, Cortis covered the 20 miles in 50 mins. $31\frac{1}{2}$ secs., and 20 miles 300 yards in the hour. He rode a 60-inch Invincible. Not satisfied with this grand performance, Cortis desired to make yet another attempt, and at last, to the delight of all sportsmen, it was announced that Cortis and Keith-Falconer would ride twenty miles together. There had long been a desire to see these two great riders meet, and a crowd visited Surbiton on August 2. Pacemakers, including Messrs. Adams,

Woolnough, Tacagni, McKinlay and others, assisted. Up to six miles Falconer retained the post he had taken up, dead on Cortis' hind wheel. But he was palpably labouring, though the fact was not within Cortis' ken. Peter McKinlay taking the post of pacemaker at this juncture, set a hot pace, and in the second lap, along the top of the ground, Falconer was beaten; Cortis looking under his arm, took in the situation at a glance, and shouting excitedly 'Go on, Peter,' he doubled to his work in a moment, and left the Cantab, who shortly afterwards gave up. From 7 miles every record was beaten up to 20 miles in 59 mins. 20½ secs., and 20 miles 325 yds. were covered in an hour.

This year Harrogate Camp was favoured with fine weather and was a pronounced success in every way. In the latter part of the month the Wanderers gave a farewell dinner to H. L. Cortis, who shortly afterwards departed with his newly married wife to Australia. It was with the deepest regret that the wheel world heard of his early death at Carcoar, New South



THE SOUTHERN CAMP.

Wales, on December 28, 1885, of a complication resulting from low fever caused by the climate. After his arrival in the colonies Cortis did little or no cycling, but rode several horses in steeplechases, in the course of which the ex-champion broke his arm, though he had never broken a bone from his bicycle. He named one of his steeplechasers 'Lacy Hillier' because it could stay, in kindly remembrance of an old friend. The private and personal friends of Cortis have erected in the church of Ripley, in Surrey—a spot much frequented by cyclists—a window and brass to his memory, which will long be honoured wherever cyclists most do congregate.

On October 14 the Union promoted its first Tricycle championship, distance five miles. There was an excellent entry, and after a fine struggle the race fell to C. E. Liles, H. W. Gaskell second; the much fancied Midlander, M. J. Lowndes, was disposed of by the winner in the second round.

In November the members of the Tricyclist Conference met at supper to signalise the success of the road race they had promoted, and the establishment of a 'new T.A.' was first mooted. This was soon attempted, but a majority of practical tricyclists were opposed to the movement, and 'The Tricycle Union' at last ceased to exist shortly after an unsuccessful attempt to promote an 'Amateur Championship' at the Crystal Palace track.

On December 14, at a council meeting of the Union, certain suspended riders appealed to the council for reinstatement. Mr. W. B. Tanner took the lead on behalf of the executive, Mr. T. E. Scrutton occupying the chair. The appellants requiring some assistance, the chairman asked if any gentleman—preferably a legal man—among the delegates present would undertake to assist them. Then, in the words of an amusing skit written at the time, 'Some one with legal bent, deep voice, and twinkling eyes, rises to the occasion.' This was Mr. Robert Todd, of the Stanley B.C., a newly elected councillor, who soon after became honorary secretary to the Union, to its immense advantage; and so this year closed with much promise for the future.

The Stanley Show, held at the Albert Hall in January, was the first notable event of 1883 ; but the big rambling building, with its many square yards of unavailable space, its tortuous passages and poor light, was by no means suitable for the purposes of the show, which nevertheless attracted a numerous crowd of visitors, including a strong contingent of West End people, whom the associations of the hall, and curiosity, brought to view the exhibits.

It is recorded that a cyclist in the spring of this year rode his bicycle for half an hour on the Goodwin Sands. Why he went there is a mystery, but the fact remains : a bicycle has been ridden on the Goodwins.

The Hampton Court meet was duly held, though scarcely so well supported as before, an increasing number of leading clubs standing out. Eastern and Western civilisation was brought into pretty close contact, as a Japanese jinricksha was taken alongside the procession for some distance by two well-built Japs.

Early in this year the Bicycle Touring Club, after lengthy consideration, changed its name to that under which it now exists, viz. the Cyclists' Touring Club, or C.T.C., these letters replacing the then more favoured formula 'B.T.C.'

About this time C. H. R. Gosset covered just over 200 miles in the twenty-four hours on a tricycle, the first time this feat was accomplished on the road.

Early in July, Alfred Thompson of the Sutton B.C. cut two of Cortis' records at the Brixton Ramblers' meeting at the Crystal Palace, covering the starting quarter in $40\frac{3}{8}$ secs. and the half mile in 1 min. $19\frac{4}{5}$ secs. The Hon. Ion Keith-Falconer's Land's End to John o' Groat's record was beaten by James Lennox of Dumfries, who rode the distance in 9 days 4 hrs. 40 mins., thus beating the previous record by nearly four days.

On July 7 two of the Union Championships were held at Aston Lower Grounds, Birmingham. The Five Miles Bicycle Championship fell to F. Sutton. C. E. Liles easily secured

the One Mile Tricycle Championship from M. J. Lowndes in 3 mins. 18½ secs.

In July the London T.C. organised a great twenty-four hours race on tricycles, the course being from Caterham Junction near Croydon to Brighton, thence along the coast to Fareham, thence *viâ* Romsey and Salisbury and on through Stockbridge and Alton, as far as the riders could go in the twenty-four hours ; no less than 74 entries were obtained, of whom 67 started at midnight on Friday, July 6, and it was truly a marvellous sight that met the eye, as 67 tricycles bearing one or more lamps, together with a great crowd of cyclists who were present as spectators, moved off at the word 'Go' along the dark glade of Smitham's Bottom. Ripley, distant some 202 miles from the start, was regarded as likely to prove the destination, especially when the breeze freshened as the day broke, and several men arranged to ride down on Saturday to see the finish. Those who went down early, however, were startled about a quarter to nine in the evening by the receipt of a wire from Mr. T. Griffith, who was checking at Alton, announcing that Marriott had passed there at 7.1 P.M. At 9.30 John Keen on a bicycle dashed into Ripley and ordered tea, and at 9.39 T. R. Marriott, the first man, rode up, going strongly and well. After a mouthful of tea, he pushed on, and riding out the time, reached Merton, 218¾ miles, at 11.50 P.M. Nixon was the second man to reach Ripley, which he did at 10.23, and having no friend to keep him going, he went to bed, and whilst he slept Vesey, who arrived at 10.29, pushed painfully on to Wisley Common and back, and took second place with a score of 205¼ miles, the last 5¼ miles taking him 1 hr. 15 min. to cover. Gosset, arriving at 11.41, rode a quarter of a mile farther up the road and back, and thus took third place, the score at the expiration of the twenty-four hours being :

		hrs.	mins.
1. T. R. Marriott . . .	218¾ miles	23	50
2. C. D. Vesey . . .	205¼ „	23	33
3. C. H. R. Gosset . . .	201½ „	23	42
4. Alfred Nixon . . .	201¼ „	22	23

Marriott's time was a best on record, whilst all the four men beat Gosset's record of $200\frac{3}{4}$ miles in twenty-four hours.

In July, the then Lord Bury, whose efforts to bring about an amicable arrangement between the B.U. and the T.U. had been frustrated by the executive of the latter body, who repudiated the arrangement they had empowered him to propose, resigned the Presidency of the Tricycle Union, and was subsequently unanimously elected President of the B.U. (now N.C.U.), his acceptance of office marking a new era of increased prosperity and success for the Jockey Club of the sport.

On the 14th, the One Mile Bicycle and Ten Miles Tricycle Championships were competed for on the Crystal Palace track, the mile falling to H. W. Gaskell, who was followed home by Alfred Thompson—F. Sutton, who was much fancied, falling in the second lap; time 2 mins. $55\frac{2}{3}$ secs. The Tricycle Championship fell to C. E. Liles in 33 mins. 45 secs., M. J. Lowndes being second.

The Crichton B.C.'s evening meeting on the following Thursday was notable for the fact that the four miles record was twice beaten. H. F. Wilson covered the distance in the fifth heat in 11 mins. $37\frac{3}{8}$ secs., whilst in the final H. W. Gaskell won in 11 mins. $34\frac{3}{8}$ secs., Wilson declining to start. Wilson won the Fifty Miles Championship on the 21st in 2 hrs. 46 mins. $26\frac{3}{8}$ secs. from F. R. Fry of Clifton.

On the 27th F. R. Fry of Clifton beat all bicycle records from 51 miles to 100 on the Crystal Palace track, covering the full distance in 5 hrs. 50 mins. $5\frac{2}{3}$ secs., which still remains at time of writing¹ a best on record.

The Twenty-five Miles Bicycle Championship fell to C. E. Liles in 1 hr. 22 mins. $42\frac{3}{8}$ secs., the race being run at Taunton on August 2. On the same day James Lennox beat the existing 24 hours bicycle road record by covering 229 miles in the specified time.

The Harrogate meet was once more a pronounced success,

being favoured with excellent weather, and everything passing off in the most satisfactory style. Lennox's record was not long permitted to stand, as Mr. J. W. M. Brown on August 16 covered $255\frac{1}{4}$ miles on the road in 24 hours, a grand performance.

On September 8, the Tricycle Conference promoted what proved to be the last Fifty Miles Road Championship Race. For some considerable time the more far-seeing members of the cycling body had recognised the fact that the practice of holding open races on the road was illegal and likely to prove detrimental to the credit and interests of the cycling sport, and as a consequence much opposition was manifested. The Tricycle Conference, however, rather braved the matter out, inserting advertisements, not only in the cycling, but in the sporting press. A few hours before the race the managers were notified that the police were on the *qui-vive* on the chosen route, so at the eleventh hour the course was changed, the start taking place at Caterham Junction, and the line running through Oxted, Westerham, River Head to Ightham and back. The men were despatched at minute intervals, and no police interference took place at the start, nineteen men in all being sent off. A number of riders went out to meet the returning competitors, some of whom awaited them at the top of the hill out of Godstone, and here Marriott was sighted—hatless and smothered in dust. Mat Sinclair, the Scottish champion, set a fair pace for him on a tricycle, whilst Messrs. G. L. Hillier and C. E. Liles rode quietly along some few yards in the rear. When within a mile of home an approaching pony carriage was suddenly drawn across the road, and a constable in blue and another in plain clothes stopped the leader and the accompanying trio and took their names and addresses, Marriott going off at top speed the moment he was released, to the intense disgust of the officers, who hastily jumping into the trap made an unavailing effort to catch him. Marriott won by 25 minutes from George Smith, W. Bourdon being third. No further action was taken by the police except the issue of the following notice :

Persons using bicycles, including tricycles, are hereby cautioned that such vehicles are carriages within the meaning of the Highway and Metropolitan Police Acts. Furious driving (*Taylor v. Goodwin* decided by the Judges, March 25, 1879). The Metropolitan Police Acts impose a penalty on any person who shall ride or drive furiously, or so as to endanger the life or limb of any person, or to the common danger of the passengers in any thoroughfare. The police are directed to ascertain the names and addresses of persons about to take part in any bicycle or tricycle race within the metropolitan police district, or to proceed against, and, if necessary, to take into custody, any persons violating the above law. The provisions of the law as to obstructions are independent of the above.

It will be easily seen that the road race, being obviously an illegal contest, even if it had done no more than necessitate the issuing such a notice, had already accomplished more harm than good to the sport of cycling.

C. E. Liles won the Surrey Cup at the autumn meeting in 34 mins. 69½ secs.

The 'Times' contained in October a letter signed D.C.L., in which the writer stated that although he had suffered for twenty-five years from a spinal affection which rendered it impossible for him to undergo a journey by train or vehicle, he '. . . had just undertaken a bicycle tour through Sussex of 115 miles.' He added that, throughout the trip, he had not only felt better in health, but had absolutely been in less physical pain than at any other period during the previous quarter of a century. Without doubt the affection in this case must have been partly nervous, the novelty and excitement of the exercise taking the sufferer's attention somewhat from his troubles.

W. F. Sutton made an attempt upon the twenty-four hours bicycle road record with success, covering 260¼ miles in that time, whilst a few days later J. S. Smith and his wife on an Invincible sociable rode ten miles on the Palace track in 41 mins. 40½ secs. ; best on record.

1884, destined to be an important cycling year, opened

with a meeting of lady members of the C.T.C., who discussed *in camera* the details of a suitable costume, and in the end a decision was come to mainly upon the practical experiences of Mrs. J. S. Smith, Miss Choice, and several other well-known lady riders, the result being in every way satisfactory.

In March the Birmingham Local Centre of the N.C.U. initiated the very valuable agitation for improved roads, which has been so energetically followed up. A great meeting was held under the presidency of the Mayor of Birmingham, at which cyclists, horse-owners, and horse-users banded themselves together to promote the agitation, and subsequently action was taken against sundry road surveyors with satisfactory results. As a consequence the Union has now some very convincing precedents to lay before road surveyors who object to a demand on the part of cyclists for improved highways.

The Hampton Court meet was finally abandoned in this year, the general view being that 'monster meets' had served their purpose and were not likely to do the sport further service. At the end of May a Cyclists' Camp was held at the Alexandra Palace on the same lines as the Harrogate Camp, but proved a complete failure. The one redeeming point was some excellent racing.

On June 21 the first two of the Championship contests were held at Lillie Bridge (new track), the mile falling to H. A. Speechley, after a waiting race, C. E. Liles being second, and H. W. Gaskell third : time, 3 mins. 30 $\frac{1}{2}$ secs. The Twenty-five Miles Tricycle was won by C. E. Liles, H. J. Webb second, Sidney Lee third ; 1 hr. 28 mins. 58 secs. : best on record.

Chambers walked over for the Five Miles Championship at Cardiff, time 15 mins. 36 $\frac{1}{2}$ secs., on June 28. On the same day the official timekeeper at the West Kent B.C. meeting returned Alfred Thompson's mile time in the fourth heat of the open mile as 2 mins. 39 $\frac{3}{5}$ secs., giving the $\frac{1}{4}$ mile times, which he had been specially requested by Mr. G. Pembroke

Coleman (who was away at the Championship) to note, as Thompson's private form pointed to his doing something good. A dead set was, however, made at the record, and it was not put upon the book. Thompson held at this time the half-mile record, and had only a week or two before been deprived of the starting quarter record. He ran a trial during the following week, but was very nervous, and a pacemaker falling at the start upset him altogether, and he did nothing. The same evening G. L. Hillier made record for a flying quarter : time, $35\frac{2}{5}$ secs., thus beating J. S. Whatton's $36\frac{2}{5}$ secs.

The Ten Miles Championship of the North, run on the Wallsend track on July 12, fell to R. H. English in 30 mins. $14\frac{1}{2}$ secs., and caused that sterling rider to take a foremost place in the opinion of amateur cycledom. On the same date the Five and Twenty-five Miles Tricycle Championships were run off on the Crystal Palace track, C. E. Liles winning both, H. J. Webb finishing second in the mile—time, 3 mins. $29\frac{1}{2}$ secs. ; and Sidney Lee in the five mile—time, 18 mins. $8\frac{3}{5}$ secs.

On July 14 the Fifty Miles Amateur Championship fell to F. R. Fry of Clifton, after a splendid race with C. S. Wadey ; F. J. Nicolas third : time, 2 hrs. 51 mins. $16\frac{3}{5}$ secs.

On July 26 the holding of the Twenty-five Miles Amateur Championship brought to the front R. H. English of North Shields. The race was run on the North Durham track, a small and by no means fast path, Speechley, Robinson, and Nicolas representing London ; they waited at the start, but English was off like a shot out of a gun, and fairly left the lot, lapping all his opponents and winning anyhow in 1 hr. 22 mins. $\frac{2}{5}$ sec. on a wet and heavy track ; D. H. Huie was second, and J. Tough third.

M. Josef Kohout, of the Cesky Velociped Klub, Prague—a splendid specimen of the Continental cyclist—rode $220\frac{1}{2}$ English miles (355 kilomètres), from Hamburg *viâ* Kiel to Flensburg, and back to Bönningstedt, in twenty-four hours, and as he had to lift his heavy old-fashioned roadster over

innumerable gates in the dark, this performance becomes the more remarkable.

On September 11 R. H. English made his *début* on a London path in the Crystal Palace Challenge Cup race, distance fifteen miles. A fairly good field opposed him, but he dashed off the mark at a tremendous pace, and covered the first mile in 2 mins. 42 secs., or only a fraction outside record; twenty yards short of the mile William Brown, who had hung on to him up to this point, cracked, and English went right away, and beat every record from two to twenty miles—keeping on after winning the race for the purpose of securing the records. He established the following record times:

		ENGLISH		CORTIS		FALCONER	
		mins.	secs.	mins.	secs.	mins.	secs.
2 miles	. .	5	32 $\frac{2}{5}$	—		5	36 $\frac{3}{5}$
5 "	. .	14	33 $\frac{2}{5}$	14	40 $\frac{2}{5}$	—	
10 "	. .	29	19 $\frac{2}{5}$	29	30 $\frac{2}{5}$	—	
15 "	. .	44	29 $\frac{3}{5}$	44	37 $\frac{2}{5}$	—	
20 "	. .	59	6 $\frac{3}{5}$	59	20 $\frac{1}{5}$	—	
20 "	560 yards	60	0	—		—	

In the five miles race for the Kildare Cup, run at Lillie Bridge on the following Saturday, English pursued the same tactics, and though not riding nearly so fast, the first mile taking 2 mins. 48 $\frac{1}{5}$ secs., he left Speechley in the first quarter of the second mile, and won again anyhow. The big Tynesider never did better than on this occasion; some severe falls, and a desire to spurt fast for short distances, decidedly did him no good subsequently.

On September 27 a curious contest was decided between Major T. Knox Holmes, a veteran tricyclist of seventy-eight, and Mr. G. Lacy Hillier, a bicyclist of twenty-eight, the latter conceding the former a start of one mile for every year's difference in their respective ages in a ten hours' race. The veteran only dismounted for a trifle over five minutes, whilst the bicyclist stopped for over thirty-five minutes. The scores at the finish were: Major Knox Holmes 115 miles, 101 to 115

being records, and G. L. Hillier 146 miles, 51 to 54 and 101 to 146 being records. The Major thus won easily. The day was very unfavourable, being windy and wet.

1884 closed in a somewhat perturbed manner. Several road performances were being openly questioned in the public press, and the Union was engaged in investigating the *bona fides* of the various claims. An agitation was also in progress concerning the way round for racing paths, which ultimately resulted in the almost universal adoption of the left-hand inside practice of riding. The annual meeting of the C.T.C. was held in London, and certain revolutionary doctrines with regard to the internal management of the club, which had been discussed in a blustering and ferocious manner in the papers, were advocated at the meeting in mild and mellifluous terms, singularly in contrast with the earlier steps of the dispute; the voting, however, showed a large majority in favour of the *status quo ante*.

In 1885 commenced the great struggle between the N.C.U. and the A.A.A., the dispute being originated by some of the most prominent of the supporters of the dissolved Liverpool Local Centre. After a struggle the Union obtained all the points for which it had felt obliged in the interests of cycling to contend, thus becoming without any question the sole ruling body of cycling.

S. Sellers won the One Mile Championship at Lower Aston Grounds, Birmingham, by six inches from W. A. Illston, on June 13, time 2 mins. 47½ secs.; and R. Cripps the Five Miles Tricycle Championship in 16 mins. 53½ secs., G. Gatehouse being second.

Webber won the Five Miles Amateur Championship on June 27, at Jarrow track, in 14 mins. 22⅔ secs., after one of the finest races ever seen in a championship contest, D. W. Laing being second, and R. Chambers third. July produced another crop of records. On July 6 Mrs. Allen of Birmingham covered 200 miles on the road in 23 hrs. 54 mins., and C. H. R. Gosset covered 231¼ miles inside 24 hours.

On July 11 the N.C.U. held its One and Twenty-five Miles Tricycle Championships on the Crystal Palace track, and the contests proved most exciting. P. Furnivall won the One Mile Championship after a dead heat with P. T. Letchford in 3 mins. $5\frac{2}{5}$ secs., having, however, made a best on record in his heat : time, 2 mins. $58\frac{1}{5}$ secs. The Twenty-five Miles Championship was won in splendid style by George Gatehouse, who made most of the running ; records were made for two and three miles, and from eleven to twenty-five miles. He covered the full distance in 1 hr. 26 mins. $29\frac{2}{5}$ secs.

On July 9 Webber beat the mile record on the Crystal Palace track, doing 2 mins. $39\frac{2}{5}$ secs. On July 18 R. H. English won the Fifty Miles Championship from G. Gatehouse in 2 hrs. 45 mins. $13\frac{4}{5}$ secs., record being beaten by English, Gatehouse, and Nicolas from 29 to 38 miles inclusive. English also won the Twenty-five Miles Championship at the Ayleston Road Grounds, Leicester, time 1 hr. 20 mins. 13 secs. ; R. Cripps second, and W. Terry third. The Harrogate Camp was again a marked success, whilst a southern camp at Tunbridge Wells was also successful.

G. Lacy Hillier visited Leipsic in September, and defeated Johann Pundt, the amateur champion of Germany and others in a 10,000 mètres scratch race, beating the German record at the same time, and bringing back one of the finest prizes ever given for a cycle race.

In November the C.T.C. accepted with much regret the resignation of its Chairman, Mr. N. F. Duncan, who had done good service to the club during his period of office. Mr. Duncan resigned as he was just about to take holy orders in the Church of England.

On January 16, 1886, the A.A.A. meeting at Anderton's Hotel, Fleet Street, passed a resolution by which 'the war,' as it was termed, which had created no end of trouble and annoyance, was put an end to. Since this time the two associations have worked hand in hand for the benefit of amateur sport.

In February the cycling world was startled by the receipt of the sad news that Herbert Liddell Cortis, the ex-amateur champion at all distances in 1879 and three distances in 1880, was dead. One of the most popular of men, and in the opinion of many good judges the best rider that ever crossed a wheel, the memory of H. L. Cortis will always remain green in the annals of cycling.

H. A. Speechley won the Surrey Cup for the third time, thus making it his property, as Cortis had done before him, P. Furnivall finishing second, and A. E. Langley third : time, 41 mins. 44 $\frac{1}{5}$ secs.

The tricyclists forgathered at Hampton Court in May, the meet including nearly 500 riders of the broad-gauge machine, and proving highly successful. At the Gainsborough meeting H. A. Speechley cut his own starting quarter record, doing 38 $\frac{2}{3}$ secs.

The first of the championship meetings was held at Weston-super-Mare on the new track on July 14, 1886. The One Mile Tricycle Championship fell to Percy Furnivall : time, 3 mins. 5 $\frac{2}{3}$ secs. The Twenty-five Miles Bicycle Championship fell to J. E. Fenlon : time, 1 hr. 19 mins. 29 $\frac{2}{3}$ secs., the fastest Twenty-five Miles Championship ever ridden up to that time.

On June 19 the North Road Club promoted a fifty miles race open to all sorts of cycles ; some mischievous persons sent letters to the police authorities signed with the name of a cyclist who was known to object to these races, but no trouble ensued. The ordinary bicycles were set to concede the tandems a start, but were not in the hunt. The race was handsomely won by C. E. Liles and A. J. Wilson (time, 3 hrs. 16 mins. 58 secs.), J. Lee and G. Gatehouse second (time, 3 hrs. 23 mins. 16 secs.).

The One Mile Championship was run on June 26 on the Jarrow track, and proved in every way a success, victory resting with Percy Furnivall, H. A. Speechley second, and W. A. Illston third—time, 2 mins. 46 secs. ; one of the finest races ever seen for what is practically the blue ribbon of cycling. F. W. Allard

made a record for the tricycle mile at Long Eaton on the same day—time, 2 mins. 54 secs. ; whilst F. J. Osmond and S. E. Williams, at the Crystal Palace, covered 2 miles in 5 mins. $47\frac{2}{3}$ secs., record for the distance.

On July 3 F. W. Allard won the Five Miles Tricycle Championship at Hampton Park, Glasgow ; P. Furnivall being second, and G. Gatehouse, who rode a waiting race, third : time, 24 mins. $42\frac{2}{3}$ secs.

One of the most astonishing feats of the year was performed by George P. Mills, of the Anfield B.C., who, leaving Land's End at midnight on July 4, reached John o' Groat's in 5 days 1 hour 45 mins. The distance is 861 miles, and he only slept for *six hours in all* during the journey.

On July 10 F. J. Osmond beat M. V. J. Webber's three-quarter mile record of 2 mins., doing 1 min. $58\frac{3}{4}$ secs. On July 17 the Twenty-five Miles Tricycle Championship was run at the Alexandra Park track, the weather being very bad, rain falling almost without intermission all the afternoon. G. Gatehouse (the holder) preferred the waiting game, and was beaten in the run home by the Irishman, R. J. Mecredy : time, 1 hr. 55 mins. $40\frac{4}{5}$ secs.

On July 24 the Five Miles Bicycle Championship was run off on the Long Eaton track, and resulted finally in a win for the champion short-distance man of the year, P. Furnivall, W. A. Illston second, and G. Gatehouse third : time, 14 mins. $44\frac{1}{2}$ secs.

The Fifty Miles Bicycle Championship was run at Lillie Bridge on August 14, and fell to J. E. Fenlon, W. F. Ball second, J. H. Adams third : time, 2 hrs. 47 mins. $21\frac{1}{2}$ secs. Fenlon made a waiting race of it until a little over a lap from home.

Records continued to fall like autumn leaves. George P. Mills rode a tricycle from Land's End to John o' Groat's in 5 days 10 hrs., thus beating the tricycle record by 30 hours. Furnivall and Gatehouse also did some marvellous times on the bicycle and tricycle respectively ; but owing to the inaccuracy

of the official watch the records claimed were rejected. On the road E. B. Turner and S. Lee cut the fifty mile tricycle record, doing 3 hrs. 9 mins. 55 secs. on a tandem ; and Alfred Fletcher did the same distance in 3 hrs. 9 mins. 56 $\frac{1}{2}$ secs. On August 28, in the North Road Club's one hundred mile race, E. Hale made a road record for fifty miles, 3 hrs. 6 mins. 25 $\frac{3}{4}$ secs. ; and J. H. Adams and R. V. Asbury a one hundred miles record on a tandem of 7 hrs. 29 mins. 5 secs. George Gatehouse was credited with no fewer than nineteen records on the tricycle, being an unbroken string from two miles in 5 mins. 37 $\frac{2}{3}$ secs. to twenty miles in 59 mins. 10 $\frac{3}{4}$ secs.

At the end of 1886 it may be safely asserted that the sport of cycling was fully established in popular estimation, and its progress has been quite as rapid since that date as it was before.

The more recent history of cycling is a matter of common knowledge. Papers, daily and weekly, have given an increasing amount of space to the racing and other branches of the sport, and the developments have been steady in all directions.

The Jubilee year was made the occasion of a very singular demonstration. The cyclists of the United Kingdom, acting on the suggestion of Mr. Henry Sturmev, of Coventry, subscribed over 800*l.* to present a lifeboat called 'The Cyclist' to the port of West Hartlepool, where the boat was formally launched at a public ceremony on December 17, 1887. The civic dignitaries of 'The Hartlepoons,' headed by the Mayors of Hartlepool and West Hartlepool, and accompanied by deputations from all the public bodies, the clergy and ministers of various denominations, the member for the Hartlepoons, and a contingent of cyclists, amongst whom was Mr. Henry Sturmev, the founder and honorary secretary of the movement, marched in procession to the Quay, where Mrs. Richardson, the Mayoress, christened the boat 'The Cyclist.' Since then the lifeboat has done good service, and the cyclists of the United Kingdom have paid the expenses, amounting to some 70*l.* a year. Over 6,000 individual subscribers supported the

fund. The movement was discussed in the press, and the public spirit of the rapidly increasing army of wheelmen was commended in many quarters.

The 19th of June, 1886, was an occasion to be put on a par, from a racing man's point of view, with a certain race-meeting of the Wanderers B.C., held near Caterham, on the 16th of the same month in 1877, at which the late H. L. Cortis made his *début*—for at the Brixton B.C.'s meeting at the Crystal Palace a tall pale boy named F. J. Osmond won his first races on the track. His style very strongly resembled that of Cortis, though somewhat neater and more effective in the ankle work. In 1890 Frederick J. Osmond accomplished, for the third time on record, the feat of winning all the four bicycle championships, which has been done but twice before—by the late H. L. Cortis in 1879, and by G. Lacy Hillier in 1881. As a rider of the Ordinary bicycle, he owed much of his success to his physical advantages; being tall, with an abnormally lengthy leg-reach, his 58-inch wheel appeared quite small for him. In the opinion of many who are competent to judge, Osmond was the finest Ordinary riding cyclist we have yet seen, and he was the first man who, upon the type of machine ridden by Cortis, Keith-Falconer, English, Furnivall, and other giants of the past, rode one mile inside $2\frac{1}{2}$ mins., his time being 2 mins. $29\frac{4}{5}$ secs., figures he shortly afterwards reduced to 2 mins. $28\frac{4}{5}$ secs.

Another development which has without question done the sport much service is the encouragement of military cycling. As early as June 1882 a suggestion had been made in the press by the Hon. R. G. Molyneux, to form a volunteer *corps d'élite* mounted on cycles, but nothing came of it, the ordinary bicycle being decidedly unsuitable for this purpose. With the advent of the perfected Safety the matter was again brought forward, mainly owing to the efforts of Colonel A. R. Savile, of Farnborough, Hants, who threw himself into the movement with enthusiasm. On October 7, 1887, some remarkable experiments were made at Aldershot, where Major Fox and others interested in the gymnasium work saw a number of

energetic gentlemen do a number of absurd things—riding at logs and such-like. The climax was reached when, after several riders had charged the obstacles and fallen, one of the cleverest of our wheelmen started at top speed, and, by simply dismounting and lifting his Safety over each obstacle in turn, did the course in considerably over half a minute faster time than his rivals. Late in the year the War Office appointed a committee to go into the subject of military cycling, composed as follows : Colonel Savile, chairman ; Lieut.-Colonel E. D. Drury, 2nd V.B. Royal Kent Regiment ; Lieut. E. J. A. Balfour, London Scottish R.V. ; Lieut. H. Stapley, Major G. M. Fox, G. Lacy Hillier, Henry Sturmev, Robert E. Phillips, and E. R. Shipton. This committee sat in the levée room at the Horse Guards, and went at great length into the subject, inspected many machines in the St. Stephen's Hall of the Royal Aquarium, placed at their disposal by the directors of that establishment, and fully threshed out the subject, the result of their labours being embodied in an official report, which had more than the usual share of success.

Since then military cycling has advanced most rapidly, and has unquestionably established itself in public estimation as a useful branch of the Volunteer service. Those enthusiasts who went to work, not wisely but too well, in the earlier days have 'burnt out,' and the less imaginative but more practical men have come to the front. The movement has grown out of leading strings, and bids fair to take a reasonable place in the service. Perhaps the most singular and significant of its developments is the existence of what is really a body of Volunteer military cyclists within the ranks of the regular army. This remarkable corps has been formed by Major Edye, of the Royal Marine Light Infantry, at Walmer, assisted by Lieutenants Anderson and Connolly, and it has proved very successful, despite the fact that the authorities, beyond giving permission to Major Edye to make the experiment, have done nothing towards helping the corps to purchase machines or outfits ; and as the men have to devote what would otherwise

be their leisure to attaining perfection in cycle drill, it can safely be said that any services which may in future be rendered by the cycle-mounted soldier will have been made possible to a very great extent by the labours of Major Edye and those who have worked with him.

It is singular, at first sight, to read of a Marine Cycle Corps. The 'Horse Marines,' beloved of the fabulist, could hardly seem more incongruous ; but as a matter of fact the cycle should prove a really serviceable 'horse' for the use of marines, inasmuch as many cycles could be stowed aboard ship, and would need neither care nor food till wanted for active service.

Colonel Savile, Major Balfour, and others devoted themselves to the subject, and there can be no question but that it will continue to spread, and that the sport on the one hand and the Volunteer movement on the other will be mutually benefited.

The more active branches of the sport have continued to grow apace. Touring, watched over by the Cyclists' Touring Club, has spread farther afield, and when Messrs. G. W. Burston and H. R. Stokes, the Australian round-the-world tourists, arrived in England, they were loud in praise of the gigantic organisation which had smoothed their path. Periodical attacks upon the secretary and editor are made ; but Mr. Shipton has so often shown that he labours heart and soul for the big club, that there is always a solid majority of sturdy and undemonstrative members to back him when need arises. The cycling tourist is now to be encountered all over the Continent, and the Cyclists' Touring Club has done a great work in educating the public, and especially the hotel and inn keepers, up to the proper appreciation of the army of touring wheel men and women, an army daily recruited from all classes of society.

The National Cyclists' Union continues to do good work in a quiet fashion, and, considering the meagre support accorded it by the cycling world from a financial point of view, it is astonishing how much it has effected. The discipline of

the sport has been carefully maintained, the annual series of amateur championships contested, and the interests of cyclists carefully watched.

It is worthy of note that the universal by-laws for the regulation of cycle traffic, so long an important feature in the Union's programme, have at last become an accomplished fact, after years of labour. At one time every local authority exercised its own sweet will in the matter of cycling by-laws. A bell was required in one place, a whistle in another, lamps lit at sunset or earlier, and many other absurd regulations



GOING FOR A RECORD.

were enforced. All this has now been changed, and the hour of lamp-lighting—one hour after sunset—is the same all over the country, whilst the wheelman is also required to give audible warning of his approach.

On the racing path advances of a most significant kind have been made. The records of the giants of the past sink into insignificance as compared with those of the riders of to-day. New tracks of vastly improved construction are laid or being projected, and the whole section has made a step forward.

The advances made in the racing department, the innu-

merable records made to-day, to be beaten to-morrow, the difficulties of the handicappers, and the step by step development of the various types of machine upon the racing path, the best trial ground—the trial ground whereon almost every important cycling advance has been primarily tested and eventually developed—would take too long to detail at length in this chapter. The final result can best be gauged by the ‘common measure’ of time, and the latest recorded times will be found in the Appendix, though even this test fails to convey in all cases the exact results arrived at, inasmuch as training to sprint without training to stay may for the time being, at any rate, give to certain figures a fictitious importance. In this connection the tricycle records credited to Mr. E. B. Turner may be instanced. Mr. Turner is a gentleman who made a name for himself as an amateur runner some years ago. At a time when many men give up athletics he took to tricycling, and he has reduced the art of training and riding with pacemakers to a science. In 1890 he accomplished, upon a solid-tired tricycle, times which, in some cases, were then world’s records for any sort of cycle!—a feat unique in itself, and particularly well timed as affording proof that, with pacemakers, a man trained to stay can make mincemeat of the fastest sprinter’s time over any distance which is a little farther than the sprinter is accustomed to go. On the whole the racing side of cycling shows a great advance. Promoting bodies should bear in mind that the finer shades of cycle-racing tactics only appeal to the *cognoscenti*, and that what the public like is a short sharp race, with a close finish, or a contest of champions from scratch.

An historical occasion, and one which cannot be passed over in silence in connection with anything purporting to be a history of cycling, must not be left unrecorded. It was arranged that on July 5, 1890, H.R.H. the Prince of Wales, to whom ‘The Badminton Library’ is dedicated, and the Princess of Wales, should visit Paddington Recreation Ground, and for the first time on record witness a series of cycle races. The

arrangements were placed in the hands of the late Lord Randolph Churchill, Mr. Melville Beachcroft, L.C.C., and Mr. E. B. Turner ; and the latter gentleman practically took the whole of the cycling work upon his shoulders, and made the three 'royal handicaps,' which were really masterpieces in their way. Unfortunately the chosen day turned out wet, and, somewhat unwisely, the meeting was postponed till the succeeding Wednesday, July 9, when the weather was scarcely any better. The track was wet, but happily not flooded, and the arrangements were very complete indeed. Punctually to time the royal party drove into the inclosure, their Royal Highnesses being driven to a daïs placed inside the running track, opposite the finish, and as soon as the address had been read by Lord Randolph Churchill and the Prince had made a suitable reply, the sport began. The One Mile Tricycle Handicap fell to Lewis Stroud, Oxford U.Bi.C., 10 yds. start ; A. H. Tubbs, 30 yds., 2nd ; B. W. Crump, 20 yds., 3rd ; H. H. Sansom, scratch, Notts Castle C.C., 0 ; P. W. Scheltema-Beduin, scratch, Trekvogels, Amsterdam, 0 ; E. Dervil, 20, Paris, 0 ; W. Ward, 20, Stanley B.C., 0 ; A. J. Watson, 40, Catford C.C. The handicap was made for 2 mins. 41 secs., and Sansom, who had joined his men, would have won but for the fact that he pushed one of his cranks off in the straight for home, and of course failed to get up, Stroud winning in 2 mins. 42½ secs.

The One Mile Safety Handicap was shorn of much of its interest owing to the absence of H. E. Laurie and W. C. Jones. E. Leitch, on the scratch mark, having no one to help him, it resulted as follows :

W. Price, Polytechnic C.C.	.	.	.	30 yds.	1st
A. Du Cros, Irish Champion Club	.	.	.	20 "	2nd
G. L. Morris, Polytechnic C.C.	.	.	.	45 "	3rd
C. W. Schafer, Kildare B. and T.C.	.	.	.	50 "	0
S. H. Pearce, Kildare B. and T.C.	.	.	.	50 "	0
J. E. L. Bates, Surrey B.C.	.	.	.	40 "	0
E. Leitch, Polytechnic C.C.	.	.	.	scratch	0

Time, 2 mins. 33⅔ secs. The handicap was made for 2 mins. 34⅔ secs.

The *pièce de résistance* was unquestionably the One Mile Bicycle Handicap—the original Ordinary bicycle, and the royal party were treated to a piece of handicapping and an example of handicap riding such as has never been seen upon a track before. The race resulted as follows :

Fred. J. Osmond, Brixton Ramblers B.C.	. scratch	1st
Frank P. Wood, Brixton B.C.	. . . 35 yds.	2nd
F. J. B. Archer, Catford C.C.	. . . 35 "	3rd
J. H. Adams, Lewisham B.C.	. . . 50 "	4th
Herbert Synyer, Notts Boulevard B.C.	. scratch	5th
F. Weatherley, Speedwell B.C.	. . . 45 yds.	o
W. H. Bardsley, Hounslow B.C.	. . . 60 "	o
Douglas McRae, London B.C.	. . . 80 "	o

Every man did his best to secure the result aimed at when the handicap was made, viz. the establishment of a record. Of the scratch pair, Synyer most loyally assisted his co-marksman, riding the first quarter in $37\frac{2}{5}$ secs. Osmond then dashed away, reaching the half-mile in 1 min. $13\frac{4}{5}$ secs., *a record*, and three-quarters in 1 min. 55 secs. Here the whole field were bunched, and rounding the bottom corner Osmond found his way through, and, riding with tremendous determination, won by six feet in 2 mins. $31\frac{1}{5}$ secs., tying his own record. The handicap was made to beat 2 mins. $31\frac{1}{5}$ secs., and but for the wet, which made the track rather holding, Osmond would doubtless have created new figures.

In the above account the name of every starter at this now historic gathering has been recorded, and for the sake of completeness the list of cycling officials is appended.

Judge : G. Lacy Hillier, Stanley B.C.

Referees : Robert Todd, Vice-President N.C.U. ; H. Du Cros, President Irish C.A.

Umpires : M. D. Rucker, London B.C. ; Charles E. Liles, Ripley R.C. ; Major Thomas Knox Holmes, London T.C. ; Harry J. Swindley, Ripley R.C. ; A. V. Puckle, Brixton B.C.

Handicappers : 'Royal' handicaps, Dr. E. B. Turner, Ripley B.C. For other handicaps, S. T. Brown.

Timekeeper for Cycling : G. Pembroke Coleman, London B.C., official timekeeper N.C.U. since 1878.

Starters : G. H. Green, Brixton B.C. ; Fred Jenny.

Telegraphist : Carey.

At the conclusion of the 'royal handicaps,' her Royal Highness the Princess of Wales graciously intimated that she would present the prizes to the fortunate winners, which she did, and the royal party shortly afterwards left the ground amidst loud cheers from the assembled crowds.

On this occasion certain Irish riders competed on the inflated tire, their times appearing very good ; subsequent developments, when the English riders were able to obtain these contrivances, showed that the enthusiasm was misplaced, the times accomplished being really very moderate.

The failure of the few earlier users of the contrivance to get even these moderate results out of it was due to the fact that they were afraid to blow their costly tires up to bursting point, whereas the more experienced persons connected with the Tire Company blew them up very hard indeed. Messrs. Jones, Parsons, Edwards, Lloyd, and other *habitués* of the Paddington path, when they were able to obtain machines so fitted, very soon established records far in advance of those over which the uninitiated had been gasping with astonishment, and the air tire in its rapidly improving form soon changed the conditions of racing and the conditions also of that other and larger section of the sport which is led and guided by it. The limit of effective pedalling speed on the Ordinary bicycle had almost been reached, and the adaptation to that type of the air tire had relatively speaking but a small effect upon its speed, whilst what gain there was, was to a material extent discounted by the extra windage, a point which becomes more and more noticeable as speed increases. The Ordinary bicycle was rapidly superseded by the Safety, and this type, in slightly modified forms, appears most likely to remain the most generally popular type.

In this chapter the history of the cycling sport has been traced from the days of the Hobby Horse and the Draisene

to the time when it has become an established and recognised form of sport adopted by young and old of both sexes. Much of the earlier history of the sport was forgotten when the first edition of this volume saw the light, and many a writer has availed himself of the information therein contained.

In the future developments will, it is to be hoped, continue, but they will be more developments in detail. All such forward steps will be found duly recorded in the Appendix.

The sport is full grown, and waxes daily in public favour; recruits of both sexes are flocking to the ranks of cycling, and the practical every-day use of the wheel as a means of locomotion is becoming more and more general. The sportsman, the cricketer, the rowing man, the tennis player, reaches his destination upon the cycle; the tourist finds in it the acme of suitability as a touring vehicle; the tradesman adopts it vicariously for despatching his wares to his customers. In short, the uses of the cycle are numerous and varied, and will doubtless be added to.

Like all sports in their youth, cycling had its drawbacks and its dangers. The free use of the highways accorded to the velocipedestrian was in many cases grossly abused. Week after week, in the summer months, races at various distances, from one mile (?) upwards, were held upon the public roads, whilst several large organisations existed solely for the purpose of promoting road races. Public opinion was slowly but surely being roused to hostility by the course taken by a relatively small section of cyclists—the road-racing men; and the Jockey Club of cycling—the N.C.U.—failed to take the necessary steps to check the abuse, steps fully within the power of that body, until at length the police authorities were roused to action of a very drastic character, and preparations were made in the county of Huntingdon for the absolute stoppage of the North Road Club's 24 Hours Race. Had not that body at the last moment changed the course so as to avoid the county named, serious trouble would have followed. It is to be hoped that the road clubs will now definitely abandon their practice of

racing on the highways, which can only result in serious curtailment of the privileges now enjoyed by cyclists on the road.

The sport is now fully and finally established in public favour ; its organisation is approximately complete ; it maintains a special press of a magnitude which astonishes an outside inquirer ; its literature is extensive, and its popularity steadily extending. It is a sport which bids fair to be more international than national, albeit there can be no question that Great Britain, with its excellent roads, was and is the home of cycling.



A COUNTRY POSTMAN.

CHAPTER III.

RIDING.

RIDING a bicycle is, for obvious reasons, more difficult than riding a tricycle. There are, however, points in common between the two classes of machine, and for this reason many of the instructions are equally applicable to either. Thus the directions with regard to pedalling, holding the handles, attitude when riding, &c., may all be applied with little, if any, variation to the tricyclist as well as the bicyclist.

The first necessity for the learner of the art of bicycle riding is a machine on which to make the early efforts—so well remembered by every active rider. In the earlier years the ‘bone-shaker,’ as the original wooden bicycle was called, was the most useful machine to learn upon, but nowadays the rear-driving Safety is almost universally adopted. In its earlier forms this machine was peculiarly ‘tricky’ as regards steering, the small front wheel and the angle at which the steering head was set being in the main the cause of this ; but the Safety of to-day steers steadily and well, and as the saddle can be dropped and the rider’s feet brought well within reach of the ground, the difficulties and dangers experienced by the learner in his earlier struggles upon the original type are materially modified, if not entirely done away with. Machines suitable for the beginner’s use—solid tired—can be purchased for 2*l.* or 3*l.*

The practical assistance and advice of a friend or attendant will go a great way to getting over the more serious preliminary difficulties of the work. Instructors are to be found in most big towns throughout the country. There are schools and

if the learner decides to purchase a new machine of his teacher, instruction in its use will often be a part of the bargain.

It frequently happens, however, that the cyclist *in posse* does not reside near enough to any of the cycling academies to undergo the regular course of tuition, and is constrained to fall back upon his own resources to acquire the desired accomplishment ; and, arduous as the task may appear, many men have triumphed in a very short time over all the difficulties which present themselves. As actual experience is always the best guide, it will be well to relate the course taken by a well-known rider, who taught himself enough in the course of a few hours to make bolder and more practical essay upon a convenient and quiet piece of road. Procuring a bone-shaker over which he could just stand, he took it into the garden, where on a level and smoothly kept lawn a horizontal bar had been erected. Standing beneath the bar, he, with its assistance, got across the machine with one pedal in a convenient position, and then, steeling himself for the effort, let go of the bar—which he had been firmly grasping with one hand—thrust wildly with his foot at the descending pedal, grasped the handle, and, shooting a couple of yards or so away from the bar, fell ignominiously sideways upon the turf ; the small rosewood handle, owing to the weight of the clumsy vehicle, each time punching a neat hole about one inch and a half in diameter and three inches deep in the neatly kept lawn. These holes sorely puzzled the gardener next morning, and he was furbishing up his mole traps to capture the strange and destructive animal which had caused them, when he learned the truth.

These struggles went on for nearly three hours, off and on, a white stone being used to mark the farthest point reached until the whole length of the lawn was covered without a mishap, and the 'hill' at the other end (a grassy slope of about eight feet) successfully surmounted. A modification of the same plan may be successfully adopted by the solitary learner.

A stout rope stretched between two trees, the lintel of a conveniently placed doorway, or in fact any overhead point on which the learner can secure a firm hold, which will enable him to sit upon his machine, and place himself comfortably in position for a fair start, should either be devised or taken advantage of. Should the learner be able to secure the assistance of a practical friend, however, he will be very much better off; or two beginners can materially aid one another by following out carefully the suggestions and hints appended below.

Supposing them to have obtained a suitable machine, a cycle maker or repairer, or in default of these skilled workmen an ordinary blacksmith, should be got to run his eye over it so as to see that no serious defects or damages exist, and then the learners, if everything is right and the machine quite safe, can proceed to give one another lessons in turn. A few minutes at a time will be ample, say five or ten at the outside, and then the second man should take his turn, as at first the work is very exhausting and the tiro apparently goes backwards instead of progressing in the art. The running and walking beside the machine stretches the legs, and enables the dismounted man to recover himself by the time he is called upon to mount again. The saddle should be firmly fixed, great care being taken to see that it is even, and set straight. A saddle put on crookedly, or a little higher on one side than the other, will often mar a man's efforts to a serious extent when he is in the early stages of his task. Beginner number two should stand on the left of the machine, and grasp the handle firmly with his left hand, steadying it at the same time with his right. Beginner number one will then place his left foot upon the step, raise himself thereon, and seat himself in the saddle. The piece of road chosen should be slightly down hill. The assistant (*pro tem.*) should then hold the learner up on the machine, always doing his best to prevent his falling away from him, i.e. over to the right. The mounted man should not attempt to pedal at first, but should simply sit upright upon the

saddle with a firm grip on the handles, and try his best to keep his balance by their use. The rule for steering is exceedingly simple, but its difficulty to the novice lies in the fact that, despite its extreme simplicity, it requires the rider to take instantaneously the exactly opposite course from that which his natural impulse suggests. Supposing a rider feels himself falling to the right, the natural impulse will cause him to turn away from the direction of the threatened danger—a course which is instantaneously fatal ; the rule, which is emphasised by italics, runs as follows :

' Turn the steering wheel towards the side to which the machine is falling.'

For example, if the rider feels himself falling to the right, he should pull the right handle towards him, and push slightly at the left handle ; then after a swerve or two, and a stagger towards a calamity on the opposite side, the balance is regained. Of course, at first there is a strong and natural tendency to overdo this corrective action, so that the beginner who turns his wheel sharply to the right to counteract an impending fall to the right finds himself the next moment falling to the left, owing to his having overdone this turn ; and then, getting into a wild and flurried state, he naturally comes down. A capable and expert rider keeps his balance by following exactly the same rule, but the corrective turn of the wheel is infinitesimal, as the balance of the body of course co-operates to a very great extent in the maintenance of the equilibrium by means of the steering. The natural tendency of the beginner, as pointed out above, is always to turn his wheel the wrong way ; so the attendant should keep on repeating to the rider the maxim, *' Turn the wheel towards the side to which you are falling.'*

During all this time the mounted man should keep his feet off the pedals and concentrate all his attention on the steering, the attendant for the time being pushing him along at a fast walking pace, say four to five miles per hour. After a short time the rider will acquire the knack of steering sufficiently

well to warrant his placing his feet on the pedals. This will momentarily upset all he has learnt. It is an admitted fact that practical tricyclists are by far the best subjects amongst the learners of bicycle riding, for they have acquired at least the knack of moving their feet in the rotary action, and are thus able to propel the machine without awkwardness even if they



HIS FIRST LESSON.

cannot balance it. The complete novice, on the other hand, as often as not pushes at the wrong time, awkwardly throws his weight on the ascending pedal, and frequently misses it, with, of course, disastrous results to his cuticle. A course of careful and intelligent tricycling (necessarily on a rotary-action machine) before beginning the initiatory stages of bicycling is for this reason most emphatically recommended.

The novice's two great difficulties will be found first in the steering, as detailed above, and then in the pedalling.

Having sufficiently mastered the art of propelling and steering the machine, the beginner will have to learn to mount and dismount ; and here again the services of the assistant are very valuable. The most dangerous fall which a man can have is that which occurs at the moment of mounting or dismounting, as the sufferer not infrequently falls into, or on to, the machine, and very serious injuries may easily be inflicted by contact with the sharp angles of the frame, the edges of the step or the pedals, or with the handles. To learn to dismount, the rider, very carefully watched over by his friend, should begin a long curve to the left, so that the machine leans slightly to that—the getting-off—side ; then reaching back carefully with the left foot, he should feel for the step, taking care not to put his toe amongst the spokes—which would of course result in a severe fall. Having found the step—and the assistant will do well to advise him by word of mouth in which direction to move his foot—he should rise upon it fairly at once, then throwing some of his weight upon the handles and the rest upon his left leg, turning the machine still more to the left and throwing more weight upon the left-hand handle, the rider drops easily and quickly to the ground. The dismount should be assiduously and carefully practised until the rider feels perfect confidence in the execution of the manoeuvre.

When this stage has been reached—and this is determined by the amount of practice the novice is able to give—he may go a step farther and learn to mount. This is most easily accomplished in the following manner : The beginner should practise a few dismounts on the lines laid down above. Then dwell for as long a time as possible on the step ere descending to the ground, until after a few experiments he finds he can stand on the step and keep the balance of the machine for several yards at a time. The next stage is to stand thus on the step, preferably on a slightly down-hill road, and while so doing to bend the left knee (holding firmly on to the handles

at the same time) and just touch the ground with the right foot, immediately afterwards straightening the left knee and regaining the saddle. This exercise may be continued, with intervals for rest, until the rider feels quite confident of his own proficiency. And now comes the crucial test—that of mounting from the ground—a feat for which the above recommended exercises have gradually prepared the learner. On the oft-mentioned piece of slightly falling road, with the wind behind if possible, so as to make everything as easy as may be, the learner should place himself astride the rear wheel and put his left foot fairly on the step, the handles being firmly grasped; throwing most of the weight upon the left foot, several hops should be made with the right foot until a sufficient pace is attained. Then, holding well on to the handles, the left leg should be sharply straightened, and the rider should get into the saddle. This should prove an easy task after the necessary pace has been got up if the exercises set forth at length in the foregoing pages have been carefully and completely carried out.

At first, of course, from nervousness the beginner will be in a great hurry, but as soon as he gains confidence by frequently repeated executions of this movement, he should seek to perform it slowly and with the utmost care and deliberation. This caution is extremely necessary, for many bad habits and tricks are learnt in this stage of a cyclist's practical experiences, and many an otherwise good rider may be seen whose method of mounting a machine is simply ridiculous. One, for example, will get on to the step of his cycle with any amount of lightness and grace, and from that point spring into his saddle with a sort of jerky leap, which strains the spring and frame of the machine in a violent and perfectly unnecessary manner. Another may be noticed whose mounting is a painful and arduous undertaking, necessitating many struggles and entailing frequent failures. If the beginner will only take the trouble to study carefully the right way, he may hope to avoid the many faults of bad mounting.

It is well once more to emphasise the vital rule : *Do not*

hurry. A very deliberate and careful mount may, by steady practice, be converted into an adequately rapid mount—sufficient for all practical purposes—which will always, with care, retain the very important quality of safety.



DOWN HILL.

Mounting, riding, and dismounting having thus been explained, and, it is hoped, brought within the capacity of the beginner, he may at once begin to study the real art of bicycle riding as distinguished from what, for want of a better term, may be called the riding of the wheel by mere rule of thumb. The cyclist should from the first aspire to be something more

than a mere straight-away rider ; he should seek to be a clever and expert master of his machine. For this reason, and with this object always in view, he should carefully study the various methods whereby he applies his power, should seek to acquire an effective, comfortable, and easy style, and to develop by careful and constant practice that dexterity of limb which is so necessary to pace. The cyclist is not recommended to take up that branch of the sport known as 'fancy riding.' Such tricks of balance may well be left to the circus performer and professional athlete, whose business it is to risk their limbs in these exercises and feats of skill. The average amateur cyclist should simply seek to acquaint himself with the qualities and peculiarities of the machine which he uses. The first point, when sufficient confidence has been gained by a course of steady and continual practice, is to try and acquire an easy, and, above all, comfortable style ; and as this requisite is as indispensable to the tricyclist as to the bicyclist, the two classes may be taken under the one head. Readers will remark that an easy and *graceful* style is not spoken of, inasmuch as the latter cannot always be learnt, and the effort to gain it might in some cases prove an absolute drawback ; for it may not be possible for a cyclist to be graceful and at the same time exert his full powers, just as in the same way many a first-class race-horse has not perfect action, and many a fast-running man has progressed in a most ugly style. In the same way many a good cyclist, in adopting an easy and comfortable attitude, suited to his individual idiosyncrasies, is often found to indulge in a habit which may be considered extremely awkward and ugly by the more hypercritical of the observers. A very sharp line must, however, be drawn between mere laziness as opposed to actual necessity, as very often the former is the true cause of the awkward style and clumsy action of many a young rider. The beginner should therefore seek to cultivate a style based on the very best models, and then, when his experiences are somewhat enlarged, he may modify it in one direction or another to suit himself, always of course taking care not to

fall into any error whereby he may unnecessarily lose any of the good points which he has by careful practice acquired.

For ordinary road riding a fairly upright position should be assumed, although in ninety-nine cases out of a hundred the bolt upright attitude is as inconvenient in practical cycling as it would be in foot running, when the best efforts of the athlete are to be made. So the novice will bear in mind that when hurrying or riding against the wind, the body may be advan-



AWKWARD AND EASY.

tageously carried rather forward, always supposing that the handles and saddle have been rightly placed, and that the leg reach has been properly studied, of which more anon. This forward inclination of the body tends to throw most of the weight upon the pedals, and, when not exaggerated, it is most suitable, as it presents less surface to the wind. The position of the handles is a point which requires very careful consideration, as it very often happens that a mistake in this detail will

permanently injure a rider's style. A very old and favourite theory with cyclists has been embodied in the oft-quoted phrase 'a straight pull,' and handles have been put lower and lower to afford the rider the full advantage theoretically supposed to be thus obtained, until the extreme point of efficiency has been passed, and the style of the rider cramped and seriously damaged through his having to reach after his handles in a noticeable and consequently awkward manner. This is, in this connection, absolutely the most serious error that can be made, and the bicyclist would do better to ride with a short reach and bent arms rather than have the handles so low as to cause him to crane over with rounded shoulders to reach them, which very soon bows the back, pulls the shoulders forward, compresses the chest, and generally alters the comfortable pose and set of the body.

In the case of the tricyclist who suffers from a too lengthy arm reach the difficulties are less important, although they equally tend to spoil the style, added to which in the case of a well-poised machine the rider will find himself constantly slipping forward on to the peak of the saddle, and as constantly having to recover himself by raising himself on the pedals—an irksome and annoying task which can be at once obviated by altering the adjustment of the handles. A short arm reach, therefore, is very much to be preferred to an overlong one. The correct and most comfortable position of the arms can only be satisfactorily determined by actual experience and practice in each individual case, as the length of the arm is variable ; but the best guide is to insure a slight flexion of the arm at the elbow when the handles are firmly held. This bending of the arm will insure an easy and comfortable position of the body and shoulders, and the rider's weight can in a moment be carried back by straightening the arms and throwing back the shoulders. These remarks, as will be seen, apply in a great measure to both bicyclists and tricyclists, but only a practical experiment can satisfactorily determine the exact and proper position of the handles on either class of machine.

When the proper height for the handle bars has been discovered, the correct angle for the handles themselves requires consideration. The best position is that which the hand takes most easily, but handles turned too much out are apt to cause the rider to spread his elbows and turn his shoulders forward. The best position is nearly parallel with the frame, and dropping slightly towards the ground. The handles should be held firmly, but not gripped with too much force, a fault much more common than most people would think.

When the preliminary stages have been passed the rider may begin to think of improving his style, and as a natural sequence his pace. One of the very first points is to understand and gradually acquire that mastery of pedal action—the art of ankle work—which makes all the difference between a good and an indifferent rider.

To clearly appreciate the point at issue—and this is of primary importance—let the rider seek the nearest grindstone or coffee mill, or in fact any apparatus fitted with a handle of the type usual in such machines. Taking hold of it, the experimentalist should move it to its highest point and then turn it slowly round, standing fairly behind, and, if possible, over it, so that the arm may be brought when straight in the position of the leg on a cycle, and he will find that the power he exerts can be roughly broken up into a series of direct forces. Supposing he is standing behind and a little above the grindstone, he first thrusts the handle away from him, the force being a forward horizontal one, roughly speaking. Then he presses it down, this being a downward vertical force. Then, before it quite reaches the lowest point, he begins to pull it towards him, exercising a backward horizontal force, and finally he lifts it over the relative dead centre, exercising an upward vertical force; and then commences the forward thrusting action again. Having carefully studied this action with the hand, the principle of keeping up the application of the power all round should be adapted, as far as possible, to the action of the feet when riding a cycle. It will be

necessary to have a pair of shoes fitted to the pedals with deep slots, to give the feet the necessary grip and prevent their slipping ; and if the machine can be placed on one of the 'home trainers' or otherwise raised from the ground so that the first ankle work may be done on a free wheel, the task will be all the easier. The theory will be best understood if the rider momentarily supposes that he has gone a few steps backward in the Darwinian line of human descent, and that he is once again quadrumanous or four-handed, after the style of our simian ancestors, his feet being replaced by hands. Were this four-handed being asked to sharpen an axe on a grindstone, he would probably grasp the conveniently arranged double handles of the grindstone with his nether hands, and perform the pull and thrust action illustrated above, whilst with his normal hands he held the blade he wished to sharpen. Supposing he had much of this exercise, a simian man would be likely to do exceedingly well upon a cycle ; for, steadying himself upon the saddle with his normal hands on the handlebar, he would, with the others, grasp the pedals and not only push them down but pull them up, thrusting, pressing, pulling, and thrusting again in regular sequence. This would be practically the whole art of pedalling, and were man so formed as to be able to grasp as firmly with his feet as he does with his hands, his pace on the wheel would undoubtedly be greater. But the foot grip is wanting, and the next best plan must be looked for. This is supplied by a careful and intelligent cultivation of the use of the ankle joint, which by proper practice and constant exercise can be brought into a sufficiently skilful state to effect with consummate ease nearly all the various actions which a quadrumanous cyclist might perform ; the main idea, as will have been gathered from the foregoing, being to exert throughout almost the whole revolution of the pedal a force or forces which shall tend to propel the machine, whilst ankle work, even in its weakest and least developed stage, prevents the rider from holding the pedal down when the lowest point is reached, a trick which very often has much to

do with the notable slowness of a promising-looking rider. It is well therefore for the learner, as soon as he has mastered the rudiments of the art of riding, to begin to practise, however incompletely, the art of ankle work, as he will thereby modify and lighten his action and obtain a full return for all the exertions he may make.

It is a necessity in artistic ankle work that both legs should work equally, and the rider who begins to cultivate ankle pedalling is advised to begin the education of his left foot first. It is usually found that the left leg takes longer to acquire its full share of skill in this direction than the right. Sitting upon the machine placed as suggested upon some sort of stand, so that the driving wheel or wheels run free, or upon a 'home trainer,' the rider should put the left foot upon the pedal, being careful to see that the pedal bars are fitted into the slots in the soles of the shoe. Then let the pedal drop to its lowest point, and from the stationary position start the wheel—using the left foot alone—by grasping downwards with the toes, raising the heel and bending the foot downwards from the ankle, and (to use the only expressive word available) 'clawing' the pedal backwards and upwards. This should be done fairly from a dead stop half a dozen times, and then the break may be very lightly applied, and the same performance repeated. This course will initiate the beginner into the nature of the precise action required, and it must be carefully practised for a time both on the home trainer (if available), and also as far as the action is concerned in active riding on the road, until the knack or trick is fully mastered. Then, with a certain amount of break check on the trainer, or in the actual work out of doors, the rider should carefully carry out the following exercises, keeping them up as long as possible despite aches and pains (except cramp, which necessitates an instant dismount and a sharp friction of the muscles affected), so as to educate the joints and muscles up to the work required.

The appended diagram, fig. 1, although at first sight it savours of Euclid, is not by any means as learned as it looks.

It is only intended to illustrate clearly the course of a rotating crank and pedal attached to a machine travelling in the direction GC as marked by the arrow. The pedal drawn at A will describe around the *axle* centre at J a circle as shown. Practically the reader is only concerned with the circumference of this circle, the diameter of which is equal to twice the crank-throw, as it is round the circumference that the foot placed on the pedal travels. There are shown in the diagram eight equidistant radii, as A J, B J, and so on, which may each in turn be taken

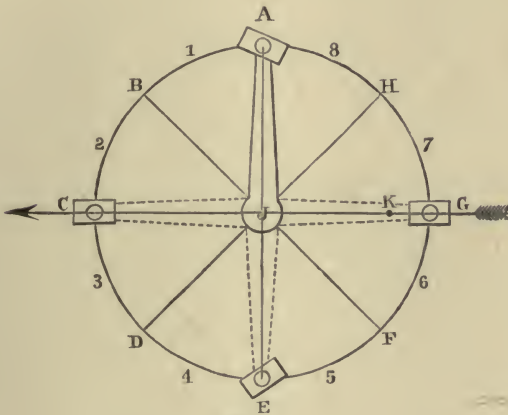


FIG. 1.

to represent the crank. These radii divide the circle into eight segments, numbered in the order in which the pedal will pass through them in a complete circuit. Thus A to B, 1—B to C, 2—C to D, 3—and so on. It is assumed for the purposes of illustration that the rider is seated vertically over the point K, some few inches behind the crank centre. Seated then vertically above K, suppose it assumed that the rider only exerts a downward pressure by simply straightening his leg in the direction A E, it is obvious that he cannot effect very much in the way of propulsion whilst his foot is passing through segment 1,

from A to B. From B through C to D, traversing segments 2 and 3, the force would be at its maximum of efficiency, after which whilst traversing section 4 from D to E its value as a propulsive power would rapidly decrease until it reached E, where if the force acting in the direction A E were kept up, i.e. the pressure downward on the pedal maintained, it would actually retard and stop the machine. Supposing, however, that the downward force of the leg were stopped at E, and the foot simply lifted with the pedal *via* F, G, and H to A, the downward thrust would again become effective. This raising or lifting of the foot with the rising pedal from E to A, by a distinct and intentional muscular effort, is one of the earliest signs that the student has at length passed out of his novitiate. It is, however, obvious that a rider merely moving his feet straight up and down is effective only from A to E, and only really effective, to any material extent, from B to D, or through just one-fourth of the entire revolution of the pedal, an obvious loss of power if of nothing else. Supposing, for example, a rider were so placed as to be well behind the crank centre, say for argument's sake on a level with the line C G produced backwards, if he were to attempt to propel the machine by straight thrusts, as in the foregoing example, then it will be clearly seen that he becomes effective through the semicircle G H A B C, having the maximum power from H to B, whilst he would be also quite ineffective during the return half of the stroke from C through D E and F to G. What an advantage it would be if the rider, instead of driving but half a revolution of the crank, and that not effectively, could by a little practice drive throughout nearly three-quarters of the entire revolution of the crank ! This tremendous increase of power can be secured by cultivating the proper use of the ankle joint, and is in short the result of a careful mastery of the art of ankle work. By the aid of a few simple diagrams it will be easy to explain the whole mystery, and although a mere perusal of the theory of the art will not teach it practically, yet if the learner will carefully carry out the instructions appended there is little doubt that he will soon understand

the principle of the thing, and it then becomes simply a question of sufficient practice to make him an adept at this most valuable accomplishment, whatever may be the class of cycle the learner uses, always supposing that it has a rotary action, or something very closely akin to it. Seated either on a bicycle slung so that the wheel may revolve, or upon a home-trainer, the beginner should raise the pedal to its highest point, and then, steadying the wheel with the break, place his foot upon the pedal, carefully fitting the slots in his shoes into their places, and seeing in any case that the foot is straight. Then,



FIG. 2.

using the thigh muscle for the most part, let him thrust the foot (and pedal) forward in a horizontal direction, in fact a sort of sharp forward kick, having the heel dropped as low as possible, the toes well up, and the foot firmly set on the pedal, which will be at an angle as shown in fig. 2. This should be practised carefully for a few minutes daily ; the left foot should at first be used more than the right. As soon as the usual awkwardness of the ankle joint has been worked off, this action will be found remarkably effective in starting the machine, as the force is applied in a direction approximating to the line taken by the

pedal through segment 1, fig. 1; after a time the ankle muscles and those of the calf will become stronger, and a sharp straightening of the ankle, as the pedal passes from A to C through segments 1 and 2, will materially aid the propulsion of the machine. This straightening of the ankle will be continued until at c the foot is brought into a position at right angles to the leg (fig. 3), the muscular effort of which should now have by equal gradations become directly downwards. The pedal will now assume a horizontal position, and the power of the leg with the weight of the body and the pull of the arms will all be



FIG. 3.

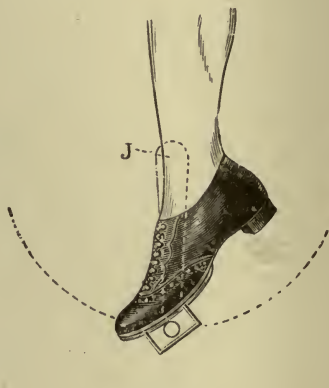


FIG. 4.

exerted to force it downwards—at this point the crank throw is in the most effective position and the hardest work is put in. Passing c, the pedal begins to follow a backward course to D and E, and here the ankle action becomes of the greatest value. The toe is gradually dropped, and the heel raised as the pedal gets nearer and nearer to the lowest point E, when the foot will have assumed a position shown with some exaggeration in fig. 4, the action having at length reached the backward or 'clawing' stage. To secure the full advantage of ankle work this 'clawing' action must be

very carefully practised ; the toes should be sharply pressed upon the sole of the shoe as if they were trying to grasp something, whilst the ankle should be straightened as much as possible, the foot being almost in a line with the leg, the calf muscles being strongly retracted, and the backward pull (which of course requires fitted shoes) can be made practically effective through segment 5, and also of service well into segment 6. The ineffective portion which exists on either side of the point G is soon reduced to a very small part of the circle, for as soon as the point G has been passed, the heel should be sharply dropped, and an upward and forward kick or thrust, as described in the directions for the first position, will lift the pedal forwards and upwards to A, when of course the whole series of actions will be repeated.

No rider can pedal properly in a week, only a very few are passably proficient in a month, whilst a master of the art takes years to develop, and never claims to be perfect, for not one man in a thousand can be found with equal power and equal action ; so the beginner will see at once that he has plenty of scope for work and also for improvement. Constant, careful, and intelligent practice is not only absolutely necessary, but is the only way in which the thing can be fully mastered. At first a good deal of stiffness and some pain will be caused, especially in the knees, calves, and front of the shins, whilst the lower abdominal muscles are occasionally affected in common with those of the upper thigh ; this is sometimes caused by overwork, or by attempting to practise up hill. A good embrocation can be recommended as a complete specific in such cases, but if the stiffness is very bad, warm fomentations or a warm bath may be taken, the embrocation being afterwards carefully applied, whilst after each spell of work the rider or his attendant should carefully rub the legs for ten minutes or so with the bare hand, which will assist the circulation of the blood through the muscular tissues, and enable them the more rapidly to accommodate themselves to the novel task imposed upon them. As pointed out above,

these exercises may be carried out upon any cycle or home trainer.

As suggested above, the left foot should first be carefully schooled (except, perhaps, in the case of those persons who are left-footed as well as left-handed), then the right, which latter should be put through the same exercises, though for a time less frequently than the left. As soon as some precision of action has been acquired, the learner should attempt a little slow and painstaking road riding, on a level road, not down hill or before the wind (as being likely to cause inadvisable rapidity), or up stiff hills or against heavy wind, because this will unduly tire the limbs and muscles. The right foot being taken off the pedal and put on the foot-rest, or swung backwards, taking care, of course, not to get it in the spokes, the left should be carefully exercised alone, the machine being driven as straight as possible at a moderate pace. This strengthens and develops the muscles, and at the same time affords the rider or his attendant a practical opportunity of testing the actual amount of force exercised by the leg, a material point, as ankle action without a little power to back it is practically useless, albeit a very small amount of power can be made to go a very long way by the possessor of a good and well-studied ankle action. In fact, to this one accomplishment, possessed in a very high degree of efficiency, may without doubt be ascribed to some considerable extent the successes on the path and on the road of riders who, regarded merely from the muscular power standpoint, are by no means pre-eminently calculated to shine as athletes. As soon as the left limb has been fairly started, and has developed some little proficiency in the steady and even propulsion of the machine, that more promising pupil, the right leg, may be exercised in the same way; but care should always be taken, for months after the beginning of the work, not to forget the left leg, and not to throw all the labour—as so many riders unconsciously do—upon the right.

The rider who follows out closely the above instructions

will soon begin to appreciate the value of the art which he is acquiring, but he will do well to curb his impatience, and to adhere to his plan of daily practice at a slow pace for a considerable time. It is very bad policy to hurry, at any rate for some time after the rudiments of ankle action have been fully mastered, for if the rider gets up a high rate of speed he is almost certain to fall into some faults which will cause him to slur over some material portion of the stroke ; it is therefore necessary that a rider who desires to gain a thoroughly irreproachable ankle action should devote daily a certain specified time to practising it at a slow pace, which may gradually be increased as proficiency is acquired, until at the highest speed of the racing path the all-round ankle action of the accomplished rider is seen in its highest development. Whilst learning, say for the first couple of months, an exaggerated action is recommended, the heel dropped as low as possible, the toes alternately being pointed as high up and as low down as the ankle joint will permit, and the forward thrust and claw back carried out as far as possible. These actions, thus carried to the extreme, effect the same purpose as the skipping or jumping of the sprint runner : they stretch all the muscles and increase the freedom of motion in the joints, and thus assist materially in the development and freedom of the action ; but when at length it has been fully mastered, and a lengthy practical experience has taught the rider that even at the highest speeds he does not slur or shirk the work, it is well to modify the action of the ankle as far as is compatible with the full use of the joint. The true art is to conceal art, and this modification properly learnt in no way impairs the effectiveness of the ankle action ; in fact, it really increases its value by adding to its rapidity all round, and thus allows more scope for the use of the powerful muscles of the calf and thigh, whilst the easy smart rhythmic action of the ankle keeps the work alive, to use an expressive if somewhat technical metaphor. The real point is that the pull and thrust action, going on simultaneously with both feet,

practically does away with the dead centre, and keeps the wheel running between the full throw strokes, a point which will be fully appreciated by all practical cyclists, and may be likened to that portion of the sculler's art which enables him to keep his boat running between the strokes. The rider must bear in mind throughout all his work that the downward thrust is of course his most valuable point, and that it should be fully taken advantage of, and not lost sight of in the course of the all-round action ; but at the same time the quick clawing recovery prevents any hang of the machine at the dead point, and therefore materially aids propulsion. Nor is it right to suppose, as some riders have done, that ankle work is only of service on the racing path, and of no value elsewhere ; as a matter of fact the very greatest value is to be attached to the art on the road. All our best road riders excel in a sound and straight ankle action. The road rider should therefore study and practise the art with as much care and assiduity as the racing man, as he will always find it of the greatest service in every branch of active cycling.

The accurate arrangement of the reach of the machine is an important point, and has a notable effect upon the success or otherwise of the rider. The question, as far as it deals with racing machines, will be found fully treated in the chapter devoted to this branch of the subject. The choice and arrangements of a roadster will, however, interest a much larger section of readers, and these are therefore described at greater length here.

Too long a reach on a bicycle is dangerous, as the rider loses his pedals at the bottom of the stroke, whilst too short a reach, though infinitely preferable to the other extreme, is also likely to cause trouble, as the cramped position prevents the free action of the limbs, and as high-speed pedalling is thereby rendered very difficult, the result is unsteadiness, together with bad and irregular steering.

The proper adjustment and placing of the saddle is another very important point in the curriculum of the cycling novice,

as on this one thing depends to a very great extent the personal comfort of the rider ; and there is no one item in the whole arrangement of the fittings and accessories of any class of machines on which so great a diversity of opinion is to be found. In fact, the rider, whatever his mount may be, must suit himself ; but practical experience teaches that, by the exercise of a little judgment, he can find exactly what he wants, and at the same time so fashion his seat that it may assist him in forming a good style of riding.

The main point to be studied is to place the saddle as nearly as possible in a horizontal position. The cyclist, on the path as well as on the road, should sit upon his saddle, and not cling to it by means of the handle, or slide off it because of its awkward position, as so many riders may be noticed doing every few yards. A theory which once found a great many practical supporters was that if the saddle was raised high up behind and tipped well forward the rider was thrown on to his pedals continuously, and was thus kept at, or on, his work. Nothing could, in truth, be more fallacious, as the awkward pitch of the saddle threw almost all the bodily weight upon the wrists, and thus tired them, and at the same time defeated the very object it was supposed to attain, whilst back action and ankle work became practically impossible ; if the saddle is bodily pitched forward it entails endless annoyance, as the rider is himself thrown forward, and he has to lean very much to the front to carry his weight on the saddle with any approach to comfort, whilst the temptation to get off the saddle and on to the handles is very great ; but if adopted, cramped and strained wrists, awkward and constrained leg action, and last, but by no means least, erratic steering must inevitably follow. Experienced riders are nearly all able to recall instances in which a saddle so pitched was used by a novice, and they will recognise as characteristic the frequent assertion of the user that he could surmount hills better with his saddle in that position than when it was placed in any other. To the expert the reason was obvious. For going up a hill the pitched saddle

becomes nearly, if not quite, horizontal, and the rider for once in a way sits at ease and can use all his muscular power for the propulsion of the machine. The opposite trouble, when the saddle is raised unnecessarily high in front, is possibly quite as annoying and objectionable. It was a very favourite arrangement on the old class of single-driving rear-steering tricycles, the object doubtless being to throw the rider's weight well back on to the steering wheel, and to prevent his falling out of the open front when the single-driving arrangement allowed the machine to swerve round on greasy roads. A high peak is exceedingly awkward for the rider, likely to prove very injurious, and to bring about accidents similar to that which caused the death of William the Conqueror. The victim of this error in the arrangement of the saddle has to cling with great tenacity to his handles to overcome the constant tendency to slide off his work and over the back of the saddle, whilst every bump on a rough road shoots him backwards, causes him to lose his pedals, and, in fact, generally prevents him from doing the full amount of work he is capable of. All these errors clearly point to one conclusion, viz. the panacea suggested above, a horizontal saddle.

In the case of all springs, great care should be taken to keep the fastening nuts well screwed up, as any side shake or looseness in the spring attachments will very soon cause irreparable damage if not at once taken up, and a loose spring will sometimes injure an incautious novice's style very materially. A careful adjustment of the head is also an absolute necessity, as a loose head will inevitably cause the steering to become very unsteady and erratic down hill or at high speed, as the wheels will not 'track' or follow accurately one after the other.

The next points that will require looking to will be the wheels themselves and their bearings, and the axles and bearings of tricycles. These may need a little screwing up, though the anxiety of the novice to do away with any side shake in his bicycle wheel is not to be encouraged ; a very little

looseness at this point does no harm, and shows that the bearings are not screwed up too tightly, whilst it often happens that to readjust the bearings of an old and well-worn machine causes the balls to break, owing doubtless to the alteration of the positions of the coned surfaces on which they run presenting some irregularity which has been worn there by constant and careless use. Obviously untrue wheels are necessarily unsafe to begin with, and also a serious detriment to the rider who desires to steer a straight and steady course ; and thus it is always well to have such wheels at once put right by a competent repairer, who should be also asked to run his eye over the cranks and see that they are straight. This fact being established, the pedals should be put on. These should be preferably rat traps which afford a good hold for the feet, and tend to prevent the rider from slipping his pedal. They should be true and straight, and if they are bought second hand they should be carefully examined. If any suspicion of untrueness is entertained the pins should be taken out and put between the centres of a lathe and rapidly rotated, when any bend will be easily detected, and may be at once put right, as a crooked pedal pin gives a very uncomfortable twist to the ankle joint, and very soon tires the rider, whilst constant use will give the cyclist a permanent bad habit of screwing with the foot, a most unfortunate trick, and one which causes the action to look particularly ugly. The step is useful on the Safety, and many are well designed and fitted ; others are of narrow shape and should be carefully watched, the edge being frequently rounded off with a file, as the constant friction sharpens it up to such an extent that it inflicts a very ugly wound should the rider be so unfortunate, from wet shoes or other cause, as to miss it in the hurry of mounting or dismounting. The teeth of the step, as well as of the rat-trap pedals, should also be kept moderately sharp, at any rate at first, until the rider has arrived at that stage of his experiences in which he recognises the necessity of watching with care all these minor details of his steed's accessories, every one of which has a direct

bearing upon his comfort and, what is still more important, his safety.

ACCIDENTS.

Falls on the road or path are of course of occasional occurrence amongst cyclists. Although their frequency has been much exaggerated, a skilful rider will escape many an accident where an unskilful cyclist is certain to come to earth.

Many accidents are caused by the failure of some part of the machine, and are practically inevitable and unavoidable ; beyond, of course, the exercise of a certain amount of care and supervision, an examination of all parts of the machine for cracks and flaws and so on will prevent many falls.

The habit of flying hills at a reckless pace, or run-aways through inadequate break power, will often be found at the bottom of some of the most serious accidents on the wheel ; and though caution may add to the time taken on the journey, it vastly improves the rider's chance of completing the trip in safety. A sound and well-fitted break is of course an essential to the road-riding cyclist. A stout pair of gloves is a great protection to the hands in the case of a fall, and when a cropper at high speed seems inevitable the rider should avoid as far as possible falling *against* banks or similar obstructions. A fair fall on the road, especially if the shoulder can be made to come first to the ground, generally results in a series of somersaults, which, though damaging to the cuticle and the angles of the frame, is not nearly so serious in its results as a dead stop against a bank or wall. It may seem absurd to offer hints how to fall, but it is quite an art of itself, for which many riders develop quite a peculiar talent. If the rider can by any little ingenuity twist or turn on to his back, the resulting injuries will be very slight. Should a rider fall on the road, as soon as the first pain has gone off he should essay to move. If his machine is uninjured and the cause of the accident clearly apparent, he should get on at once and make for the

nearest doctor. If, on the other hand, he suspects a broken spring or a damaged bearing he will do well to walk, but in any case he should move off at once before his wounds get stiff. Careful bandaging and the application of vaseline on lint will enable him to get home, and warm water and a soft sponge should be courageously employed to extract the grit and dust from the wounded surfaces; their subsequent treatment should be left in the hands of the doctor.

The path falls are decidedly the most serious in one respect, for if a rider has the misfortune to fall on cinders the results will be very disfiguring, blue marks exactly like tattoo and much of the same nature being the result when cinders are left in the wounds. Some of the best racing men have been sadly disfigured about the face, elbows, and knees in this way. It is therefore necessary for the rider or his friends to take instant action after an accident on the cinder path. Warm water if possible should be used, and the wounds superficially sponged over quickly to remove the surface cinder, then the edges of the wound, which resemble a series of parallel deep scratches, should be pulled gently apart, and the cinders which lie in them gently removed with the corner of a towel or a bit of sponge, frequent washing with water being necessary. The pain in some cases is considerable, in others the force of the blow temporarily dulls the nerves, and advantage should be taken of the fact. In cases of insensibility a similar course should be followed. On one occasion within our knowledge a friend seized a stiff nail brush and brushed out a deep wound, with the double result of bringing the patient to his senses by the combined effect of pain and blood-letting and also of extracting all the cinder. Heroic remedies like these should, however, be gently used, under the eye of a doctor if by any means possible. Face wounds should always be well cared for, and the victim must be encouraged to permit the painful process as long as possible. If a companion will firmly grasp both wrists it will be found of assistance in the more painful moments. As in the case of road falls, vaseline should be freely applied and a handkerchief tied

round to prevent rubbing, and then the rider should be sent home as quickly as possible. Gentle fomentations with warm water will assist in keeping the wound open and extracting the foreign matter. Dr. G. B. Partridge, of Anerley, in a letter on this subject says: 'The best treatment undoubtedly is copious washing with warm water; it need not to be desperately hot, and much of the foreign matter may thus be got rid of with the aid of a soft rag or sponge. Very often larger fragments more or less embedded in the skin may be removed at the time with a needle point, and this will be a considerable gain as to speed of recovery, and subsequently large soft *linseed meal* poultices will materially hasten the separation of the particles too deeply embedded for such mechanical treatment. I do not think anything else can be done in aid of Nature's own process of cure, which is in itself fortunately a fairly rapid one, the superficial layers of the skin undergoing frequent removal.'

Falls on the two most prominent surfaces used for cycle tracks to-day, wood and cement, require to some extent varying treatment. Wood being usually laid on a somewhat soft sub-surface, and being itself not extremely hard, gives slightly under the victim of the mishap; the wounds are clean and mostly straight cuts, and the rider only needs immediate attention as regards them. The man who falls upon cement is, however, less fortunate, and requires more care, as cement tracks are laid upon some inches of concrete to enable them to withstand the winter, and are of necessity extremely hard and unyielding. The actual wounds are no worse than those sustained by the man who falls upon wood, but the nervous shock to the system is infinitely greater. The after results are also more serious, and it is of the very greatest importance to keep this fact in mind in dealing with riders who have fallen heavily upon a cement track.

Rest is a very great assistance to convalescence, and it is imperative in the worst cases. Of course broken bones need

the surgeon's care, as also do more serious wounds than those alluded to above. The great thing is not to desire too rapid a recovery, and to give Nature time to re-establish the disintegrated membranes.

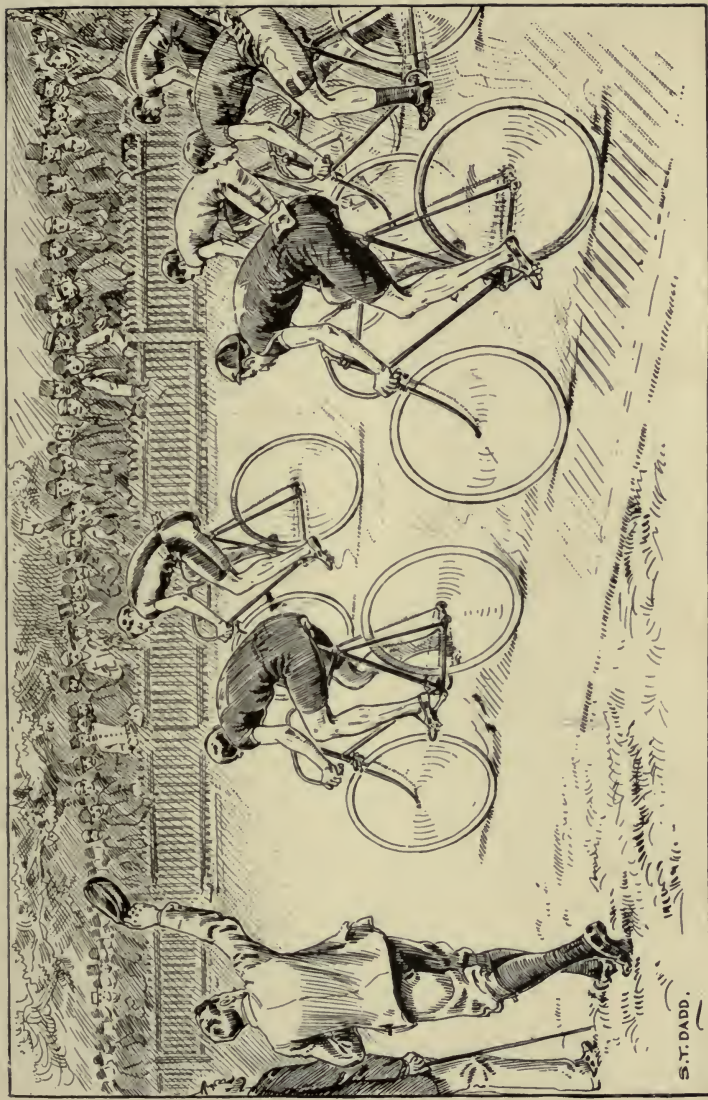
Cyclists, being usually in good health and fair condition, recover rapidly. There are numerous nostrums in the market, some of which are very successful in removing stiffness, sprains, and bruises.



CHAPTER IV.

RACING.

CYCLE racing is attended by both advantages and disadvantages to the rider ; but there is no doubt that on the whole racing has done good service to the sport, and that cycling owes much of its success to the racing man. He is in fact largely responsible for its phenomenal development : a development which is far in advance of any parallel growth of a sport in this country. Nor is the reason difficult to discover : the successful athlete uses his head : his mental, as well as his physical, powers are called into play. The successful cyclist, as well as the runner and the jockey, must think as well as act. It is only when sound judgment co-exists with suitable physical powers that excellence in any branch of athletics is obtained. The racing cyclist very soon decided that it was necessary to demand from the manufacturers an improved vehicle. Mr. Frederick Cooper, the ex-professional champion, was among the earliest of these reformers. He was fortunate enough to find an able seconder in Mr. Thomas Humber. Finding that the machines then made were unnecessarily heavy, Mr. Humber was soon convinced that improvement was imperative and possible. The result of considerable labour was a vehicle which was then considered a marvel of lightness and strength. The existence of a demand very soon created a supply. The makers vied with each other in their attempts to meet the requirements of their customers, and in due course produced the thirty-five pound machine of 1879. This was generally considered as light a machine as it was possible to make



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consistently with the strength and stability required : yet in 1895 that weight is regarded as excessive for roadster machines. Once having discovered the advantages derivable from a saving in the weight of a machine, the racing men incessantly clamoured for further reduction and obtained it. As a matter of fact the craze was carried to the opposite extreme, and machines very much too light for any but feather-weight riders were sold to heavy men without any consideration on the part of their constructors. The heaviest of our racing men got across the flimsiest of racers, with the only possible result : breakdowns and consequent injury to both rider and machine. A reaction followed, and racing machines of from twenty to twenty-four pounds weight are now made amply strong enough to carry men of nearly twelve stone weight over the paths on which cycling contests are run, whilst the heavier racing men have learned by somewhat painful experience that they *must* have their machines built of sufficient strength and solidity to withstand the strain of their weight and power in the course of a long and severe race.

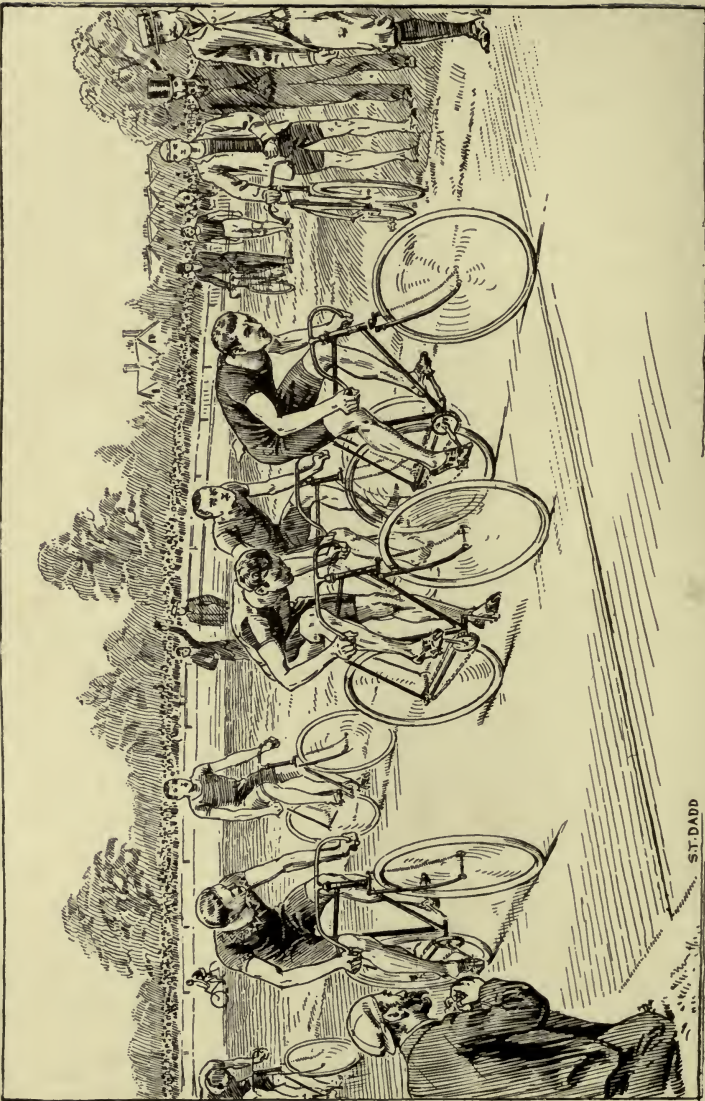
The manufacturers, thus constrained to cut down the weight of the racing machines, were enabled, by the practical experiments they made, to arrive at some rather startling discoveries as to the amount of unnecessary metal hitherto introduced into the frame and fittings of their roadsters, and ere long the experience thus gained enabled them notably to reduce the weight of that very much larger class of machine represented by the roadster cycles. Heavy joints, clumsy tubes, and preposterous solids were eliminated from the standard patterns, and tube frames of light gauge replaced the haphazard constructions of the dark ages of cycling ; thus the road-riding contingent, on whatever style of vehicle they disported themselves, were actually benefited by the practical and sometimes painful experiences of their racing *confrères*.

It was not until after the bicycle in its roadster form had been improved by the experiences of racing men, and cut down by successive steps to a wonderfully light weight, comparatively

speaking, that the attention of the makers was directed to the hitherto almost unnoticed tricycle, a machine which, as we have shown, was really very much older than the bicycle. The original velocipedes were clumsy and heavy, and at first the adaptation of bicycle construction to the three-wheeler followed too much the old lines, and attempted to secure success with a lever action ; this phase did not, however, last long, and the modern tricycle with its balance gear became an accomplished fact.

We venture to credit the comparatively small section of racing men with being the 'original cause' of the rapid improvement which has been made in all classes of velocipedes. Possibly the manufacturers would tell us that the racing men gave them more trouble, and were more difficult to please, than any other section of their customers, and doubtless this would be quite true ; but it is particularly this fact which has brought about a desire on the part of the manufacturers to meet these particular gentlemen, and in that endeavour they have vastly improved the machines they manufacture, not only for the small class of racing men, but also for the much larger body of general riders.

The very first thing that a man who decides upon taking up cycle racing should do is to take competent medical opinion as to his physical capabilities for the work. And we would venture to suggest that the intending racing man should ask the opinion of some medical man who is himself either a rider or an athlete in some way or another. We say this simply because some medical men set their faces against the sport without taking the trouble to consider the question at all. They arbitrarily assert the danger of cycling and threaten the would-be cyclist with all sorts of pains and penalties if he rides. Some medical men—their numbers are becoming daily fewer—assert that the sport is especially productive of hernia, although long experience has shown not only that this is seldom or never caused by cycling (unless a severe fall produces it), but that persons suffering from it can ride and cover long distances



THE FINISH OF A RACE

ST. DADD

without any trouble or suffering. It is for this reason, therefore, that it is suggested to the novice that he should go to a doctor who has some knowledge of athletics. There are many, unfortunately, who cannot stand the mild strain of a ride upon the road, and such men would not of course venture to tempt fortune on the racing path ; there are others also who, although they are free from disease, *might* possibly damage themselves by a vigorous course of cycling, and they also should avoid the path and its concomitant excitement and exertion ; but there are men—many of them—to whom the hardest physical exertion is, or would be, of the greatest practical benefit. These are men with good physical powers, sound in wind and limb, without any heart or lung trouble, and with an active digestion. Such men, unless they can take a sufficiency of exercise, absolutely suffer from those very physical advantages which they enjoy. They grow fat and unwieldy, and in the train of the abnormal development of adipose tissue follows any number of ailments which might have been avoided by exercise. ‘But,’ one of these physically favoured individuals may say, ‘I cannot take exercise enough. I have got to work, and the time at my disposal for recreation is limited.’ To such a one the obvious reply would be, ‘Although your time *is* limited, you can take quite enough exercise therein to keep you fit and well. Remember it is the pace that kills, and if instead of a slow walk, or a quiet ride, you go in for a rapid run or a sharp burst upon a cycle, you will put into a few minutes the equivalent exertion of hours of slow exercise with equal advantage to yourself ; always supposing, as premised above, that some competent and unbiassed medical man has said that you are physically fit for the exertion you propose to undergo.’ It is well for the prospective racing man to consider whether there are any other drawbacks which may prevent his success. Varicose veins do not seem so seriously to interfere with the pursuit of the sport as they do with running and walking. The reason is obvious. There is an absence of any direct *vertical* jar such as is experienced in running each time the foot comes to the

ground, whilst the action is necessarily smoother, and with the aid of an elastic stocking a person suffering in this way may in most cases ride without injury or discomfort. In the same way, as was pointed out above, hernia, if properly supported, is no bar to riding or even racing, although the latter is by no means an advisable recreation for those who have the misfortune to be thus afflicted. Myopy, or near sight, is sometimes a great bar to success on the path ; the sufferer, being afraid to wear glasses in case of a fall, yet being unable clearly to see his opponents, is always nervous when near them. This is the best explanation of the unsatisfactory performances of some of our racing men, who can do good work when alone in practice, but who, after overhauling their men in open races, seem nervous or afraid to pass them. The only remedy is to wear glasses, and the danger in case of a fall would be very slight, as the glasses would be flat to the eyes, and these are in nearly every case protected by the nose, frequently to its serious disfigurement. Many good men in the past have constantly ridden in glasses, and although occasionally they have fallen badly, no injuries to the eyes have been recorded as a consequence.

If after a careful examination a rider has ascertained that he is physically fit for the severe exertions of the racing path, his first step should be a little preliminary work upon the road on his ordinary roadster machine ; and here once again the necessity must be urged of cultivating carefully, at the comparatively easy pace of road riding, that skill of ankle action without which a rider is always at a disadvantage. On the road the rider should try and remember the rules laid down for successful pedalling, and should, so as to get every muscle properly set in place, have his racing machine as nearly identical as possible in pose and measurement with the roadster he is accustomed to ride. It is a very good plan for a beginner to race a few times upon his roadster, as he will be well set to the machine, and thus will be enabled to 'feel his feet,' so to speak, without the dangers which must always attend anyone who makes his first essay on the path as a racer. When, however,

he has gained a little experience and can keep his head during the few exciting moments from the crack of the pistol to the crossing of the tape by the winner, he may purchase a racing machine, and this he should use in all his practice spins upon the path, so that he may get well set to it ere he ventures upon it in an actual contest.

The choice of a machine which is to carry its owner at the highest possible rate of speed through a contest on the path is a serious matter, inasmuch as the slightest flaw or unexpected weakness in any part may lead in a moment to a serious if not fatal accident, and it is therefore a necessity that the would-be racing man should exercise great care in his selection of a mount. No complete novice at the sport would contemplate purchasing a racer, but even a fairly accomplished rider may be warned against obtaining a racing machine entirely upon his own responsibility. Some of the best makers of roadster machines do not make satisfactory racers, and therefore when a rider decides upon buying a racer he will do well to secure the assistance and advice of a competent and experienced friend, who must of necessity be a racing man. In the choice of such a friend avoid the rider who is known or rumoured to be interested in any one or other of the manufacturing firms; his advice is naturally not free from bias. The machine chosen should be of a make which has secured a reputation for trustworthiness upon the path; for, as we have pointed out above, a reputation for the construction of sound and serviceable roadster machines does not of necessity imply that the firm shines as brightly in the construction of path machines. It is only by the severest of all tests, a *practical one*, that the merits of a racer can be gauged, and the disinterested advice of an old and experienced racing man will, therefore, be of the very greatest value.

We regard with the sincerest sympathy the adventurous rider—and there are a few such—who experiments for the first time upon a ‘racer’ of phenomenally small weight, constructed by a new and untried maker. The frame in such vehicles is cut down as light as it can be, the lowest possible effective strength being

relied upon, and a very slight and probably undetectable fault or flaw will bring about very serious results. It may be that the new maker who has ventured on the experiment of constructing a racing machine has overlooked, in his heavier work, the bad quality of one particular casting, or other part of the rough material. This fault, when the casting, only just *finished*, and still with plenty of extra metal about it, was used in a roadster machine, was not apparent, but when cut down to the extreme of lightness, so as to compare favourably *on sight* with a similar fitting in a well-trying and popular make of racer, its weakness declares itself, of course, at the wrong moment, and a dangerous accident probably ensues. A wild theory was once accepted amongst racing men that a very short crank (as short as four and a quarter inches in some cases) tended to assist and improve the sprinting powers of the rider. This error was due to the relatively slower action of the limbs with so short a throw, and as the pioneers of path racing were mostly heavily muscled road riders there is little doubt that they found it easier to exert their strength rather than to undergo the exhaustion produced by a rapid light action; just as nowadays a weighty cyclist finds it easier to propel a geared-up machine with a slow action requiring more power, than a low-geared mount which does not so much require muscular exertion as an accelerated action of the limbs. When in due course the path 'flyer,' as distinguished from the steady road rider, became developed, the light, compact, and easily moving muscles of the trained racing man found ease and comfort in increased leverage in the throw. Heavy muscles, if put into unduly rapid action, are soon exhausted, but the light and flexible muscles of the path rider can more easily meet the strain of rapidity of action as opposed to the slow yet powerful exertions of the road rider. Then again very much depends upon the position of the handles; nothing conduces more to an easy and effective style than a properly adjusted length of arm-reach, nothing will sooner destroy a rider's style than an awkwardly placed handle-bar. The position productive of the best results is that in which the rider has his arms just

flexed whilst sitting upright upon his saddle in a free and unconstrained position, and albeit men may, and often do, assume very awkward-looking positions when engaged in a race, yet, whatever attitude they may take, the position of the handles suggested above will usually be found the most suitable. All these little matters require a certain amount of consideration, and that rider will succeed best who has most fully gauged his own requirements in all the above points, whilst he should not hesitate a moment about having any alterations or modifications made which, after a practical trial, may appear to him advisable or necessary, for 'a good fit' is as necessary to a cyclist on a racing bicycle as it is to a runner in the matter of shoes, or to a rowing man in the shell which is to carry him in a race. Unless a man be fitted and suited, and unless he himself believes that he is fitted and suited, he cannot expect to ride with confidence or courage, which can only be cultivated by having every little item throughout exactly to fit his ideas and experiences as to comfort and safety.

The choice of a maker, then, should not be unduly hurried, and the order for a racing machine should only be entrusted to a firm whose manufactures have already made a name for themselves amongst practical and *disinterested* racing men. The best and most convincing testimonial an independent racing man can give a maker is to ride the machine he makes, and when an intending purchaser finds that a largely advertised machine is ridden by only a few inexperienced *bonâ fide* amateurs, outside the circle of 'salaried representatives' or 'employés' of the firm, he may feel assured that the machine, as made for the ordinary purchaser, is not good, and that for this reason it does not find favour with the genuine independent amateur, who invariably consults solely his own comfort and safety. Any racing man can tick off on his fingers the names of the few firms who have made and kept a reputation as makers of racing machines, and a beginner on the path will do well to compare notes with the disinterested section of path riders before he gives his order. This important point decided,

a word of warning must be addressed to the would-be racing man himself. First, let him not run to extremes, but permit the maker, who has had much experience in the matter, to decide as to what ought to be the weight of the proposed machine. A craze for lightness is one of the earliest symptoms of the racing fever, and the rider, oblivious of his actual bodily weight, his clumsy strength, and his general inability to properly 'nurse' his machine, insists upon having a cycle so light that it would need most careful pedalling to keep it from injury. In most cases where the novice makes this absurd demand an experienced maker acquiesces for comfort's sake, and then sends home a machine of a reasonable and safe weight. Perhaps the purchaser does not weigh it. He finds that it suits him, and is satisfied, and perhaps long after he has got the fullest confidence in it, he is surprised to discover that it is three or four pounds heavier than he imagined. But, if he is wise, he will be content with the clever combination of lightness and strength, the happy mean between unnecessary weight and undue weakness, so successfully struck by the experienced, though often sadly abused, manufacturer. A well-known rider writes as follows in the editorial columns over which he presides. It is valuable as the opinion of a practical man whose authority is acknowledged among cyclists :

We can give from our own experiences (experiences which are bound to be accurately recorded if somewhat egotistical) a case in point. In the early days of our racing, without a mentor to advise us, we demanded from the makers of our racing machine *lightness*, and lightness only. Despite the remonstrances and sound arguments of the firm's most practical chief, we still reiterated our request, threatened to put the machine in the scale immediately on its arrival, and, if it weighed over thirty pounds, to return it. In due course we got it, placed it in the scale, and found it just a shade over twenty-nine pounds (this occurred some years back, of course). Duly satisfied, we commenced to ride it, but it was by no means satisfactory ; it did not run rigidly at all, the forks whipped at the corner—in fact, at our then weight (nearly twelve stone) it was eminently unsatisfactory, so much so that we complained to

the maker, whose reply may be easily supposed. We had asked for, nay demanded, too light a machine. In due course the twenty-nine pounder was replaced by a vehicle of exactly the same measurements and proportions, which weighed thirty-one and a quarter pounds, and this proved in every way eminently satisfactory. The extra weight had not been put on at any especially weak spot, it had been introduced generally into the frame, and thus enabled it to bear our weight and withstand our exertion.

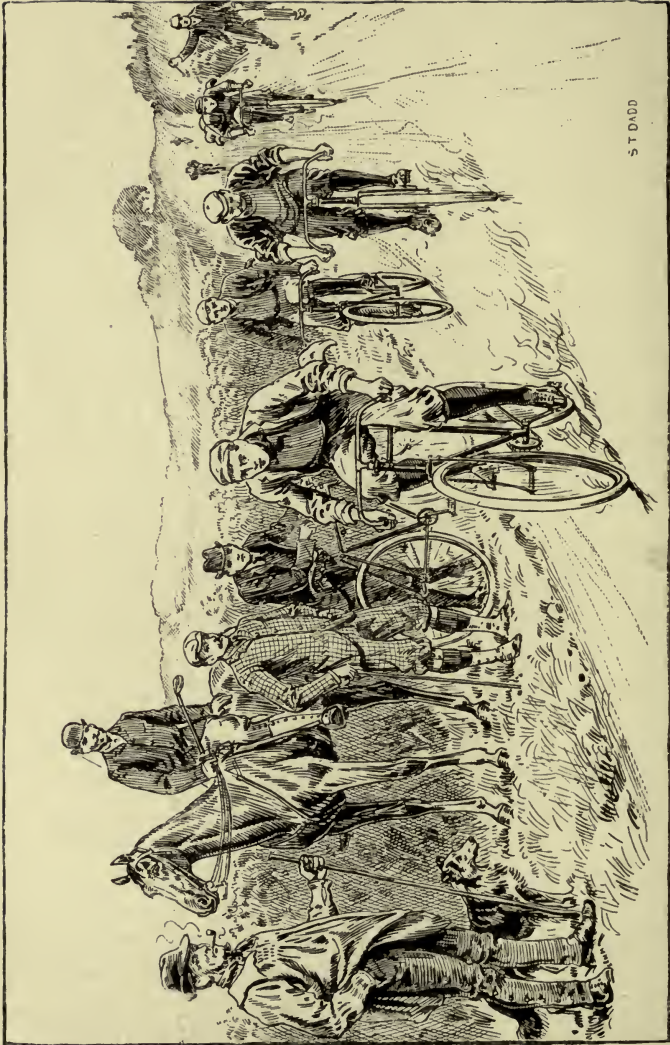
In the same way may be instanced the machine ridden a few times in 1882 by the Hon. Ion Keith-Falconer. This, though a beautiful specimen of the bicycle-maker's art, was not sufficiently strong to carry his relatively heavy weight, and no sooner did he begin to spurt on it than the deflection of the forks caused the bearing balls to bite, and made the work very hard ; a very slight additional weight, scarcely two pounds we believe, made a machine amply rigid enough for the fifty-mile record-holder of 1882. Thus the novice will do well to avoid undue and excessive lightness, and as the question is not solely one of bodily weight, but of weight and skill considered together, he will, in the first instance at any rate, be well advised if he allows the experienced maker to decide for him the actual weight necessary to carry him safely and satisfactorily.

THE MANAGEMENT OF A RACE MEETING.

It should be first noted that race meetings, whenever and wherever held, must, if they include amateur cycling events, be held under the rules of the National Cyclists' Union, and in the case of clubs not affiliated to that body, the committee must obtain a special permit to hold such a meeting. Unless this is done, any amateur riding at the gathering will be liable to suspension. A great many incompetent persons are too often to be found assisting, or attempting to assist, in the management of race meetings, especially in the country, where gentlemen are chosen to officiate in important posts who have not the slightest practical knowledge of the duties they are

asked to perform. For example, at one race meeting, where one good rider beat another by a foot, the mayor, who was judging, admitted the fact, but gave it a dead heat, 'because the other one had ridden such a plucky race.' Such little incidents as these disgust the riders, and they stay away another year.

The handicapping of open events should always be placed in the hands of the National Cyclists' Union official, who should be given as much assistance as possible by the local authorities. Certain rules have been drawn up by the executive of the National Cyclists' Union for the guidance of those who essay to manage race meetings, and they will be found of the very greatest value. The officials most necessary to the complete success of a race meeting are the honorary secretary, the judge, the time-keeper, the starter, the dressing-room clerk, and the telegraph-board steward. The honorary secretary must, of course, be energetic and untiring. He should be a well-known man if possible, and one in whom racing men will have confidence, and he should be backed by a small practical committee. Have as many good names as possible connected with the thing, as President, Patrons, and Vice-presidents, but avoid having any but the practical section on the working committee. The meeting should be announced as long beforehand as possible, in the Cycling and local Press, and moderate advertising should be arranged for some six weeks or so before it comes off. The duties of the honorary secretary will be various. He must write to the best riders, and press them to come; he must obtain all the addresses he can of racing men who are likely to compete, and send them prospectuses; he will see that the cycling editors are furnished with copies of the same document, and also that a supply is sent to all the training tracks, the latter lots having a piece of string tied through one corner for the convenience of the attendant, who should be asked to hang the forms upon a hook in the dressing-room under his charge. The secretary should be in charge of the affair



A ROAD RACE

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on the day, outside the ring, within which is the domain of the judge, wherein that official rules absolutely. The judge, under Union rules, is a supreme official, and should be most carefully chosen, for if he is incompetent all will go wrong. There should be only one judge, and his decision is final and absolute, so that the choice of the right man is a *sine quâ non*. The judge takes absolute charge inside the ring, and should work with the secretary in timing the calling out of the heats and the general run of the meeting. The time-keeper is another vastly important official, and should also be selected with very great care, as it is very annoying to have a grand performance done at the meeting and then to find it disallowed because the time-keeper was not sufficiently accurate. There are a number of trustworthy clockers with public reputations to uphold, and one or other of these gentlemen should be secured even at some expense, so that in future years good men may be induced to enter and run by the knowledge that, should they do a good performance, they will get the credit of it. The starter is another official of importance from every point of view, as with an incompetent starter men may take an unfair advantage, and any amount of heartburning will be caused thereby. When athletic events are also included in the programme, a professional starter is a great attraction, but it is always advisable in the case of a newly employed man to give him a word of caution not to hurry the pistol, as it often happens that a starter accustomed to starting sprint races is very much too quick in starting bicycle races. He should be asked to substitute 'Are you ready?' for his habitual 'Get ready,' and to give time for any one of the competitors to answer ere he fires his pistol, otherwise the men will be hurried unprepared off their marks, and accidents are bound to ensue. Perhaps the most thankless task of all is that of the dressing-room clerk, who is compelled to stay in the room or tent throughout the meeting, and to look after the men for each heat. This official should set his watch with that of the secretary, and by that should send the men

out in due course. He should have three copies of the programme, one fastened to the table with drawing pins, for his own especial use, and two to be handed alternately to the telegraph-board steward, with the starters in each heat marked. He should also see that every man has his number, and should call out, at least twice, the names of the contestants in the next heat. The telegraph-board steward should be specially detailed for the job, and should be unmolested throughout the afternoon, as on him depends the information of the spectators, which, if not satisfactorily accomplished, will disgust them, and cause them to stay away in future. The telegraph steward must see that he has all the necessary appliances ready at hand, and as soon as a heat is over should get up the numbers of the next. In the case of extensive grounds, two telegraph-boards are an excellent institution, and if worked competently assist much in popularising the meeting. The telegraph stewards should be allowed the assistance of a smart boy, or under-steward, to run for the list of starters during each heat, and also for the times accomplished. In the case of big meetings this task may well be entrusted to a professional, some of whom have made a name for themselves for reliability, and, as has been pointed out above, the spectators round the track depend entirely upon the services of the board official for their information in many cases. Umpires are a necessity, and should be very carefully chosen, the judge being consulted as to the men to be asked; whilst lap scorers and clerks of the course must also be selected. It is also advisable to appoint an official to keep the inclosure clear of unauthorised persons, and as this is somewhat of an invidious task, it would be well to give such an individual the assistance of a police officer, who should take his orders from the appointed official. This is a particularly necessary appointment at country meetings, but needs much tact on the part of the person appointed; still it is necessary for the comfort of all concerned. A very ingenious plan was successfully adopted at a certain meeting. A number of

gentlemen connected with a cricket club, whose field had been duly hired and paid for, forced themselves into the centre of the ring, and insisted on staying there, despite the remonstrances of the official that the public who had paid could not see the finishes because of the crowd. Suddenly a happy thought struck him. It had been raining heavily, and he gave the order that all inside the ring should lie down ; the youthful cyclists did so, but the rheumatically elderly gentlemen, after a moment's consideration, sought seats in the grand stand as a safer resort, and the public viewed the races with comfort. The inclosure should be carefully cleared of unauthorised persons after each heat, and attendants and starters should be got outside as soon as their men have finished. Some racing men fancy they have the right to stroll about inside the ring, but they should be at once disabused of the idea, as they interfere with the view. A certain section of press men also fancy that their journals are entitled to any number of representatives within the charmed circle, but this should be at once put a stop to, one representative being ample and all that can properly be allowed, whilst it is an excellent plan to reserve a space outside the track, properly fenced in and provided with seats and tables, for the accommodation of the representatives of newspapers. They can from this position see all the incidents of the racing, and a special messenger should be told off to keep them posted with the times, and so on.

Great care should be taken to keep up the character of the meeting in every way ; the prizes should be of full value, and a very special effort made to secure good dressing accommodation for the competitors. In country towns the local lights may be invited to present a good prize, which can be called by some appropriate name, 'The Mayor's Cup,' for example, and the precedent once established, the prize will become an annual one. A 'Ladies' Prize' should also be arranged for, or a 'Town Cup' may be secured by judicious canvassing amongst the tradesmen and others. If the competitors

enjoy the meeting, they and others will revisit the town, the racing will be kept up to the mark, and each year will attract more and more attention and consequent gate-money. In a great number of provincial towns the cycle races are regarded as an annual event, and the possibilities of the amateur champion coming to contend for 'The Cup,' or the chances of the local favourite, are the subjects of lengthy discussion for weeks before the date of the fixture.

The rules and regulations of the National Cyclists' Union bearing upon amateur race meetings will be found in the chapter devoted to that institution.

CHAPTER V.

TOURING.



ON THE WRONG ROAD.

THERE is little doubt that by far the largest number of active cyclists find their pleasure in touring on their machines. The racing man has to undergo an elaborate and strict preparation marked by many rules and precautions, and although his enthusiasm may carry him through, yet it must be admitted that for the most part the

work is very severe. On the other hand, the pottering cyclist who never ventures far from home has no idea of the enjoyments to be found in country rambles on the wheel. Many

men are precluded by business engagements or physical incapacity from indulging in the fierce joys of competition, but the touring field is practically open to any rider who has the time to devote to it, and the number of quiet cyclists who thus spend their holidays is yearly increasing, as the records of many an old wayside inn on the more favoured routes will abundantly testify. These holiday tourists, guided by the experience which they have obtained in previous years, or by the advice of their more practical fellows, plan out their trips with an eye to personal comfort, and after a few days of enjoyable riding return home invigorated and instructed. If they wield the pen with facility they fight their battles over again in the pages of the wheel press, and the short summer tour becomes a fund of lasting amusement, an event to be looked back to with pleasure or anticipated with delight.

To this important and daily growing section of cyclists it is intended to offer a few hints on the proper methods of planning and carrying out a tour. As to the machine which should be adopted, this will be best answered by a reference to the chapter on cycles of various kinds, always, of course, bearing in mind that too light a carriage, or one not fitted with adequate break power, is merely a source of trouble and annoyance for the purposes of legitimate touring. Dress, too, will be found duly considered elsewhere.

The first step a tourist should take after he has acquired a sufficient knowledge of his vehicle and confidence in himself is to join the Cyclists' Touring Club, an association formed especially to promote the interests of tourists in every way. The subscription is but 3s. 6d. with an entrance fee of 1s., and the rider having filled up a form will have to wait a longer or shorter time for his ticket. He should then purchase the 'C.T.C. Handbook,' which contains an infinity of valuable information. This preliminary is given a foremost place in the present chapter as there is some delay in election, owing to the name of the candidate having to appear in the monthly gazette of the club, and it is therefore highly desirable that the intending

tourist should lose no time in putting up for election. This matter having been duly arranged, the next thing necessary is to plan out the tour and select the route to be followed. This can best be done with the aid of the various maps, road-books and guides, a number of which have been placed before the public. In general, some objective point is selected; the tourist, perhaps, has friends in a distant town towards which he makes his way, or else he takes a circular route, which will eventually bring him home over new and unriden roads. Maps are of course of great service, especially for the purpose of learning the general direction of a place or a district, and shaping the course of the proposed tour accordingly. The 'Cyclists' and Wheel-World Annual,' and the earlier 'Bicycle Annuals,' those especially for 1879 and 1880, together with as modern a copy of 'Paterson's Roads' as may be obtainable, will, with the aid of a decent map, enable the tourist to work out his route with sufficient completeness. This task having been accomplished, it becomes necessary to decide as to the average day's journey, and on this point it is necessary to utter a very emphatic warning against the error into which so many tourists fall, of fixing a ridiculously high standard which they find it practically impossible to accomplish. A large number of beginners fancy that they can ride with ease from sixty to a hundred miles daily for a week at a stretch, and on this basis they arrange their tours, with the result that they either break down utterly and are compelled to take the train home, or else they spend a miserable 'holiday,' riding hard against time during the whole of the trip, thus converting what should have been a pleasant outing into a period of hard labour and discomfort. The experienced tourist, on the other hand, does not attempt to fix arbitrarily the distance to be covered each day, or the places where halts shall be made. He rather shortens the day's journey, being quite satisfied with forty or fifty miles at the outside, and generally has a spare day in the middle of the week as well, thus letting himself off as lightly as possible with a view to the more complete enjoyment of the tour as a whole.

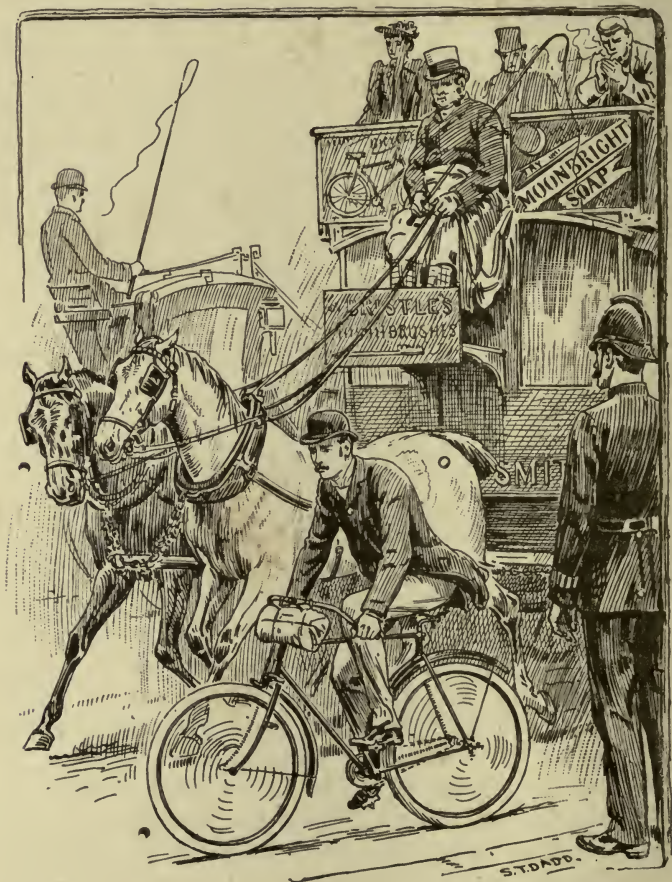
For the beginner even shorter distances are advisable. From twenty to forty miles, more or less, as occasion serves, will be found quite enough to count upon, at any rate until the rider has gauged his powers for road work day after day. This is a serious point, for a man who can ride sixty or seventy miles right off will find forty miles a day for a week rather a task; until by lengthened experience he has learnt how to economise and save his physical powers. The next necessary point, if the tour is to be a long one, is to fix upon one or two inns (headquarters of the C.T.C., as set forth in the Guide, to be preferred of course if the traveller desires, as it were, to identify himself with the interests and followers of the sport), where changes of underclothing should be forwarded, with a request that they may be aired and laid by ready for the tourist on his arrival.

Except in the cases of some few peculiarly constituted riders, a solitary trip is a very slow experience, and the presence of at least one companion brightens things up materially; yet the rider had better go alone than journey with a disagreeable companion (though this is a truism applicable to every step in life), or a man very much slower than himself. Two fairly equal riders greatly assist one another in maintaining a good rate of progression, as when one is a little tired the other brings him along, and when this man tires the other has perhaps again got into his stride. Large parties are scarcely so satisfactory, especially where club rules are rigidly enforced, as the men are then required to keep together, and this of course means that the whole party proceeds at the pace of the slowest rider, which after a few miles becomes very irksome to the faster riders. Under such conditions loose riding should always be permitted, and, if possible, the slower men should be persuaded to start somewhat earlier than their more speedy companions. If a man can find no one to travel with him among his immediate friends, and if he is so bent on companionship as to be willing to take his chance of finding a congenial spirit, a notification may be put in the 'C.T.C. Gazette,'

asking for a consort. It is always well for riders who put in such a request to state as clearly as possible their social position, so that the associate chosen may be suitable. Under these circumstances many a pleasant tour has been made and many a hearty friendship established.

The intending tourist should not start upon his fortnight or more of active work without some sort of training and preparation, as such neglect very often produces most unfortunate results. The mere task of sitting in the saddle for several hours per day is painful to a rider who has not taken the precaution of undergoing previous practice and seasoning for the work contemplated, and it is for this reason that at least a fortnight's preliminary work is strongly recommended. Of course, if a cyclist has been on his machine daily for a time, he will soon get into sufficient condition to undertake a moderate tour without any extra preparation; but where riders only get out for the Saturday's spin, it is advisable that for some time before the advent of the looked-for day they should ride at least three times a week, either early in the morning or in the evening, whichever is more convenient to them; this riding should occupy as nearly as possible an hour, and should include a bit of hill climbing as well as some sharp dashes along the flat. Nothing like high training is needed, but still something more than the easy dawdling which so many riders are fond of indulging in during ordinary rides. It is an excellent plan for the prospective tourist to fix upon a given route, covering, say, some ten or twelve miles, and to ride over it at the most convenient period of the day, say three or four times a week. The trip should of course be carefully timed, and the rider should try to do better time on each occasion; this will seem somewhat of a task, but it will vastly develop the muscles and increase the powers of the rider for average work. For this training the rider should put on some old flannels, and devote himself steadily to the business in hand. If this course be carefully followed out for a fortnight or three weeks before the tour, it will make a vast

difference in the rider's capabilities, and, as a natural result, will decidedly add to his comfort, for of course it is scarcely



THE CITY CYCLIST.

necessary to remark that when touring the highest possible pace should not be attempted ; a fair, easy, and regular rate

of going may best be adhered to throughout. This steady and regular pace will be all the easier if the rider has learnt, by means of the training advised above, the knack of going a great deal faster, and it is just this theory of training which has succeeded so well upon the path.

This precaution having been taken, and the rider having fairly developed his powers by careful practice, it will next be necessary for him to seriously consider what are the necessaries which he will have to take with him, or to send on, to the various important places where he will stop *en route*; and here again great latitude must be allowed, as tastes in these matters differ most notably. Thus one rider may regard a tooth brush and a piece of soap as an ample equipment for a trip from Land's End to John o' Groat's, whilst another rider may be seen laden with packages cunningly contrived and ingeniously fitted, all of which contain 'necessaries' from his point of view.

The cyclist is in this matter obviously less favoured than the tricyclist, who has ample facilities for carrying the greatest comfort a tourist can wish for, viz. a 'complete change.' But the ingenuity of riders of the narrow-gauge machine has met the obvious want, and many cleverly designed bags and carriers have been placed upon the market, some remarks upon which will be found elsewhere under the head of Accessories. All the luggage to be carried should be carefully affixed by means of one or other of the carriers described elsewhere to the solid part of the machine. On a tricycle the difficulty of carrying luggage is very much lessened, nearly every maker of a machine of this type designing and fitting a sound and well-planned carrier, which will accommodate any reasonable amount of luggage: and although it is not advisable for the tricycling tourist to unnecessarily load his machine with impedimenta, yet this possibility gives him the opportunity of taking a small but well-chosen selection of convenient garments, and so being to a very great extent independent of the troubles and annoyances which always environ the sending of clothing by

railways, owing to mistakes and difficulties as to the carriage and delivery of luggage, drawbacks which every tourist has experienced.

Elsewhere carriers are fully discussed, and it will therefore only be advisable here to specify the various necessaries to be taken say for a week's tour. The cyclist will in many cases fly light in the matter of luggage, and trust to chance for those changes which may be desirable, whilst he has always the



RUSHING A RISE.

option of retiring to bed should he be unable to obtain dry garments in which to sit up. But the cautious rider, who has once suffered from the inconvenience and discomfort experienced by the man who travels without a change, more especially of such articles as are made of cotton fabrics, will take care to provide himself with at least one complete change of under-garments, preferably in the form of a Combination.

A medium thickness Combination will roll up into very

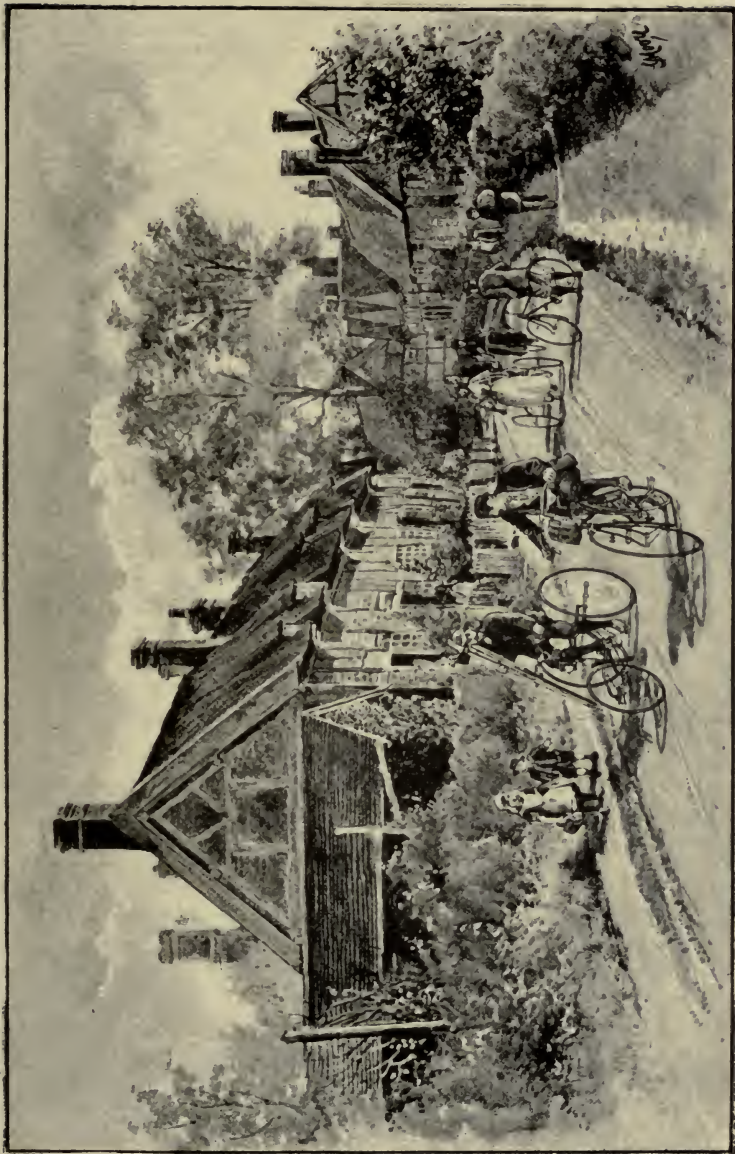
small compass, and when put on it completely clothes the body from neck to ankles in dry woollen attire, over which damp woollen things may be put on again without danger, if not without some little discomfort. The Combination garment, in short, affords that complete change which will insure immunity from colds and chills, and it can be carried with ease, as it will roll up into a small package and can be fixed along the handle-bar with a couple of straps. As it is of a very soft texture most riders can sleep in it at night, instead of using an ordinary nightshirt, always a bulky matter to pack up when space is limited. The fact of the woollen underclothing being a notable protection in case of damp sheets is also a strong recommendation for its adoption by the tourist. At the outset the bulk of the kit is thus materially reduced by making one article serve in place of two or more ; and if the Combination garment be only used in the evening and at night, and, of course, not ridden in, it will serve very well for the week. The kit carried must include toilet requisites, such as tooth-brush, hair brush, comb, and razor, preferably a small one, in a pocket dressing case. Of these the hair brush is often omitted, as the rider wears his hair short, and the comb suffices. Some handkerchiefs of small size, not too thin, and carefully marked with the full name of the rider, are very useful for anyone who is given to touring a great deal, as, if left to be washed at any hotel, they are easily identified. These handkerchiefs will roll up in the Combination garment. One neck wrap should be either worn or carried in the pocket to put on when stopping, and another may be with great advantage carried in the luggage for use in the evenings. Clean stockings will also, of course, be necessary.

The articles required will easily roll up into a long bundle in a piece of waterproof, purchasable at any waterproof or india-rubber shop. The Combination should be folded till it is about twenty inches across. The bundle thus made may be held together by a couple of stout india-rubber bands, wrapped in the square of waterproof, and then affixed with straps to the

handle ; the whole will make a sausage-shaped parcel, which will ride safely anywhere if properly strapped on a carrier, care, of course, being taken that it does not interfere with the action of the break. The rider who ventures far afield with this limited outfit will have to exercise a little care in his proceedings ; as soon as he has quite finished his work for the day he should get out of his damp underclothing and get into his dry Combination as quickly as possible ; over it he may, if necessity requires, safely put his damp shirt—of course supposing it to be flannel—whilst the dry neck wrapper should be put on under the band of the shirt. The dry and clean stockings, which should be kept for this purpose and not used for riding in, will prove an immense comfort. They should be long, and the wearer should draw them up as far as they will come over the knee ; thus next the skin all over he will have a dry change.

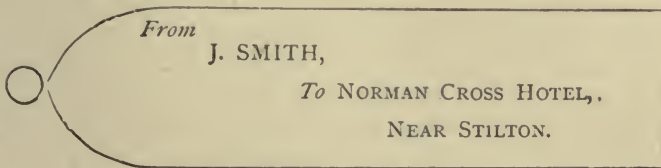
The tricyclist, as was pointed out above, is decidedly better off in this matter, and can easily carry more luggage ; at the same time the weight carried is decidedly a factor to be considered in studying the convenience of the rider. Even the strongest and most steadygoing of cyclists will do well to take care not to overweight himself in this direction. The following will be found to be the best and most useful additions to the kit, which may also be carried by a bicyclist with a little extra trouble and care. The Combination garment will still be found of the greatest service, and should, of course, be taken ; but a flannel shirt, preferably with a collar, should be added and used solely for the evening wear, whilst the riding shirt is being carefully dried. The pocket dressing case will also be still used, but a stout sponge bag should be carried with a rubber band round it, containing sponge, tooth powder, and brush. A soft cloth hat of the deer-stalker shape, which folds up flat, should be added, and the handkerchiefs, neck wrap, and stockings, as before. One or other of the larger bags used by tricyclists will generally hold this outfit.

The bag should be fastened when packed on to the carrier,



PHOTOGRAPHY A-WHEEL

which will of course have been fitted to the machine. It should be so arranged that it can be easily unlocked and opened without removal from its fastenings on the machine, as this will be found a great convenience when riding. For a longer tour, especially if the direction is uncertain, the baggage must, it is hardly necessary to say, be increased, or the rider must make up his mind to stop for at least one clear working day to have his things washed ; but, wherever possible, arrangements should be made to avoid carrying much more than the outfits detailed above. To do this it will be necessary to forward the requisite changes, preferably by parcel post, to various points *en route*. Half a dozen of the squares of waterproof mentioned above should be purchased, and when the tourist has decided on a lengthy trip, the route can be approximately fixed upon and certain houses picked out, to which changes should be sent. A parcel should be made up for each week of the tour : thus, if the rider is going away for five weeks, he will need to send on four parcels, including, in each, Combination garment, flannel shirt, handkerchiefs and stockings. These, having been well aired, should be tightly rolled up in the waterproof or otherwise securely packed and the fastening sealed, and a label then attached bearing clearly the name of the sender, thus :



On the back in smaller characters should be carefully inscribed Mr. Smith's name and home address, whilst it is always a good plan to have the same name and address clearly written on the inside of the bag or piece of waterproof used. The hotel people should be advised by letter and asked to keep the parcel in a dry place, and a couple of days before the rider

gets to the hotel he can (in the case of a parcel) send on a note asking the people to open the package and have the things in it well aired. The parcels can be sent on to the C.T.C. or other houses, either before the rider starts on his tour—which is the best plan for a single man in lodgings or otherwise situated in such a way that he cannot be sure of his orders being attended to at once—or else from home on receipt of instructions as to when and where they are to be sent. At the end of each week the rider will get his change of clothes, and will send the used ones home in the same package by parcel post (which is in many cases quicker and more certain than the railway carriers' delivery), and they can, if necessary, be washed and aired and sent on again to another point on the route followed. The more luxurious of our tricycling tourists go even farther in the matter of changes which they carry, as they not only take a complete suit of underwear, but also a complete change of outer garments; this is of course the acme of sybaritism, but it is doubtless a great comfort to a good many riders. Some take a pair of trousers made of the same material as their riding suit, but without any linings, and they generally choose a cloth hat of the same stuff, constituting the traditional 'suit of dittoes' of the British tourist. The advantage of making the wearer inconspicuous as a pedestrian is gained, although the cycling uniform is now so common an object in all towns during the riding season that it may be worn without annoyance almost anywhere. Others, again, have a suit made for the purpose of carrying with them whilst on tour. This suit will pack up into a very small space and is very light, and, if put on immediately on arriving at the hotel, it will soon lose the creases due to close packing. A pair of woollen socks, a dry flannel shirt, and a pair of shoes, complete the costume. The extra shirt should in most cases be of flannel, preferably a thin flannel, but in the heat of the summer and for short trips the lounging shirt—as distinguished from the working one—may be of light cashmere or stockingnette, some of the garments of this type being excellent.

Whatever may be the class of shirt chosen, these points should be insisted upon : it should open down the front, come well up to the throat, and have a good-sized lie-down collar as a part of the shirt. A long stocking cap, or sailor's cap, of knitted material is a very useful addition to the kit. It can be used for night riding, being drawn down well over the ears, whilst, should the tourist entertain the slightest suspicion of the dryness of his sheets at night, he can obviate cold in the head or worse dangers by sleeping in this cap. For campers, whether it be a hot summer's night or not, the stocking cap, which is light and takes up very little space, is almost a necessity. For those who when touring will insist on carrying an immense amount of luggage there is no excuse, as any amount of baggage can be sent on to various points through the usual channels, and a rider is not supposed, even by the most punctilious of his friends, to carry an elaborate wardrobe with him. If a host really expects this, the guest had better either go by train himself, or forward his portmanteau before him. On the other hand, it is not necessary for the cycling tourist to be always carelessly dressed ; a very small amount of forethought will enable him to appear carefully and appropriately attired, if nothing more. For further remarks upon dress as applied to touring, the reader is referred to the chapter on the subject ; and on the subject of lady's dress the reader should consult the chapter on cycling for ladies, contributed by Miss Davidson—an experienced and practical cyclist—who has dealt fully with this important matter.

The tourist, with his luggage arranged and his route chosen, is ready to start ; but before he gets away from home he will do well to look over his machine, and in fact the careful rider will do this a day or two before the start, so as to allow time for the rectification of any little breakage or damage which may be discovered. The machine should be carefully overhauled ; the head should be adjusted, not too loosely or too tightly, but just at the happy mean ; the break fittings should be cleaned up and scrutinised with a careful eye, the working points oiled,

and a very strict search made for any flaw or crack or unexpected wear—the slightest weakness in this important point may endanger the life or limb of the rider. If the break of a tricycle does not seem to act with sufficient strength, the band should be carefully removed and the black shiny places on the leather lining cut away with a rasp or rough file. If a little powdered resin is then dusted over the leather, it will add to the efficacy of the break. The bearings throughout the machine should be carefully adjusted if any looseness is apparent ; but it is never right to screw them up so that there is no side shake at all, as the balls are thus liable to be broken, and any slight stiffness which may result from the closer adjustment should be worked off some time before the start for the tour. The bearings should be dosed with paraffin, which may be put in with an ordinary oil can and the wheels rotated rapidly, when the coagulated oil will be liquefied and the grit brought out with it. After the exudations from the bearings have been wiped off they may be carefully oiled up anew with good oil. The spring attachments should be looked to and tightened, and the saddle firmly fixed in a comfortable position ; if the saddle itself is very hard, it may be washed with soft soap, which should be rubbed quickly on and off, carefully cleansed with a sponge full of warm water, then dried with a cloth and left for some hours to get quite dry. The wallet should be looked over carefully and the necessary spanners placed therein ; unless they fit *every* nut (a most unusual occurrence with most firms in the cycle manufacturing trade), a good adjustable wrench should also be carried. The spanners &c. should be wrapped up in a stout piece of rag to prevent them from rattling ; the oil can should be rinsed out with a drop of paraffin and the nozzle carefully cleansed with a bit of wire, and then a pin may be put down it and the cap screwed on, after which it should be filled with a good sound oil with plenty of body ; some string and a couple of feet of fine copper wire will often come in useful, and an extra nut or two may be added to fill up an unoccupied corner. A long air pump, with the orifices



THAT FOOLISH THING OF MODERN USE—THE VELOCIEPPEDE

closed against the dust, should be clipped to the frame, and an 'S.F.' or other good repair outfit in a box put into the wallet. A spoke-tightener is necessary with some machines, but it is not a good plan to ride the class of vehicle which requires this appliance ; the tourist's wallet will therefore contain the following items :

The spanners supplied with the machine.

One adjustable wrench.

One oil can carefully filled.

A pneumatic tire repair outfit.

A piece of copper wire.

A yard or two of string.

A piece of rag to wrap spanners in.

Some nuts and other odds and ends.

The lamp will next require attention. It is well to take a bit of wick in the wallet if the tour is to be a very long one, whilst the lamp should be charged with colza or some other easily obtainable oil, so that there may be no trouble in getting it refilled, a serious drawback to the use of some of the fancy oils for lamps. The lamp being found all right, the bell or gong should be seen to, and any alteration that may be necessary having regard to the luggage carried on bicycles or any other matter in connection therewith should be made. The tires should be examined all round to see that they are in good order, especial attention being given to the condition and action of the valves, and the appearance of the outer cover, particularly at the point of contact with the upper edge of the rim. If non-slippers are used, they should be examined carefully and refixed where loose. In the case of a long tour an extra inner tube can easily be carried, and if the wheels are of equal size this will be a further advantage. The man and the machine being ready, the baggage packed and the route selected, it only remains for the tourist to jump upon his carriage and depart upon his journey.

CHAPTER VI.

TRAINING.

TRAINING, as applied to athletics, may be defined as the preparation of the body for new and unaccustomed strains, and the gradual fitting of the human frame to undergo the severest physical exertion. The systems whereby this result is sought to be obtained vary greatly in character ; some are sensible and practical, some—and it is to be feared the greater number—are very much the reverse. Even now many of the authorities who superintend the preparation of our athletes are ignorant and illiterate, and work by rule of thumb without any accurate knowledge, guide, or intelligence. In former times this was even more conspicuously the case. Till a comparatively recent period the only persons who underwent serious training were men who made the sport they practised a profession—‘professionals,’ as by the colloquial employment of the adjective they are ungrammatically called. An amateur who competed with other amateurs in boxing, running, walking, and similar exercises, rarely trained at all. He took the matter much less seriously than does his successor at the present day, who knows that to have the smallest chance of success he must be fully prepared. As a result, most of the training lore that has come down to us is of the professional stamp, the outcome of much hard and sharp experience, largely diluted with ignorance and absurdity. The professional athlete was in many cases a very vulgar creature, whose idea of recreation and relaxation was

indulgence in unlimited liquor, and whose habitation was among the lowest class. His patron, or master, backed him, made a match for him, or laid a wager on his prowess, as he might on a horse or bulldog in his possession, without greatly troubling himself about the feelings or desires of the human animal he controlled. The patron when he had made a match sought not the athlete himself, but the trainer, the professional



A PRACTICE SPIN.

manager of such refractory creatures. The trainer, acting on instructions, dislodged his promising charge from his favourite haunts, and in all probability found him—if the last match had been won, and the patron had ‘behaved handsome’—fleshy, dull, and ill, with physical powers weakened by debauchery. Under such circumstances no half measures were possible. The trainer, having got his charge in hand, forthwith dosed him with aperient salts until he had half killed him; that,

indeed, was the usual practice, even in a higher class of life when health failed in the good old days. A course of drastic treatment soon brought the unlucky subject down, and reduced him to a humble and tractable state of mind and body. Having thus to a certain extent overcome the active effects of his excesses, the trainer began the 'building-up' process, which culminated, if all went well, in the delivery of the athlete, as 'fit as hands could make him,' at the appointed spot on the day of the match. Not only had the sorely-tried mentor to train his man, regulate his diet, watch over his work, and keep him at it, but he had to guard night and day against an outbreak of drunkenness, which destroyed in a few hours the careful preparation of weeks. Knowing from long experience that his charge was certain to transgress if not closely watched, the main idea of the trainer gradually centred on the best means of keeping him from drink. It may readily be supposed that such a system was wholly inapplicable when the subject was no longer a mere animal, but an intelligent and well-educated man. A few years ago a great revival of athletics took place. English youths began to recur to the example of ancient Rome, and to fashion themselves as did the Romans of old—

. . . . decoræ

More Palæstræ.

The enthusiastic amateurs, with all the energy of men following hotly a new idea, sought assistance from the only guide at their disposal, some old-fashioned trainer, who could see no difference between the ardent young athlete and the men on whom he had formerly operated. Sauce for the goose, argued the ancient gladiator, was sauce for the gander. The disciple who hung upon his words did not dream of suggesting that the system which had been found necessary and efficacious for so many generations was inapplicable in his case. The new pupil did not urge that he was a well-behaved young man, that he had no sort of inclination to excess of any kind, and that from previous habits he had no acquired maladies to shake off.

The trainer felt sure, from long experience, that, whatever he might prescribe, his patient would be sure to drink enough, if not decidedly too much ; and so, when the rules and regulations laid down orally by these athletic fossils were reduced to print, the prohibition of liquid refreshment was found to be absolute. Thirst was utterly ignored, or was treated as an enemy to be resolutely defied. A man in training, said the ancient trainer, must drink nothing. He did not recognise the fact that, whereas his charge of the past had to be coerced into doing what he was wanted to do, and watched and prevented from doing what he was not wanted to do, his charge of the present—the young and ardent amateur—was as likely as not to go to the other extreme, and to overwork himself, over-diet himself, nay, ‘starve’ himself for want of a reasonable amount of liquid, out of deference to Draconic laws laid down in the faith that whatever a trainer said would be only partially obeyed.

But experience keeps a hard school, and, after a somewhat lengthy thralldom, amateur athletes began to exercise their own common sense and to emancipate themselves from the Spartan regimen of work, diet, and drink prescribed for them by their earlier mentors. When once intelligent medical attention was directed to the system of training, very little consideration sufficed to show that the old rules were only made for men who were expected to observe them half-heartedly, whereas the new school of amateurs carried them out to the letter, and even exceeded them, with very evil results. So after a time the old system fell into desuetude, its professors became discredited, and a style of training more appropriate to the new circumstances and surroundings rose in its place. The old athletes who still survive sneer at the men of to-day, whose training, from their point of view, is no training at all ; but the fact is undoubted that amateurs to-day get into better condition and go faster than the best of the old-time professionals, who, with dosing and work, were often ‘done to death’ by the time their match was over. Of course, once in a way an athlete is found who not only can stand, but actually requires, the very hardest

work. On the other hand, we have plenty of instances of men who, with but little training in the truest sense of the word, and with only a slight amount of careful practice, can show their very best form at very short notice.

The racing cyclist of to-day should avoid the old system altogether, and do his best to get the assistance of a modern adviser who works upon reasonable and rational lines. The main idea of the modern school is that every precept laid down is to be carried out to the letter. Preparation of the frame and the physical powers for severe exertion is not a task which should be undertaken in haste. If a man has but a few days in which to prepare for an important contest, his mentor will do well to keep him off the track altogether, and thus let him start quite unfit, so that his miseries may cause him to desist early in the struggle.

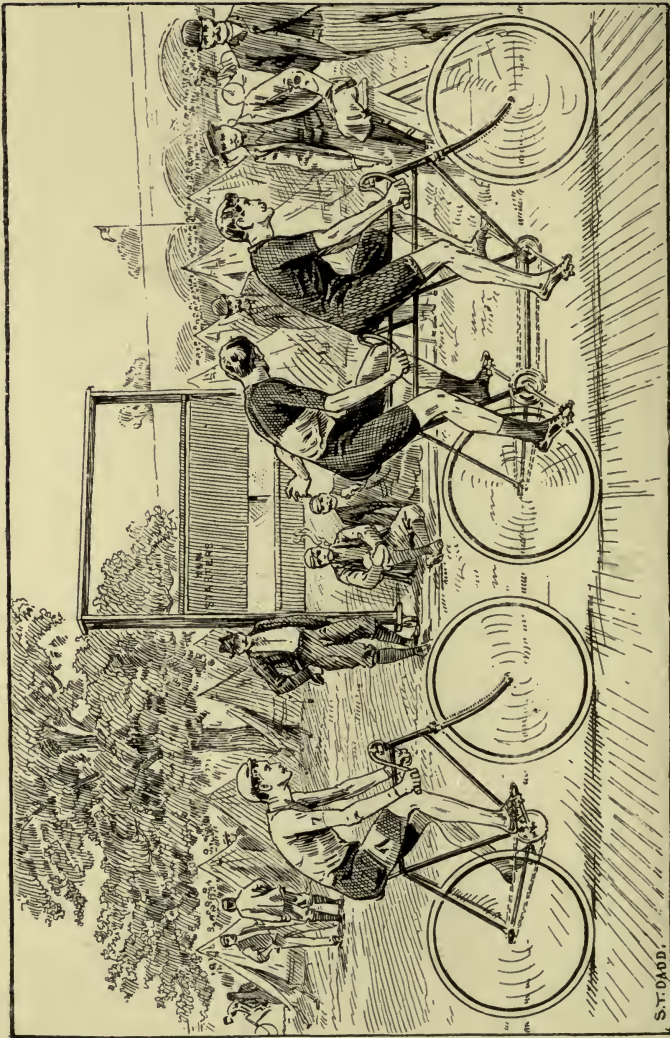
To start in a contest when out of condition is a very serious matter, both to the novice and the rider who has once been highly trained. The tiro, unless he has undergone an adequate preparation, may very easily damage or strain himself. The once highly trained rider is in still greater danger. There is no doubt that in athletics a mental training goes on side by side with the physical development—a quickening of the mind, an enlarged nervous control over the limbs; in short, a reflex action of the mental upon the physical powers, which has very much to do with success. Physical training is easily lost; a very short spell of idleness will cause the rider to lose much of his power for sustaining prolonged exertion; he gets fat, and his wind gets short—in fact, all the results on his bodily functions of hard and careful training pass away, and he is ‘unfit’ in every sense of the word. But, although the subject is left with but little of the muscular fitness that once distinguished him, and with skill impaired by want of condition, the mental training remains, and is to a very great extent permanent. That supreme command, which the mind in a moment of highly-strung excitement—such, for example, as the sharp finish of a race—brings to bear upon the physical powers, takes con-

siderably longer than mere physical powers to develop ; but, once developed, is very rarely altogether lost. Though the athlete may be physically unfit and out of training, the tyrant mind remains imperative. The flaccid, fat-laden muscles, the stiff, unexercised limbs, the clogged and unexpanded lungs, when called upon for a tremendous effort, like the soldiers of Hannibal after their stay in Capua, are not ready for the task. The result is an inevitable breakdown. Lucky is the athlete who, under such circumstances, only strains a ligament, or ricks a joint, and escapes heart-disease or other insidious ills. A very keen observer, a splendid athlete (and cyclist also)—Mr. Horace Davenport, a champion swimmer—in a letter to a journal that has now disappeared—the ‘Athletic Review’—says : ‘I fancy that in all competitions where staying power is required, the mind has far more to do with keeping going than has the body, though, of course, the latter must be in good condition to answer the call of the brain, otherwise there is a breakdown, probably with permanent consequences. Training undoubtedly gives the mind a great power over the body, and my experience goes to show that, after training has been given up, the mind retains the power it has developed far longer than does the body ; and this is where the danger of athletics comes in, for many a man who has trained is induced, on the spur of the moment, to make some foolish match. His body is out of condition, yet it is likely his mind enables him to pull off the event ; but the feat will probably be followed by prostration of the system. There would not be nearly the same danger to a man who had never trained were he to try his level best at anything, for in his case most likely the body would decide when it had had enough, and would “cave in” accordingly.’

This opinion, coming from so practical an authority, should carry weight. Unless an athlete is well prepared he should exercise a wise discretion, and abstain from entering on any sort of competition, even if he only goes in for the purposes of exercise ; in fact, it is always safer for one who enters any contest with that object to choose one outside his *spécialité*

at which he does not mind being beaten. Say, for example, that a once prominent cyclist desires to keep up a certain amount of exercise, but does not intend seriously to train. Let him take as much exercise as he pleases upon his machine ; but, if he is pressed to enter in some open competition, or at the sports of clubs to which he belongs, let him take up some other branch of athletics ; for, if he rides in any contest half-trained, he will assuredly find himself in an awkward and uncomfortable predicament. Perhaps, for instance, half a mile from the winning post he will be racing side by side with some old rival. In a moment all the old Adam stirs within him. There is the old familiar whirr of the wheels, the well-remembered shouts of the spectators, and the encouraging cries of friends. His caution and the determination to give up when he has had enough are forgotten. The clang of the bell as he enters the last lap strikes his ear. His mental training involuntarily calls upon the physical powers for the old spurt, the old well-timed muscular effort. What though he be exhausted, if giddiness and sickness almost overcome him? He simply sets his teeth the firmer, grips his handles, and makes the fierce and final effort as of old. Muscles and lungs are not fit or ready for the task, and, unless he stops from sheer exhaustion, *something must go*, and injury, perhaps for life, ensue. This is what should be most carefully avoided, and a once trained athlete should exercise the greatest caution in after years as to the exertions he sets himself to undertake.

Bearing all these facts in mind, the rider, when beginning to train, should seek to develop, not only his mere animal or physical powers of wind and limb, but his mental powers as well. His trainer, if he has one, should study as much as possible his temperament and peculiarities. Should he, however, decide to train himself, some observant and experienced friend must be persuaded to watch him, and, as far as possible, point out his errors. There is nothing more beneficial to the beginner than the care and treatment which a competent trainer can bestow. The very things which a rider does not want to do



PACING

S.T. DAVID.

are frequently the particular exercises most necessary to his success. Racing men, like racehorses, have their tempers and their peculiarities. Some horses must lead all the way, others prefer to wait ; some are lazy, others too fiery. So with the racing man. One cannot 'make the pace'—i.e. go fast—when in front ; another cannot go fast when alone on the track ; others go fastest when they have an adversary 'dogging' their hind wheels. Some riders feel compelled to wait behind the leader, and only come out for the final rush ; others like to ride first, and race from start to finish. All these different temperaments are represented upon the path, and their various exponents show the highest quality an athlete can possess—judgment—when they succeed in winning on their own pre-conceived plan. As the speed continued to increase, the extra windage, the nervous effort necessary to maintain a high rate of speed when no adversary is in sight, and the various causes so exhaustively investigated and so lucidly explained by Mr. E. B. Turner in his articles upon 'The Physiology of Waiting and Pacemaking' which appeared in 'The Cyclist' in 1891, caused nearly every good rider to adopt what was known as 'the waiting game,' and first-class cycle racing became very slow indeed from a spectator's point of view. Sometimes, in an important contest, such as a five-mile scratch race, all the men who had a chance for the race waited upon each other, and left an unimportant outsider to make the pace. They started, but no one wanted to go in front ; they literally crawled round the path. Presently an ambitious rider—an outsider—without the ghost of a chance, dashed to the front and took the field along for a mile or two at an improved pace ; then another outsider took his place, and made the pace for another mile ; the two or three 'crack riders' stuck close together for some thirteen or fourteen minutes. Suddenly there was a change. 'Two more laps !' shouted the judge. The ambitious outsiders suddenly collapsed, and the three cracks drew out from the ruck and raced to the front. One of them secured a momentary lead, the others in close pursuit ; they closed up ; wheel overlapped wheel ; the

three riders were nearly abreast as the tape was reached for the last time round ; the bell rang, away they went for a furious spurt, and the speediest sprinter won what was nominally a long-distance race. Happily a remedy has been at length found, by the introduction of what is now known throughout the cycling world as 'Herne Hill pacing.' Riders are told off to get up and go a short distance at the head of the field as fast as the leader wishes them to, being relieved at short intervals by fresh men. The shelter, and the removal of the nervous tension obtained by placing a 'pacer' in front of the leader, have entirely solved the difficulty. The rules governing 'Herne Hill pacing' will be found in full in the Appendix.

In the following notes we shall treat of the riders in two classes : short and long distance men. In the immediate future these two classes of racing cyclists will probably become more and more distinct. The long-distance man, as distinguished from the sprinter, will stick to distance races. The 'sprinter' will go in for what Americans aptly call 'dashes.' Of course racing cyclists are as diverse in their powers as are running, walking, swimming, or rowing men. Amateurs of running would be surprised to see the 100-yards amateur champion sprinter start in a one-mile race, yet no one seems to think it at all surprising that a bicyclist who is speedy for a single mile should start for the 25-mile championship. In the same way, when a distance runner enters for a short race for the purpose of improving his pace, he gets a long start—and a beating ; yet in cycling long-distance riders enter and compete for one-mile handicaps. The whole theory and system on which cyclists have been working of late years have been vitiated by this effort on the part of the riders to succeed at the distance for which their physical powers most unfit them. Cyclists must look to it : the 'stayer' must stick to distance riding, and the 'sprinter' to short 'dashes.' The sprinter, when training, should never ride either a long distance or a long race, as it is certain to stiffen his muscles and make him slow. The long-distance man, on the other hand, may in moderation ride in short-distance

aces to improve his pace, always taking care not to train for short distances, and to keep his attention fixed upon long work.

A fatal error into which many racing men fall is over-work, or rather over-competition. Anyone who carefully considers the principles of exercise and training will see that it is impossible for a man to be actually in perfect condition for a long consecutive period of time. Many riders, by careful and judicious training, maintain a wonderfully high average of condition, but this falls short of their best form. Without doubt the better times accomplished in many sports by 'professionals,' as compared with those of amateurs, are due to a very great extent to the fact that the professional never thinks of engaging in serious races at frequent intervals. For each serious match in which he is engaged he undergoes careful preparation, preceded and followed by a period of complete relaxation. On the other hand, a file of the sporting or cycling papers records the regular appearance, week after week, of many prominent riders, who are to be found every succeeding Saturday—with an occasional mid-week meeting thrown in—riding very hard, in open races. These riders probably regard the races in which they engage as a sort of training; but the cyclist who calmly and deliberately winds himself up for a great effort on some important occasion is likely to do better than one who is constantly racing.

In Chapter VII. of this work will be found some notes on dress, and especially on the shoes to be adopted. A couple of pairs of soft and rather thick merino socks will be necessary, to be used alternately, and very carefully dried by the attendant on each occasion; a stout pair of plain white flannel drawers, of the same cut as the racing drawers, or a pair of elastic web pants of stouter make than those worn for racing; and finally a jersey, or singlet. A cap may be worn, and also a woollen neck wrap if the throat is very delicate, but this is not much to be recommended. The novice must at first depend chiefly upon himself, and it is an excellent thing for a young racing man to train himself for his first season under the

mentorship of some candid friend. He thus, if he is at all observant, learns his own peculiarities, and is as a consequence able to tell his trainer, when he engages the services of such an assistant, what are his especial requirements.

One piece of advice is important : always train with an object. Thus if the novice fancies he can stay, let him decide to go for the ten-mile championship of the club he belongs to, never mind even if the amateur champion himself belongs to it as well, go for it and it will be an object to train for ; if on the other hand the novice thinks that his forte lies in sprinting, let him enter for a club mile race, or an open contest for that distance on some safe track, and then train for that particular event. The first thing every trainer does when he takes a man in hand is to weigh him : the novice should get weighed and make a note of his exact weight, stripped. He should then consider whether he is fat or not ; if of spare habit he will not require, nor indeed endure, so much hard work as another who carries a superfluity of adipose tissue. He should begin work for the chosen event at least a month before it is fixed to take place. If the event he has pitched upon for his first venture is a one-mile open handicap, he should consider that he will possibly have to ride in two rounds and a final, and that he must also ride all through the race to win. The track chosen for his work should be convenient of access, safe, with easy corners ; and, if possible, he should secure a companion or two—who would in most cases be his fellow club-men—to assist him and ride with him. A stop-watch is also useful to gauge the progress. Of course he has done some road riding and is in sufficient rough form for that work. Should it be possible for him to visit the track twice a day, he should take a sharp walk for half an hour or so after breakfast, not too heavily clad, and then returning home or to his office rest quietly, attending to business or other cares until 11.30 or 12 o'clock, when he should visit the track and take half an hour's steady work at half speed. Rattling along at a smart speed, but carefully refraining from spurting, a healthy perspiration will be induced, and the pace may be

slightly accelerated for the last mile. As soon as the half-hour has expired, let the rider dismount and, without loitering, go straight into the dressing-room and sit in a corner out of the draught, put a towel round his neck and remain quiet. In a few moments a profuse perspiration will follow, which should be encouraged by a gentle friction with a towel folded over the hand, whilst if an attendant is present he may, by more vigorous rubbing, set up a glow over the whole surface of the body. A good many attendants hurry the 'rubbing down' process, especially those who have a number of men to look after, and thus defeat the very object they are desired to accomplish. In nearly every case under these conditions there is a second flow of perspiration after the man has been completely dried; when this has been removed, and not till then, the rider may guard against cold by taking a shower bath of cold water, an appliance which should be found in every training dressing-room. This closes the pores of the skin and precludes the possibility of catching cold; the rider should then dress, preferably in flannel, at least with some thin flannel garment next the skin, and go about his business, dining about 2 o'clock. In the evening he should revisit the track between 5 and 7 P.M., according to the season, for the real work of the day. This, in the case of a short race, will consist of 'short' work with a view to the improvement and knowledge of pace necessary for a one-mile race. A second set of flannels should be put on, and the rider now more especially needs the services of his friends to clock, or ride with him. His work should consist of quarter-mile spurts, with an occasional half-mile spin, and perhaps once a week a regular mile trial against the watch. A 'pacemaker' is of the very greatest service at this juncture, and on most of our tracks, especially in London, there are generally at hand amateur riders who will so far assist a novice, if he asks them, as to give him a lead and even some valuable hints. In doing his work the rider should be very careful to note the following points, and see that he is carrying them out :

(1) *Always to look where he is going.*—This is very essential, especially for a man who trains much alone, as such riders often get unconsciously into a trick of guiding themselves by the edge of the track, and thus in actual competition may run into a man before they can avoid it.

(2) *Always sit straight.*—When a man is riding on a small track, or on a path with bad corners, he often picks up a trick of sitting all on one side, and thus ‘throws’ his outside knee very awkwardly. It is essential that a beginner should think of it when at work. The saddle should, of course, be set quite straight.

(3) *Pedal evenly and use both legs.*—Those who have no practical experience will hardly believe how often a rider ‘favours’ one leg more than the other. A blister, a strain, or a bruise will often start it, and it is only when an experienced rider, who has been ‘hanging on’ behind the other man, notices and mentions it that the victim becomes alive to his defect. A bad or incomplete ankle action with one leg is often the cause, and therefore, when at his spurting work, the novice should be constantly watchful to keep up the same power with both legs.

(4) *Pedal straight.*—This is also a point which must be watched. Very often a rider pedals perfectly on the road, but throws his knees very awkwardly out or in when on the path. This fault is often traceable to the difference in *the width of the tread* of his roadster and racer machines, or to an unconscious sympathy between the arms and legs, the former limbs being often bent outwardly when leaning forward in the grasshopper style. The novice, therefore, should watch his knees in the manner suggested in the chapter on learning to ride, the action in each case being exactly similar.

(5) *Keep the foot straight.*—This is usually effected by mechanical means. The wriggling action of the foot is often caused by a crooked crank, or pedal pin, and in any case it must be corrected. The racing shoes often tell the tale by the slots in which the pedals fit being found worn to unequal depths on either side ; and the rider will find that this denotes

a bad foot-action, which must be carefully corrected before he can hope to do good work.

(6) *Hold the handles naturally.*—Let the arms hang naturally and easily, with the elbows in. A number of men set their arms akimbo, grip the handles, and lose all steadiness in their steering.

(7) *Don't wobble the shoulders.*—Some men seem to think that pace is developed by moving the shoulders as if they were throwing all their bodily weight on the pedals. This is a very grave error. Without too rigidly setting the muscles of the trunk, the shoulders should be kept comparatively steady. This will assist very materially in keeping the machine straight. A very little up and down movement may be allowable, but beyond this nothing of the sort should be permitted.

(8) *Hold the body still and sit down.*—A great many riders get up off the saddle when spurting. This is a serious fault; it unsteadies the steering and diminishes the available power. The arms should assist in keeping the body steady, and the saddle should touch always. A very slight grip of the peak of the saddle between the legs will be found of notable assistance in steering round awkward corners.

(9) *Don't shake the head.*—Some flyers of note do wonderful things with their heads when spurting. It is hardly possible for the rider to watch his opponents and judge his course when his head is in constant motion. The head should be thrown back, the face to the front, almost in the position of that of a swimmer; it should be held still, with the eyes directed well forward. Some riders turn the head a little to one side, so as to listen for the opponent behind them; and this may be done, if the above caution is observed. But in this case, in practice, the rider should turn his head away from the inside of the path, and should stop the ear which is directed forward with cotton wool, as the wind blowing in often sets up a cold. Owing to this fact a large number of well-known riders are a little deaf in one ear.

Always supposing that the tiro has given a fair amount of

time to acquiring a good ankle action, the above hints will assist him in forming his style on a good model. Bearing all these precepts in mind, the novice should turn out for his evening work. After a quiet paddle for a lap or two, he should mentally resolve to spurt, say one lap ; and here it is necessary to point out that the mental training alluded to will have to begin. Having resolved to go the one lap, or even if very new at the game the half lap, the novice must ride it out however exhausted he may feel. This will not, perhaps, be possible the first time, owing to the insufficient development of the mental power, and the consequent inability to push the muscular powers to the utmost. But nevertheless the rider should set his teeth and struggle on to the point on which he mentally decided before starting. Here he should ease up and ride round quietly until he has regained his breath. When he feels all right he may essay the same spin again, and do this half a dozen times or so during the half-hour he remains on the path. He should then finish up with an easy pace mile or so, and, retiring into the dressing-room, follow out with equal exactitude and care the proceedings of the morning. After each of the exercises, the rider, or preferably his attendant, should rub the legs, especially the front of the shins and the calves, with his bare hand, the rider relaxing the tension of the muscles whilst this process is going on. This assists the muscle in throwing off the fat which may lie in its tissues, and also strengthens it by aiding the flow of the blood through the vessels. This hand rubbing is the secret of training success, and the attendant who gives most time to this portion of the work when his charge has got rid of superfluous flesh will assuredly turn out better men than the trainer who shirks the necessarily irksome task. It may be well here to insert a caution against too much faith in the times made in the early stages of the work. Many a novice has been disappointed to find that after a week's hard work, he is going decidedly slower than he went in his half-trained state. This of course is very natural ; he has exhausted and used up his rough muscular power, and sufficient time has

not elapsed to allow of its natural replacement by the development and training of his powers for the special work contemplated. But although he is momentarily a worse man than he was, yet very shortly nature will respond to the call and supply him with muscles, or rather muscular developments, which will fully atone for his disappointments. Should the rider's trainer or friend find the time compare badly with earlier efforts, he will do well to put the watch in his pocket and make an excuse to the rider, or else explain to him the why and wherefore, and encourage him to keep on, carefully noting his progress until the sudden improvement of the times points to the fact that the muscles are becoming accustomed to the task. During all this period our typical novice must be studying himself and trying to reason out the various surroundings of the exercise. He must be continually thinking and making little changes and alterations such as he may fancy will suit him. Time and trouble should never be grudged when devoted to getting the racer exactly right, and it is only those who take an infinity of trouble to have everything comfortable that can hope to succeed. A thousand and one aches and pains will probably trouble the tiro, but unless he feels very sick and faint after his work, or detects any sensation of lung trouble, he need not go to a medical man ; and, as we have said before, if he does experience such sensations he should go to some doctor who has had experience of athletics and athletes. Pains in the calf of the leg, the thigh, or the back, due to straining or cramp, will mostly give way before easy work, whilst a good hand-rubbing will ease the stiffness of the limbs in the earlier stages ; and all this time, as suggested above, the beginner must be studying and gauging his own powers, and storing up information to aid his judgment when the actual contest arrives.

A very good rule for a beginner to carry out (and for a veteran, too, for the matter of that) is to try seriously to succeed in the special point in which he fancies himself deficient ; thus, if a rider imagines he cannot stay, let him try a distance spin merely for his own instruction. If he thinks he cannot spurt,

let him essay spurting ; if he cannot get well round corners, he should go and train for a little while on a track with bad ones ; whether the plan is successful or not, the rider will begin to know all his own points. The period of efficiency depends of course upon the recovery of the muscles from the first strains of the novel exercise, and this will be much influenced by the previous use to which they have been put. If they have been abnormally developed in any other direction, the time may be considerably lengthened ; for example, running or gymnastics will often develop muscle of no service in cycling, and a considerable time may therefore elapse before the limbs get fitted to the new work. Only one sport ' nicks ' with cycling, and that is fair toe and heel walking, doubtless owing to the strengthening of the legs generally, and the ankle work. Rowing, when the sliding seat has been used, makes the legs powerful enough for cycling, but very slow, whilst the development of the upper pectoral muscles by gymnastics is sometimes so great as to cause them when set to interfere with the rapid respirations of a spurting cyclist, an event which does not noticeably occur in the intermittent and, above all, slower exertions of the gymnasium, but which asserts itself somewhat emphatically when the gymnast on the bicycle sets his chest muscles, by gripping his handles in the fierce rush of a final spurt ; we remember at least one rider whose apparent ' softness ' in a sharp finish was undoubtedly to be attributed to this cause.

CHAPTER VII.

DRESS.

EXHILARATING and enjoyable as is the sport of cycling, and healthy as it has proved itself to be, its enjoyment and its health-giving qualities are wholly dependent upon one very important point : a correct and suitable costume. It must not be forgotten that cycling is, after all, an athletic exercise, that it causes perspiration when ardently followed out, and for that reason alone it requires its votaries to be properly costumed in a dress suitable and convenient for the work in hand. It may be well to say a few words on this question of appropriate attire, as a good many riders are even now doubtful about the propriety of donning a regular cycling dress. In the earlier days of the sport, a pedestrian or a rider in cycling garb was sufficiently a novelty to attract a good deal of annoying attention in any town he might visit. But this is no longer the case, and a correctly dressed cyclist, more especially if he adopts the C. T. C. costume, is so common an object, that he passes without special notice. One reason for the protection which ladies undoubtedly find in the C. T. C. grey uniform lies in the fact that it is so little remarkable, and so closely resembles that ordinarily worn by the wife of the parson or doctor, and therefore the bucolic intelligence sets down the passing stranger in his mind as probably a friend or acquaintance of the local lady. Every day the public outside the sport become more and more used to the sight of a correctly dressed cyclist, and the familiar grey dress of the lady rider, and the

knee-breeches, stockings, and short jackets of men, occasion no remark.

That every cyclist, of whatever age, should wear a cycling costume well fitting and appropriately cut needs no proof. The rider of a cycle who ventures out in an inappropriate costume is regarded as one who does not know the right thing to do when pursuing the sport. The cyclist therefore should seek to be comfortably and scientifically clad, making the mere ornamental question as it affects the costume subservient to the necessity of having a practically useful dress in which to ride. The essential points are few and simple ; they should be carefully studied by every cyclist who wishes to ride in comfort.

1. The dress must be fully protective—that is to say, it must afford an even and adequate warmth all over the body, without unduly confining the action of the limbs ; and there must not be too much of it.

2. It must be of some very sound and serviceable cloth which can stand hard wear. Loosely woven cloth holds the dust ; so the material chosen should be a wiry and closely woven stuff of some medium colour, and the costume as a whole should be neat and quiet in appearance.

A practical costume, meeting all the requirements of the rider, requires the experiences of many riders under varying conditions to bring it up to the point of practical perfection, and the ingenuity of cyclist after cyclist has been exercised on the many minor points which go to make it a complete and comfortable whole. Not only must the outer garments be suitable to the work and its surroundings, but the under garments must correspond. This remark applies with peculiar force to the clothing worn by ladies.

OUTER GARMENTS.

These consist of the cycling costume proper, viz. the coat or jacket, the waistcoat (if worn) the breeches or knicker-

bockers, the stockings, and the cap. No cheap material can withstand for any time the hard usage to which a cycling dress is of necessity subjected, and the truest economy is to pay a fair price for some tested material which experience has proved in every way suitable for the purpose.

The solitary cyclist might spend his life and a small fortune trying and testing various goods which would be highly recommended to him as suitable for cycling, and the lady rider would probably find that any garment which the shopkeeper had in stock was pronounced to be eminently adapted for her purpose. Happily for cyclists generally, expert assistance has long since been called in, and materials suited to all classes of riders are now supplied.

A cloth which specially finds acceptance amongst a large class of wheelmen is that sold by the Cyclists' Touring Club. It was originally decided upon by a jury of experts, who also fortunately happened to be cyclists. It is a West of England tweed, a very small check pattern in grey; it is excellent in wear, does not show the dust, and will stand any amount of knocking about; it will also wash, which is a great point, as a cyclist is apt occasionally to come in contact with oily parts of his machine. The C.T.C. cloth, as it is usually termed, cleans remarkably well.

The material having been chosen, the make and shape must be decided upon; and here again experience has laid down certain principles which have been established by the slow process of discussion and trial. The result of these practical discussions has been the establishment of a few points as imperative rules for the comfort of the cyclist, and first and foremost stands the dictum: 'That every garment worn whilst cycling should be of flannel or woollen material, without any admixture of cotton or linen in any form.' The past experiences of many well-known and prominent riders in the early days of the sport taught them in the most emphatic manner, and sometimes with unpleasant emphasis, the imperative necessity of doing away with every atom of cotton or linen used in any

one of the garments worn, as these materials when damp from perspiration or rain are found to 'strike' very cold and chilly ; and this becomes more particularly apparent should the rider sit about after a hard day's work, when he feels chilled to the bone, and in many cases catches a very severe cold, if nothing worse, whilst some very bad cases of inflammation of the kidneys have been traced directly to the wearing of a linen waistband in the knickerbockers. As a number of elderly tricyclists will insist on riding in trousers, and will of course equally insist on wearing an old pair of an ordinary suit, they often suffer as above described, and cycling is blamed for an illness which can be directly traced to the folly of the victim himself. Sore throat is often to be traced to the linen band which so many tailors and shirtmakers will fit round the neck of a flannel shirt, whilst there is often in addition a little square of linen marked with the maker's name and address, which, when it is damp, can be readily felt, especially if the wind blows up coldly after a long run as evening falls. Throughout the whole list of garments used by cyclists the same fault extends, the merino or woollen vest has a strip of linen down the front right over the throat, and so placed as to be likely to produce the very worst results ; the drawers, if worn, have a linen waistband and a linen front, the knee-breeches or knickerbockers are lined round the knees and at the waist with Italian cloth or some other 'cold' material ; the coat is strengthened with a linen stiffener wherever necessary, and the arms are lined with linen or some kindred material. The waistcoat is backed with cotton and lined with cotton, and is altogether about as bad as it can be in this respect, seeing that the cold-giving material is stretched over the loins and round the stomach. The 'flannel' shirt, especially of the non-shrinkable and fancy class, contains a large proportion of cotton, and the result is that the rider after a long run is cold, clammy and chilly, loses his appetite instead of improving it, feels quite out of sorts, and may consider himself lucky if, in addition to all these discomforts, he does not get a heavy cold, or, worse still,

a local chill. More especially is this likely to occur if the victim has a few hours of night riding at the finish of his day's work, when his only chance is to button his coat right up to the neck and keep moving until the very end of the trip ; standing about, or trying to get warm by the fire, will only add to the chance of illness. On the other hand, the rider clothed from head to foot in complete flannel, or pure woollen garments, is comparatively safe. He may get wet through half a dozen times, and although the situation is in no wise comfortable, it is at any rate the next best thing to being comfortable, viz. it is safe ; and every rider, whatever his age, who values his health and wishes to avoid the very worst results that can follow from cycling, will do well to see that this all-wool programme is fully carried out. Some young or inexperienced cyclists will scoff at the above views, but experienced riders will simply advise them to wait until two or three weeks on a sick bed shall have convinced them of the folly of casting aside as useless the experiences of their predecessors.

In the earlier days of cycling it was difficult to procure all the articles which a modern practical tourist looks upon as actual necessities of the most ordinary type ; but now, a number of well-known firms specially connected with the cycling trade are laying themselves out to meet the requirements of the touring riders and to supply guaranteed pure woollen goods and materials for the use of the riding public, who are thus spared the trouble of looking for them, and the suffering of the pioneers has not been without fruit. Riders desirous of availing themselves of the resources of civilisation in this direction will therefore have no difficulty in getting the necessary garments when contemplating a tour. It is needless to add that these remarks apply with even added force to the clothing required by lady riders, who are at any rate quite as liable as men to chills and other evils, and should of course take equal precautions.

The 'body garment,' the coat or jacket, is the first item to be considered, and there are plenty of designs and shapes to

choose from. A jacket for bicycling should not be too long, but when the rider is seated upon the machine it should just reach below the saddle. For tricycling, and especially in the case of elderly riders who use an ordinary pattern front steerer, the jacket may be cut a little longer. The usual type, and one most popular with the general run of riders, may be described as follows : it should be single breasted, buttoning up with not too many buttons, it should be cut pretty high up round the throat, and fitted with a good wide lie-down collar, which should be finished in front with a small lappel, so arranged that when the collar is turned up the lappel may button across the throat. If a triangular 'tab' which can be buttoned across the opening of the turned-up collar be also fitted, and its lower corner hooked or buttoned over the lappel itself, it will be found a very complete protection for the throat and neck. Two pockets on either side, in front of the hips, and a breast pocket, are ample provision in this direction, but a watch pocket will be found a convenient addition, and should be put very high up on the left-hand side, when, if it has been properly arranged so as to come just below the projection of the collar bone in front, the watch will lie safely and will not disturb the set of the coat. The arms should be rather looser than ordinary, and the armholes cut a trifle larger to allow for extra garments at night and in the winter, and also to facilitate the putting on of the jacket over woollen underclothing. This enlargement should be very slight, not more than one inch at the most, but in actual practice this makes all the difference between comfort and discomfort. The sleeves should not be too long, or they will worry the rider very much, especially in case they get wet with rain or perspiration, and the cuffs should be fitted with a couple of buttons so that they may be opened and turned back in hot weather. An ordinary link button is a capital thing to carry when on a tour, as with its aid the coat can be unbuttoned and then just linked across the chest to prevent its flying about, and at the same time there will be plenty of freedom and fresh air for the chest and arms. For winter use the coat may be

lined throughout with thin sound flannel, but in the summer this will be found oppressive unless very little underclothing is worn. For a summer jacket the very smallest amount of lining and stiffening, which should invariably be all of woollen material, should be used. The armholes, button-holes, and the backs of the buttons, together with the collar, are practically the only points which will require lining; and a summer coat cut as we have suggested has the additional advantage of being quite as serviceable in winter, as owing to the slightly enlarged sleeves a considerable addition can be made to the underclothing without any inconvenience being felt when the coat is put on. This type of jacket may therefore be considered the mainstay of a cycling uniform, and will in most cases be found the very best style which can be adopted.

Next in order of merit as a useful garment for ordinary wear comes the 'Norfolk jacket.' This shape is well known to most sportsmen; it is light and easy, and commends itself particularly to those who are inclined to be stout. The same rules, as far as cut and make go, will apply to this jacket; it should be made to fit loosely, and the belt should be fixed to the jacket above the hips; the pockets are usually put in the breast folds, and when the Norfolk jacket is made in C.T.C. cloth it looks exceedingly well. It is particularly suitable for couples riding tandems, as it is a type of jacket which suits many ladies excellently, and the couple being in the same cut of jacket undoubtedly adds to the neatness of the turn out. The arrangements as to the collar &c. will be the same as in the case of the ordinary round jacket. Some of the newest cycling jackets now in the market are woven or knitted, and they are very comfortable, but in some cases lose their shape rapidly. Some of the webbing jackets, however, withstood the severest tests, and they are very good for touring work, as they prevent the wearer from catching cold, and yet are by no means so stuffy as thick cloth garments. All the garments mentioned will find favour with various riders, but the general choice for all-round use will be either the ordinary round jacket or the

Norfolk jacket. The waistcoat is a thing not much worn by active cyclists, although the tourist will in many cases find it a most useful addition to his outfit. There is nothing special about it except that it should be cut high, in fact the square clerical cut may be best adopted. The back and lining of such a waistcoat should always be of flannel, and need not be so heavy as it is ordinarily made. A combination garment has been suggested, an all-cloth waistcoat fitted with arms and cut a trifle longer than usual, a sleeveless coat to be put on over it, which, when the rider gets out into the country, could be taken off and easily packed away. The idea seems practical, and might be adopted.

Either knickerbockers, knee-breeches, or trousers may be worn, the taste and fancy of the rider being left to settle this question. Trousers, however, are certainly the least suitable, as having no support at the knee they are sure to slip downwards and drag, whilst any scheme for looping them up or fixing them, though it may effect its object so far as to allow the rider to use the machine without fear of accident, invariably makes them look awkward and uncomfortable. The gaiters adopted by the C.T.C. have their advocates, but they are hotter than stockings, and if a rider wears gaiters there seems no good reason why he could not as well wear stockings. Riders with abnormal calves will do well to tone them down with wide and somewhat baggy knickerbockers, but the youth with attenuated limbs should encase them in pretty closely fitting breeches.

Knickerbockers require careful cutting to look well. Flannel linings should be used throughout, the garments should be very carefully fitted, and not cut too high. They are best fastened with a cloth strap and buckle at the knee, which should not be drawn too tight ; they should be made with a view to the position assumed by the rider when on his machine.

Knitted or webbing breeches are very suitable for work of all kinds, though in the winter they may require supplementing with some sort of underwear ; they are cool, and though rain goes through them at once, it gets out of them with equal

rapidity, as they dry very fast indeed. They should be all lined with flannel around the waist, and always worn with braces. Double seating for cloth breeches was at one time much insisted on by riders, but it is not now quite so popular, as the edges of the sewing have been found to give rise to blisters, and the great thickness is also clumsy and awkward. Single seats are therefore now most popular, though in the case of the webbing garments above alluded to, the seat is strengthened by the running of an extra thread through the stuff at this point, which notably strengthens it. Washleather seats were also once in great favour, but they have not on the whole proved satisfactory. When sewn into ordinary breeches the leather soon stretched and then went into rucks and folds, which hardened, and, as a natural consequence, produced great discomfort. The only practical way in which the washleather seat can be successfully used is to have two or more, made entirely independent of the breeches they are to be used in, and then, after getting them washed and pulled into shape, having them either stitched in, so as to be easily removable, or else buttoned in, to some permanently fixed buttons. In any case it is a question whether the game is worth the candle, as a carefully finished pair of breeches, with the seam neatly sewn down, and if necessary rubbed over with a bit of soap at first, will soon become quite comfortable.

In all cases the breeches should be worn well braced up, so as not to hang in a loose and baggy manner. On the other hand, too tight bracing up will cause endless discomfort, and induce the cyclist to stoop in an awkward and constrained position.

Pockets in the breeches are not much recommended, but if they are adopted they are best placed high up in front, close under the brace buttons, and they should not be too large. A side-seam pocket is apt to gape when the rider is mounted, and unless made very deep, and consequently awkward to get at, the articles contained in it are liable to be lost. If the rider wears a loosely cut jacket, say a Norfolk jacket, a breeches

pocket on the back of the hip is a very good addition ; this should be moderate in dimensions, the opening being diagonal, so as to admit of the easy insertion of the hand, and it should have a button to fasten it. If there be no watch pocket in the jacket, it can be very comfortably added to the breeches, put close up to one of the brace buttons, and having a hole in front of the pocket to pass the chain through.

There are several very dangerous ideas which some practical riders have adopted ; thus one rider has a long pocket just inside the opening of his jacket in which he carries an adjustable spanner. Were he to fall heavily on his chest, the chances are that this spanner would break one of his ribs, or inflict more serious injuries. The same remark applies to those riders who carry a bell or pump in their breast pocket when not in use. All jacket pockets wherever placed should have flaps fitted, as in the case of wet the flap will protect the contents of the pocket for a considerable time ; in the case of the breast pocket, it is sometimes an excellent plan to have a small flat black button to fasten it with. An inner pocket can be made in fully lined garments inside the right breast to take the C.T.C. ticket, but overloading a suit with pockets inevitably spoils its look, and eventually its shape, so it should be avoided as far as possible.

Possibly it may not strike a casual observer that there could be much variety in the matter of stockings, but the ingenuity of hosiery manufacturers has supplied the cycling world with a pretty extensive choice in this important item. Well-fitting leg gear is an essential in the outfit of a rider. The most usual error into which cyclists, as well as manufacturers, fall, is the wearing or making of too long stockings. Thus stockings reaching halfway up the thigh have been offered as suitable for cycling, whereas the less stocking a rider can wear with comfort and decency the better, always supposing that the breeches or knickerbockers are neatly cut, and reach, as they should do, well below the knee. Some of the more elaborate double-kneed arrangements are hot, heavy, clumsy, and

decidedly uncomfortable, whilst they seriously interfere with the free action of the knee joints, and should be avoided. If adequate arrangements are made for holding the stocking up, the less strained it is the better, so long as it does not fall into creases or folds. For all-round wear an ordinary fairly stout ribbed stocking will be found the best.

In the case of new stockings, put on for the first time, it is an excellent plan to soap the joins and edges carefully with a piece of common yellow soap, as this will prevent the stocking from rubbing the foot in any part, and abrading the skin. Attention to this little point will often save a rider hours of painful work. In the summer time, and for short runs, a much thinner stocking may be worn. Thread stockings are on no account to be recommended. The tourist should adhere rigidly to wool, and wear fairly stout stockings of that material.

The great question with all stocking wearers at all times has been how to hold them up, as although a new pair if well made will cling to the limb, and look smooth and neat, as soon as they are a little worn and loose they will slip down and look very bad indeed.

The various slings and kindred arrangements are by no means suitable for the use of cyclists, as they are arranged for the upright position of a man when standing, and are not a success when used by a rider in active work ; moreover, most of them merely transfer the drag from the knee to the waist or shoulder, and they are therefore to be avoided. The constant motion, too, causes the metal clips or fastenings to rub the skin, thus setting up an annoying soreness, and in some cases causing worse troubles. The garter, though by no means wholly satisfactory, seems to be the only practical plan. Non-elastic garters should in no case be worn. The slight drag of the stocking causes the hard and unyielding garter to press tightly upon the muscles and vessels at the top of the calf, and may give rise to varicose veins. Some of the spiral wire arrangements, if carefully adjusted so as to be exactly the right length and no less, are very good, as the slight gaps between the wires

permit circulation, and are more likely, when in action, to shift a little, so as to alter the points upon which the pressure comes. The most frequent error in using these garters is having them much too tight, and this should be most carefully avoided. The broad flat elastic garter made for ladies' use is fairly good, but the buckle or latching arrangement is altogether too elaborate, and might possibly cause a severe injury if driven into the leg, in the event of a fall. After a careful testing of every contrivance in the market, it is probable that the practical cyclist will eventually come back to the original plan of a plain broad elastic garter, which, if carefully made, will be found the most comfortable and serviceable.

Double heels and toes are a mistake in cycling stockings, and in fact in stockings used in any athletic sport, as the double portions have a very marked tendency to stretch unequally, with the obvious result that they go into rucks and creases, and cause endless trouble. There should be little or no actual friction, that is if a well-fitting shoe be worn, properly laced up over a well-fitting stocking. The main idea in all sorts of cycling work is to allow the foot plenty of play, and to keep it as cool as possible.

The next point to be considered in the outer garments is the head gear, and here again the individual fancy of the rider must be consulted. The wideawake, deer-stalker, and other hats of this class, will be found of more general service than any others. A good wide brim is an essential in a cycling hat, and it should also be light, well ventilated, and durable. If a felt be chosen, it should be a soft one, of a colour either matching the coat worn, or very distinct from it. Some of the lighter greys and browns are very suitable for summer touring. They should have a moderately high crown, which should be fully ventilated by means of a number of metal-edged eyelet holes, and a hat-guard is a necessity, as if the hat is crammed on tight, when the wind is blowing it is almost certain to cause headache and similar troubles. The brim should be wide, but not too wide. It should be just stiff enough to retain its shape

against an ordinary breeze, as to have one's hat brim flapping over one's eyes, perhaps when halfway down a hill, or at any other similarly awkward time, is troublesome or even dangerous. For winter riding a plain black felt wideawake may be recommended. A high-crowned hard felt affords a very great protection from the rays of the sun, though it is hardly so useful in wet weather, and catches the dust. The helmet is perhaps the very best head gear for touring work in all weathers. In this alone will be found those proper provisions for complete ventilation which are usually so conspicuous by their absence in ordinary hats and caps, whilst the protection afforded to the nape of the neck, and the freely ventilated space between the top of the head and the top of the helmet, are all of the greatest value to the rider who goes a-cycling in the hot sun of summer. Except in the hottest weather the neat, light and comfortable cricket cap may be worn with safety and comfort, and its use is daily becoming more universal. The cap should be of flannel, unlined, and with a stiff peak also of flannel, which may be stiffened with a piece of leather not too thick. This cap has many points to recommend it for ordinary wear (except in the hottest part of the summer); it is very light, fully ventilated, seeing that it is of thin and very open flannel, without lining. The peak affords protection to the eyes, and can be turned round to shade the back of the neck, whilst it should never be lost, seeing that it can be rolled up and put in the pocket with ease.

The great question of boots *v.* shoes was for a long time debated, but time, which settles all things, has most decidedly settled this question in favour of shoes. At one time a theory was strongly advanced that it was necessary to wear boots to support the ankle, and the sport of skating was adduced as evidence of the necessity of that support being given. It did not occur to the advocates of the boot side of the argument that on a cycle the bodily weight of the individual was carried by the machine, and that the muscles which carried the body in ordinary case were, whether strong or weak, available for

the support of the ankles and the propulsion of the machine ; added to which the tendency of the pedalling was to keep the foot and ankle straight, and the theory of support for the ankle was thus absolutely negated by facts. It is interesting when considering this fact to remember that medical men are now prescribing tricycle exercise for children who suffer from weak joints, either at the knee or ankle, as they find that as the weight of the body is not thrown upon the joints, the exercise they thus obtain tends gradually to strengthen them. The theory that weak joints require support for cycling work is consequently untenable, and those who are victims of this evil will do well to undergo a short course of tricycle or bicycle exercise, which will strengthen the muscles and joints without the otherwise unavoidable strain of the bodily weight upon the tender parts.

Foot gear, however, to return from this digression, becomes simply a question as to what shoes shall be worn, and it will be well to consider the uses to which the foot is put. It is an absolute necessity that the foot should be free to extend itself and to carry out untrammelled all the varied actions described in the foregoing chapters on ankle action and pedalling generally. To secure this desideratum the shoe must be light, flexible, and easy. The sole, too, must be of sufficient thickness to preserve the bottom of the foot from feeling the bars of the pedals, and should be as stiff as possible, as in this case the rider practically gets the whole surface of the sole whereon to apply his power, instead of having to push at two narrow bars of iron. The sole of the shoe may with advantage have a piece of steel run up the middle, that is the middle of the front sole from the waist to the toe, not from the waist to the heel. This piece of steel should be flat and broad, and it will be found of the very greatest assistance in keeping the sole flat, and thus precluding in most cases the possibility of cramp in the toe joints, especially in the joint of the great toe. The rider should be very careful to see that the shoemaker uses a flat piece of steel, as many tradesmen, to save themselves trouble,

will use a bent waist spring, which in time invariably bends the sole very awkwardly.

This stout sole is the mainstay of a sound shoe ; the toe should be made rather wide, the 'uppers' should be cut rather high up over the instep, and the grip of the shoe, whereby it is retained on the foot, should be arranged to come just round the waist of the foot, about three or four fingers broad at the most. The waist of the shoe itself may be as light and flexible as possible, as light as a running-pump. Shoemakers generally have a strong objection to making so light a waist behind so comparatively heavy a front sole, but the rider who wants to be well shod should insist upon this part of the plan being fully carried out. The whole of the back part of the shoe may be as light as possible, the upper heel, however, being stiffened ; whilst on to the pump-like heel of the shoe may be affixed one thickness of stoutish sole leather in the shape of a broad flat heel, so as to protect that part of the foot from injury in case of a dismount on rough ground. For touring and men's wear, hooks all up the front are the best method of lacing the shoe, as the laces are thus kept from pressing on the delicate bones and muscles of the front of the foot. It is also a good plan to have the shoes to open a good way down, as by adopting this fashion the shoe can be easily and comfortably put on even when wet, and can be wiped out and quickly dried. This is another of those minor details the value of which will only be appreciated after a tour of some duration. These points are all fully carried out in Norris's 'Lacy-Hillier' shoe.

It is, as has been pointed out before, always advisable to go for these specialities to some one who is practically acquainted with the reasons which guide their construction, as in many cases the maker who is not so informed is very obstinate in his ideas, and refuses to make the necessary changes in his usual methods. One point, for example, which has been alluded to above, may be cited ; many ordinary shoemakers steadily refuse to make a light running-shoe

waist to a shoe with a stout sole, whilst the effort to make the shoe look well by having it narrow in the toe is fatal to a good cycling foot-gear, which should be especially broad and roomy at that point to allow of the natural play of the foot.

There are many other very good patterns of shoe which possess especial points to recommend them to riders, whilst there are as many more which show no practical acquaintance with their wants. Thus a shoe very much cut out, so as to make it as light and open as possible, would perhaps be cool and comfortable once in a way, but for riding over dusty or muddy roads, and more especially if worn when many hills had to be walked, it would prove a terrible drawback, owing to the easy access provided for grit and dust, which is fatal to comfort when it gets into the stockings, from which it is not easily dislodged.

Thus far the outer garments suitable for men, the larger section of cyclists, have been described ; but before passing to the next section it will be well to say a few words as to ladies' dress for cycling purposes ; and it is also advisable to note that in the main the divergence between the appropriate cycling costume of the two sexes is confined solely to the outer garments, as the under-wear is of necessity very similar in either case, ladies having taken advantage of the experiences gained by their husbands and brothers, and adopted with but slight modification the underclothing which they have found most suitable for use whilst indulging in the sport. A well-designed costume will allow of the greatest freedom of action, and thus enable its wearer to ride a machine without the troublesome and tiring drag which is always felt if an ordinarily dressed woman mounts a velocipede. On the other hand, the would-be dress reformers seized upon these undoubted facts and desired to use the tricycling ladies as a medium whereby they might introduce to the public their crude notions of a suitable and hygienic dress. Seeing that the spectacle of a lady on a tricycle was at that time a novelty sure to attract remark, it was some-

what unreasonable that those who were courageous enough to ride should be asked to render themselves doubly conspicuous by putting on a novel and *outré* costume. But, although the reform was not adopted in its entirety, the ladies interested took up the question, and at a meeting called by the C.T.C. the matter was carefully discussed, the following decisions, which embody a full description of a cycling dress for ladies, being arrived at :

A lady who dresses from a practical hygienic point of view invariably discards the majority of the garments usually worn, and assumes those more in consonance with the taking of healthy athletic exercise, with its concomitant need of freedom of movement—the result being that the few articles assumed have to compensate for the inevitable loss of warmth which must otherwise ensue.

The uniform strongly recommended embraces the following :

(1) A combination merino or woollen garment to be worn next the body.

(2) A pair of dark grey woollen or merino stockings.

(3) A pair of loose knickerbockers, of the Club cloth, fastened with elastic, or by a cloth strap and buckle, under the knee ; to be suspended from the hips or the shoulders at the option of the wearer ; or

(4) A pair of trousers cut loose to just below the knee, and thence tighter just down to the foot ; to be suspended from the hips or shoulders at the option of the wearer.

(5) A plain skirt, of the Club cloth, without kilting, and of sufficient fullness to admit of absolute freedom of movement without undue bulk.

(6) A bodice or jacket, at option of wearer, cut either to fit the figure, or of ' Norfolk ' shape, lined throughout (including sleeves) with the Club flannel, and provided with an adjustable belt if so desired.

(7) A helmet or hat of the Club cloth, or of straw, with a special and registered ribbon, in any of the shapes that may be provided by the Club from time to time.

(8) A pair of soft ' Tilbury'd ' doeskin gloves.

This costume embodies all the necessary points of a hygienic riding costume. The cloth should be closely woven and not fluffy or rough, as in either of these cases it will hold the dust and defy brushing; neither should it be too thick or too heavy, and it should be neither too light nor too dark in colour, a happy grey medium being undoubtedly the most serviceable. That ladies generally will be fully competent to suit themselves in this matter there can be little doubt. As with the bicyclists' costume, the ladies' cycling dress was not designed at once, but was gradually perfected by active riders in constant work. The all-flannel, or rather the all-woollen, costume is even of more moment in this case, as the danger of colds is possibly greater with those who do not so frequently indulge in exercise, and no rider should wear anything but wool. One drawback which has existed for some time in this connection has now been removed, as all-wool corsets are obtainable as well as every other requisite for a lady's cycling costume.

The choice of a body garment is not a difficult one, but unfortunately lady riders are very fond of a tight-fitting bodice or jacket, which, however well it may look, must of necessity be hot and uncomfortable, and a tight jacket should be carefully avoided if the rider means to ride in earnest and not to play at cycling. Of all the different styles of jackets, nothing touches the Norfolk jacket for all-round use. If nicely cut it looks well, is comfortable, and appropriate, and as it can be worn by either sex, it is a most serviceable garb. In all material points, the instructions laid down for cutting the ordinary Norfolk jacket should be observed. Some of the closer fitting jackets with a military collar are suitable for cold weather.

When ladies first began to ride they were constrained by prejudice to ride upon a seat placed low down and some distance behind the pedals, and this position, besides being awkward and uncomfortable, was also exceedingly dangerous. The dress in this case was constantly getting up over the knees, each alternate stroke lifting it higher, and many attempts were made to design some method of keeping it in place. Some riders sewed

a considerable weight of shot into the lower edge so as to keep it down, whilst others fastened the front of the skirt to the front of their boots or shoes, with the very obvious result that the skirt dragged tremendously over the knees and rapidly tired the rider. Many cyclists of both sexes made experiments to see how best to overcome this serious difficulty, and a remedy was found, although not quite in the direction anticipated. Instead of altering the dress, it was the position of the rider which was altered ; instead of sitting low down, and a long way behind the pedals, she was placed upright and well over the pedals. At first many ladies so placed insisted on still using the seat instead of the saddle on the tricycle, and were proportionately uncomfortable ; but in due time they were converted to the use of the saddle, and at once found their troubles were over. The knees, instead of awkwardly rising and falling in front of the body, were merely moved in a manner closely resembling the action of walking. The skirt was simply thrown out by either knee alternately, and still hung gracefully and comfortably in front of the rider. This was the solution of a difficulty which bade fair at one time to prevent many ladies from following the sport.

The skirt should be just long enough for walking purposes, and no more. It should be of sufficient size to admit of the freest motion of the knees, and made of some closely woven and wiry material which will not cling unduly to the figure. It may be a part of the jacket, or may be worn with a belt or suspended from one of the under garments, the latter plan being the best, as doing away with any tight cinctures around the body. It should be simple in design and not loaded with braiding.

The stockings should be of thin and soft merino, as the extra garments worn make stockings somewhat oppressive if unnecessarily thick. They should be treated in all cases as advised for the bicyclist above ; but a special caution may be here given against tight garters, as the exercise of cycling requires that the limbs should be as free as possible from tight ligatures, which

may give rise to serious troubles. On the question of the head dress the ladies may freely exercise their own choice, but in general a smallish hat is advisable, with some provision for the adequate protection of the neck and eyes. With the general caution not to have too large a hat to catch the wind, or too small a one, which would not afford adequate protection from the sun, this point can be dismissed. Ladies will of course adopt shoes when riding, and these should be light and of thin leather, with a thin waist as flexible as possible. Eyelet holes should replace the hooks which the bicyclist is advised to adopt, as the latter catch in the front of the dress and tear it, besides sometimes tripping up the rider from a similar cause. The shoe should open a good way down, and if it is neatly made this will cause the foot to look all the smaller and be of great service to the wearer. The steel in the sole is not an absolute necessity, but should any lady rider suffer from cramp, or be continually missing her pedal, a steel and grooves to take the rat-trap pedals should at once be fitted, as this will enable her to keep her foot straight, and at the same time will correct the error into which she has fallen. The garments worn under the skirt may be practically regarded as outer garments, as they are usually made of the same cloth and assimilated as much as possible to it. A choice is offered between trousers and knickerbockers, but the latter are much to be preferred, as trousers will inevitably drag very much over the knees and fatigue the rider. A carefully fitted pair of knickerbockers, with a cloth strap and buckle at the knee, will be found the most useful garments to wear under the skirt, and if the stockings be either of some dark colour or else match the dress, and the skirt be cut the right length, it will both look well and prove comfortable, regarded merely as a cycling costume. Here again it is scarcely necessary to point out that ladies should go to a practical ladies' tailor for cycling clothes, as unless the maker is aware of the particular purpose for which they are wanted, and has some special knowledge of the requirements of the case, the garments when made will not be likely to prove successful.

The latest development in cycling costume for ladies is that styled 'Rational,' the rider wearing knickerbockers and gaiters and a long-skirted jacket. It is claimed that if ladies are to ride at all, they should ride as comfortably, safely, and easily as possible, and the new dress enables them to use a safety bicycle with a top stay to the frame, which makes a most marked difference in the ease and comfort of the machine, whilst the safety secured by the absence of the skirt is immense. The matter is more fully discussed in the chapter on Cycling for Ladies.

Outer attire being thus disposed of, the next section is the under wear, and it is of the very greatest importance that the under garments should be of an appropriate description, as unsuitable underclothing is certain to cause the wearer annoyance, which might easily have been obviated by taking a little trouble in the selection at first. Nothing but wool should be used, and this is more than usually important in the case of anything which is to be worn next the skin. The commonest error into which riders fall is putting on too many things. For short sharp runs too little clothing is infinitely preferable to too much, and for long journeys too much clothing will weaken and tire the rider terribly. When he arrives at his journey's end, moreover, every one of his numerous garments is wet through and of no use at all; whereas, if he had but tied one or two dry vests &c. to his handle-bar, they would have come in well at the end of the day. In ordinary summer weather, and when the rider can get home without riding long into the night, he will find that one good woollen sweater will be quite enough under an ordinary riding jacket, or a good and not too thick flannel shirt will be ample protection; and if he be a cautious man, he will perhaps take a dry vest with him to put on whilst dining in the middle of the day. The tourist who does not mean to unduly hurry himself, but at the same time intends to have a few days' holiday, will perhaps wear an extra vest under the shirt as a preventive of cold, but even this in hot weather will be transferred to the luggage bag.

The variety of under garments is enormous, and the cyclist has a large selection from which to choose. The flannel shirts usually sold for cycling purposes have one or two faults; they are much too voluminous and much too long. The shirt of the future will be just shaped to the figure without fitting tightly, whilst the tails will be notably shortened so as to get rid of some of the extra material; the sleeves will be made rather tighter and the neck band of woollen material, and not the linen or cotton now usually employed, this small piece of linen being responsible for many a sore throat. The flannel shirt should preferably button up the front and should be of a uniform thickness all over, made of the very best flannel, not too thick and just a nice fit. Pockets in the shirt are a failure, as they tend to pull it open when in use, and should not be adopted for that reason. A good many riders of both sexes prefer those excellent garments known as 'Combinations.' They are especially useful for cold days and winter work, as they secure that great desideratum, an even distribution of warmth all over the body, and at the same time combine the various advantages of many garments in one. For those who habitually wear under drawers, or other similar garments, the Combination is a great boon, and is certain to grow steadily in public favour. Cashmere neckerchiefs are to be preferred to any others, though a somewhat thicker woollen comforter may be used with advantage for night riding in the winter. There are also some cashmere collars in the market which are decidedly better than the waterproof goods, as the latter condense the perspiration in little beads upon the collar, and this strikes very cold to the neck. But a flannel collar attached to the shirt is far the best for all purposes. Ladies' underclothing should be constructed very much on the same principles, the main idea to be carried out being to secure good fit without undue tightness, a point which may be attained by the use of merino and stockingnet carefully chosen. If the fit of each garment is carefully studied, the result will be satisfactory in every way, and the costume will as a consequence sit well.

It is advisable to conclude with the oft-repeated bit of advice, viz. when cycling clothing is wanted, go to a practical cycling tailor, who will appreciate the reason of the numerous little variations required from the regular model, and as a natural consequence will carry them out with accuracy and intelligence. The introduction lately of sound woollen stiffeners and other necessary materials for a garment, guaranteed all wool, has lightened the task of those who desire to ride in comfort and safety, as they will find all such things ready to their hands, whereas the pioneer cyclist had to go and seek for them all over the country.

The final maxims therefore are : (1) wear nothing but pure woollen garments ; (2) have them cut by a practical cycling tailor ; (3) study the even distribution of warmth ; (4) do not over-clothe the body ; and (5), in the event of a longish ride, always take a dry under vest in case of accidents. By following out the above few precepts, the cyclist, lady or gentleman, will be enabled to ride in comfort and safety, whatever may be the state of the weather, throughout the year

CHAPTER VIII.

CYCLING FOR LADIES.

IT would be difficult, at this date, to determine with any hope of accuracy who was the first woman courageous and enlightened enough to insist upon sharing a sport which had begun to prove itself of such pleasure and benefit to men. Certainly, in 1878 there were rumours of a lady cyclist who had accompanied her husband in an extended tour ; and, despite some public consternation and criticism, women were here and there, all over the country, beginning to take more or less furtive rides on the machines of their male friends and relations.

Once they had tried the sport, the taste for it seized them with full force ; and it is a remarkable testimony to the charms and advantages of cycling that they made themselves recognised by women, through all the terrible drawbacks with which feminine cycling was handicapped in its initial stages. At first there were no ladies' cycles at all to be bought. A woman was compelled to make her first essays on a man's tricycle, too heavy for her, and dangerous and unsuitable in every way. As cycling began to grow in popularity with woman, an attempt was blunderingly made to supply machines for her special use. These were grotesque in their unsuitability to her needs. Brakes were inadequate, steering was awkward and leisurely, an inconvenient cushioned seat took the place of a saddle, and neither pace, safety, nor comfort attended the clumsy, over-heavy, unwieldy tricycle on which she was supposed to taste the pleasures of the sport. Yet, in spite of these drawbacks, and of the fact that the ordinary costume worn by women is



WOMAN'S RIGHTS

S. T. DADD.

dangerous and most unsuitable to cycling, there was a slow but steady increase in the number of lady cyclists throughout this country, for years before the women of any other nation had been tempted to follow the example of their English sisters.

It is little wonder, considering all things, that at first medical men, themselves without any practical knowledge of cycling, strongly warned women not to indulge in it. But women liked cycling too well to be frightened from it. They began to discard seats for saddles, to demand lighter mounts and a possibility of speed. When handle-bars and bicycling steering were first applied to ladies' machines, there was an outcry against so mannish an innovation, but the result was an enormously increased popularity of the sport ; and from that time makers seriously turned their best attention to catering for women's needs.

Ladies' cycles have now reached something like perfection. Light, elegant, safe and swift, supplied with strong brakes and efficient dress-guards, they place their riders on an equal plane of advantage with men. The old cry of warning that cycling was injurious to women has long since died out, and physicians strongly advocate it as the best exercise ever invented for the sex, with common-sense limitations. The army of cycling women throughout Europe and America is immense, and increases yearly. It is difficult, in these later days, for novices to realise how great was the struggle pioneer women had to make for their liberty to ride at all, and they should not forget to be grateful for the perseverance, courage, and good sense which paved the way now made so easy.

For a good many years the tricycle was a woman's only mount. The mere suggestion of a bicycle in connection with feminine use was thought shocking. The first idea of such a revolution came about through the introduction of tandem bicycles, where a lady was induced to take the front seat under masculine convoy and protection. Gradually a few two wheeled machines for ladies' use appeared, and once more protests were universal. Six years ago, a woman on a bicycle

was regarded as a curious and unedifying spectacle ; women learned to ride in their own secluded gardens, or in the early morning, when no spectators were abroad. But the undoubted advantages of the new mount began at once to assert themselves, and it has long since almost entirely ousted its three-wheeled rival from the field of feminine use.

The Ladies' Tricycle.—This should be light in weight, and furnished with inflated tyres. It should have a strong and effective break, fitted preferably with a double lever ; the spring should be carefully calculated to the rider's weight ; the saddle should be carefully chosen, and neither too large nor too small ; the dress-guard should be complete, and the construction of the frame such as to allow ample room for drapery, if worn.

The advantage of the tricycle is that the rider can remain in the saddle while at rest, and that a feeling of security is imparted, very valuable to the elderly or nervous rider. This is its only merit unshared by the two-wheeler. Against it may be quoted a list of inherent and ineradicable disadvantages, which are as follows :

1. Its weight.
2. The greater exertion involved in propulsion.
3. The impossibility of dismounting when moving.
4. The three tracks.
5. The lateral jars and twists.

The extra weight is a very serious consideration, and so is the greater effort involved. These make the tricycle a more fatiguing mount than the bicycle. Dismounting is a somewhat awkward performance, having to be accomplished from the front of the machine, not over the axle. The three tracks make it an inconvenient mount on bad or newly metalled roads. A serious drawback lies in the fact that one of the three wheels may be thrown up higher than the others, thus conveying a jar or twist to the rider.

The Lady's Safety.—The only disadvantage of the rear-driving Safety as a lady's mount lies in the necessity of keeping

the balance. How small this difficulty is, and how readily overcome, will at once be proved by the hundreds of women who learn in a few lessons, and the extraordinarily small number of accidents to feminine bicyclists. Skill is of so much more importance in the matter than physical strength, that a woman has points in her favour in the matter, it being an acknowledged fact that where skill and aptitude in learning are concerned the average woman has an advantage over the average man.

The special points of advantage possessed by the rear-driving Safety are as follows :

1. It is lighter than a tricycle, has fewer working parts and no balance gear, and therefore is more easily driven.

2. The method of mounting is much simpler, easier, and more graceful than the tricycle mount.

3. The method of dismounting is as easy, even while the machine is in motion.

4. The machine makes but one track, a most important point, as it enables the rider to pick her way along bad roads where a tricyclist would be forced to dismount.

5. The absence of any lateral jars or twists, any obstruction being encountered in the central line of the machine.

6. The possibility of applying adequate and ample brake-power, if necessary, to both wheels.

7. The increase of speed.

The Safety, it will therefore at once be seen, is immeasurably superior to the tricycle. It is also quite as free from danger, if not more free, when ridden at the same rate of speed. If a lady is thrown from a tricycle, it is almost impossible for her to fall upon her feet, as the driving wheels are in the way, and a free escape would be impossible. On the other hand, in the case of a side slip, or any similar accident, on a Safety, the chances are very much in favour of the rider alighting on her feet.

The method of mounting is simplicity itself, and can be acquired in one lesson. The rider stands on the left side of the cycle, holding the handles firmly, and inclining the

machine slightly to the left. The right-hand pedal is brought to the front about two inches (see the ankle-action diagram, fig. 1, p. 127), and the rider puts her right foot firmly upon it. Then simply springing from the ground off her left foot, she rests her weight partly on the pedal and partly on the handles, and seats herself with the greatest ease in the saddle. Though at first hurried, before the rider has quite mastered it, this mount, when once perfectly acquired, is deliberate and graceful, much more simple and graceful than the lady tricyclist's mount. The dismount, also, is simplicity itself, the rider merely stepping out on either side of the machine at pleasure.

The adjustment of a lady's Safety is of great importance, as upon it depends both her comfort and success as a cyclist. If the rider can sit upon the saddle without holding the handles or touching the pedals, and does not feel a tendency to slip either backwards or forwards when sitting upright, the adjustment is correct. The front of the saddle should be from three to four inches behind a vertical line drawn through the centre of the crank axle, and it should not be put too high, as a full reach will be found very irksome, and will also interfere with the ankle action. The handles should be brought well within the rider's reach—this is most important. The arms should be just bent when the rider is sitting up. If the handles are placed too low and too far away, the position becomes most unsuitable. Some women affect the crouching attitude when on a bicycle. The effect is injurious to their health, and hideously ungainly to the eye of the spectator.

The ladies' Safety should have smallish wheels with inflated tires. Ample brake power should be fitted, preferably with two levers. The work should be put low, but the pedals should not come too near the ground. The chain should be well protected by an adequate chain-guard, and the driving wheel may with advantage also be covered with a guard, if care be taken to give plenty of clearance inside the guard and in the forks.

An auxiliary foot-brake, distinct from the other, and pre-

ferably working on the back wheel, is a great addition. The lamp-holder should project from below the foot-rest on the right-hand side, as being more out of the way. A fair amount of luggage can be carried on the safety when touring.

Tandem bicycles and tricycles are still used where a woman feels the necessity of masculine strength as an aid in riding, or prefers close companionship and escort to the greater independence of a mount of her own. They will always preserve a certain measure of convenience, probably, as family machines, though they are by no means popular to the extent that they were in their first youth.

The greatest revolution in feminine cycling that has taken place since its first days is undoubtedly the introduction of 'Rational' dress. This originated on the Continent in 1893, and with it a sudden leap of cycling into feminine favour took place. The one drawback to the pleasurable cultivation of the sport by women has always been the discomfort, danger, and indecorum of the ordinary long skirt in connection with wheels. Almost every accident which has ever happened to women while cycling has been caused by the entanglement of their draperies, an occurrence against which it was impossible entirely to guard, no matter what precautions were taken. The fatigue of riding in a costume whose weight and friction were felt with every turn of the pedal, and which formed an obstruction to progress in any strength of wind, cannot be realised by those who have never suffered under it, while the mind of woman was perpetually disquieted within her over futile contrivances for keeping her floating skirt within the limits of seemly appearance. Some bold spirit seized and adopted the idea of discarding the long skirt altogether, and supplying its place with a neat and suitable costume of knickerbockers, long leggings, and a coat or tunic sufficiently long to add a feminine touch, while in no way interfering with free movement. As soon as the new dress was seen abroad, it was enthusiastically adopted. Cycling at once became a fashionable craze among Frenchwomen, and smart society began to take it up everywhere. The costume

found its way to England in the same year, and, despite some vehement and slightly unreasoning prejudice on the part of a certain section of the public, it made rapid headway in general favour.

There is no doubt that, however much its novelty may have caused surprise, the advantages of the new costume are overwhelming. It has at once removed the ever present element of risk from the entanglement of draperies, it is a thousand times more decorous than the unmanageable, fly-away skirt, it gives women a chance of riding at an equal advantage with men in point of ease and comfort. There is another enormous point in its favour. To accommodate feminine draperies, the whole framework of the safety had to be altered, in supplying mounts for their use. The frame was dropped in a U or V shape, which so weakened it that expedients of double tubing and stays inserted low down had to be resorted to, in order to make it fit to support any strain. With all these contrivances, it remained far inferior in strength and stability to a man's mount, and it was impossible that it should be otherwise.

But 'Rational' dress entirely obviates the necessity of the dropped frame, and puts a machine of ordinary construction within the riding capacities of any woman.

Whatever may be urged in favour of cycling as a health-giving exercise for men may be repeated with redoubled force when the pastime is advocated for women. The majority of small illnesses common among women arise from disordered nerves and digestion, brought on by lack of fresh air, regular exercise, and an interest outside of domestic concerns. Cycling is a panacea for all these. The effect upon low spirits, general 'little health,' and feelings of constant misery and discomfort, can be testified to by countless women to-day. To many lives, narrowed down to petty household cares and interests, it has brought fresh zest and amusement. As a factor in the existence of women and girls its benefits are incalculable.

As an instance of the rapid growth and power of feminine

cycling, it may be mentioned that it has been found necessary to legislate for feminine interests. The Lady Cyclists' Association of Great Britain, founded in 1892, rapidly became an organisation of such importance that delegates from it were accepted by the N.C.U., and it was acknowledged to be the most powerful promoter in existence of reform in matters connected with feminine cycling. Its firm defence and patronage of 'Rational' dress was one of the strongest aids dress reform had ever had brought to back it up in this country, and its discouragement of cycle racing by women strongly showed how the movement was condemned by the majority of women who ride.

Medical authorities agree in saying that the strain of training for a cycle race cannot fail to be injurious, not only to any woman indulging in it, but to the race at large. The L.C.A., recognising this fact, and the injury that the spread of racing was likely to do feminine cycling, took a strong stand against its increase. Had it been foretold, in the first days of the pastime, that women cyclists would ever be in a position to form an organisation powerful enough to effect any action in a matter that chiefly concerned themselves, the prediction would have been received with incredulity.

At the present time, in even the most remote parts of the kingdom, the sight of a woman on a bicycle has ceased to attract attention. Wearers of 'Rational' dress have made long tours throughout the country, entirely unattended, and have received neither uncourteous notice nor annoyance. The prejudices which existed against cycling for women have long been seen to be baseless, and have died out. The pastime is now as firmly established for women as it is for men.

With regard to the clothing worn while on the bicycle, it may be well to say a few words. The under-wear should be as light as is consistent with warmth—all wool in winter, merino or gauze in summer. Any pressure about the body should be carefully avoided, and there should be no dragging from the waist. The shoes should be low-heeled and broad across

the foot ; boots should never be worn. The advantages of 'Rational' dress have only to be experienced to be valued. It is possible to have an exceedingly neat, suitable and pretty costume in this mode, of tweed, cloth or serge—the knickerbockers slightly full, and the long buttoned leggings of the same material meeting them below the knee ; the coat or tunic reaching half-way below the waist, or even lower, if desired. Where the now somewhat obsolete skirt is preferred, it should be made so as to entirely clear the feet when the rider is in the saddle. To have it long enough to incur a risk of the pedals catching in it as they revolve is to subject the rider to peril. An additional advantage in wearing 'Rational' dress is that it obviates all need of a dress-guard, which increases the weight of a machine, and does not improve its appearance.

As to make, Frenchwomen have shown their preference for an entire avoidance of any skirt. They adopt a full blouse, or Eton jacket and shirt, very wide Turkish trousers, and often no leggings. Englishwomen have a style that in most cases adds to the moderately full knickerbockers, either a short knee-skirt, a long tunic, or an open coat with full skirt to it. Leggings almost invariably complete the costume, and should be of the same material as the knickerbockers. When riding, the French style looks smart and pretty, but off the machine the English fashion has decidedly the advantage. There is another point in favour of 'Rational' dress, that it requires far less material than the long skirt, and is therefore considerably less expensive.



AT THE MERCY OF HIS WIFE—THE NEW STYLE

S.T. DADD

CHAPTER IX.

RACING PATHS.

A FEW years ago there were no paths in existence which had not some serious drawback from a racing cyclist's point of view. All were in one way or another unsuited to the sport. They had been laid out solely for athletics, such as running, walking, and so on, and were not in any way calculated for the new and faster sport of cycling. The old Lillie Bridge path, which was always considered excellent by running men, proved absolutely dangerous for bicycle racing, and a new significance was found in the title of the lower left-hand corner of the track, which was termed 'the Hospital Corner' because it was close to the buildings of the hospital. Many a good man who has gone flying past his opponents in front of the grand stand, and rushed on to victory down the railway straight, has come a complicated cropper at the Hospital Corner, and brought down others in his fall. It would take considerable space to enumerate the names of all the riders who have escaped the railings only to plough up the cinders of the path.

The special points required in a cycling track are as follows :

1. It must be placed on level ground.
2. It must be wide—not less than 21 feet, preferably anything more in reason.
3. It must be hard, with a solid basis of sound soil or of made ground, the softness of running paths being very much against the bicyclist. The improvement of the specially laid cycling paths in this direction has had much to do with the

improvement in times recorded of late years ; thus the Crystal Palace cycling track was 30 per cent. harder than the Stamford Bridge running path.

4. The corners must be banked, the meaning of this being that the track must be made higher outside than inside, sloping from six feet or more on the outside edge to nothing on the inside (on the same principle as the set given to railway lines round a curve), to assist the rider in overcoming the centrifugal force which his dash at full speed down the straight has developed.

All these points and many other minor ones were entirely novel. They had never been raised before, and thus were not attended to by the layers and makers of running paths, and it was some time ere the requirements of the cyclists were fully met.

Even now, indeed, many of the cycling paths suffer from want of sufficient banking at the corners, or from inadequate care in keeping 'the bones' of the track fully covered with the hard surface.

Tracks are made of cinder alone, bound with unburnt coal and breeze ; in very damp localities of cinder and burnt clay mixed ; in drier places of gravel, which is never satisfactory ; of clay, which is worse, except in the very driest weather ; of cement, of wood, and of a combination of these and other materials. Much depends upon the situation of the track. If it is in a damp place it will often keep in condition longer during the active racing season, the summer ; if, on the other hand, it drains freely, it will get loose and sandy under the same conditions ; and, in short, it is impossible to lay down arbitrary rules, which would assuredly not be suitable in many cases. The attendant has to watch and nurse his path assiduously. The track which held for a long while pride of place amongst English cycling paths was that at *Cambridge*. It is composed of a whitish oolite mixed with gravel, but through want of attention is very seldom in good condition ; there is usually a fairly smooth 18-inch path round which the training

men ride, and once in a way it is got into good shape all over. When really in condition it is second to no path in the kingdom. It is situated in a field some little way out of Cambridge, is circular, 4 laps to the mile, not very wide. On one side it is raised slightly from the level of the field, on the other it runs through a sort of cutting. There is a dressing-room, but not much accommodation. Many notable races have taken place on this path, Ion Keith-Falconer's defeat of Keen, Cooper, and Cortis in a two-mile race in 5 mins. 36½ secs. being perhaps the most famous. It is a good path, and its excellence when in condition has had much to do with the great performances shown by Cambridge men.

The Oxford Path is situated a short distance outside Oxford, and is on a slight slope. It is a yard or two over 3 laps to the mile, is square in shape, with the ends rather rounded, and narrow, excepting the straight finish, which is broad and well laid. The material used is cinder, which gets rather loose in hot weather, and always runs a trifle dead. The corners are fairly easy; the run down the back stretch is somewhat baulking to a stranger to the path, an obtrusive white post and rail fence being prominently placed on the turn. The dressing accommodation is excellent in every way. The ground is the property of the Oxford University Athletic Club.

One of the first paths which proved suitable for cycling in the metropolitan district was that laid down in the Recreation Grounds at *Surbiton*, although it was too slightly banked at the corners, a fact which caused a good many men to run wide; but the four corners, being only quarter-turns, were easy and well graded, and as no solid and permanent spike-and-rail fence on the outside threatened the rider with injury should he make a mistake, he could go at his corners with courage and dash. *Surbiton* ranked second only to the Cambridge path for pace in the earlier days of the sport, but has now been broken up and built over.

The Stamford Bridge Track is laid out in the grounds of the London Athletic Club at Fulham. This path is of cinder, has

two long straights and two semicircular ends, the half-turn of course requiring more negotiation than the quarter-turns of Surbiton ; and as an iron post-and-rail fence stands just one foot from the outside edge of the path, unaccustomed riders have to be somewhat cautious how they make these turns, especially as the corners are but slightly banked. The dressing-room accommodation is excellent, with good shower bath, &c. The nearest stations are Chelsea and Walham Green.

Close to the Stamford Bridge track were situated the old and new paths in the *Lillie Bridge Grounds*, West Brompton. The old path was made of cinder, 3 laps to the mile ; the new path was made of burnt clay and cinder, 4 laps to the mile, with two long straights ; but the circular ends were of different radii, the top one being the smaller. The ground has now been finally closed to the public.

The Alexandra Palace Track, 3 laps to the mile somewhat resembled a D in shape. The dressing accommodation was good. This track is grass-grown and never used now.

The Crystal Palace Track at Sydenham was one of the first paths laid solely for cycling, and, the work having been done with consideration and care, it was one of the fastest in the kingdom. It was laid by the directors of the Crystal Palace Company, in deference to the representations of a committee of S.E. riders, headed by Mr. W. B. Tanner, and was placed round one of the lakes in the grounds, being carried through the water on two causeways. It was of cinder, with a very sound and solid bottom. It was circular in shape, $3\frac{1}{2}$ laps to the mile, the true circle being, however, a little flattened at the causeways, which were nearly straight. The track has now been demolished, as it was no longer used by cyclists.

The Paddington Track.—This now famous path was laid out by Mr. Melville Beachcroft, L.C.C., in the Recreation Grounds, Paddington ; it is $3\frac{1}{2}$ laps to the mile ; two straights 90 yards long, and two semicircular corners. These latter are well banked ; a fence is placed on the outer edge of the path. The surface is composed of burnt clay, brick dust, and coal

dust, with a small amount of cinder, and it wears fairly well, though towards the end of the season it gets noticeably bumpy. The nearest stations are Kilburn and Maida Vale ; omnibuses from the Marble Arch pass close to the ground. Inside the cycling track are a $\frac{1}{4}$ -mile running and a 120-yds. sprint tracks. The track has now been taken over by the London County Council, and as no gate money can be obtained few race meetings are held upon it.

Kensal Rise.—Another new track, 3 laps to the mile, with fairly well banked curved ends. Two long straights, with running and sprint tracks, as at Paddington. There is a fine grand stand and excellent dressing accommodation. The surface is cement. The track is well found in every respect, with speaking tubes between the telegraph board, grand stand, dressing-rooms, and judge's stand. Nearest station, Kensal Rise.

The London County Grounds Track at Herne Hill.—A new path, which lays claim to the title of 'the most accessible track in London.' It is situated close to North Dulwich and Herne Hill stations, and by a fast train a visitor can get from Ludgate Hill to the grounds in twenty minutes. The track is $3\frac{1}{2}$ laps to the mile ; two 90-yards straights and two half-circle ends, with the heaviest banking in London. The track is protected from the wind from every quarter, and is laid on the very latest and most improved lines. In addition to making it of a good width, there is 4 to 6 feet of grass outside the edge, *inside* the fence all round the path ; this will add immensely to the feeling of safety on the part of the riders. The grand stand contains billiard, club, committee, and ladies' rooms ; the dressing-rooms, ample and well ventilated, are fitted with needle and shower baths. The surface is wood—pitch-pine battens laid $\frac{1}{4}$ inch apart—and this has proved the safest and fastest surface yet laid for cycle racing ; smooth cement runs it close ; very smooth cement is slippery when wet, rough cement is not slippery—or fast. Cement in any shape is very dangerous in case of falls. This track is only 200 yards outside the four-mile radius.

There are several other more or less successful tracks in the metropolitan area, but none calling for special notice.

The Bristol Track is on the Gloucestershire County Ground, at Ashley Down, Bristol, the nearest station being Ashley Down. The track is three laps to the mile, four-sided, with big quarter corners, three having a radius of 165 feet and one of 120 feet. These corners are banked up nearly 3 feet, and the width of the winning straight is 30 feet, its length being 60 feet. There is a fine pavilion, with good dressing and other accommodation.

The Brighton Track is in Preston Park, Brighton; nearest station, Preston Park. Three laps to the mile; a four-sided track of irregular shape. Corners fairly well banked; dressing accommodation fair.

The Coventry Track, situated in the Recreation Grounds, Coventry. Four laps to the mile, half-circle corners; dressing accommodation poor, lavatory and storage accommodation *nil*.

The Long Eaton Track, between Nottingham and Trent, is of irregular measurement; about $2\frac{1}{2}$ laps to the mile. Square, with four heavily banked corners; was very fast and highly popular a few seasons back; has materially retrograded since the opening of Paddington. Dressing accommodation &c. good; but the track is far away, and is not likely to regain its popularity with record makers.

The Torquay Track.—Four laps to the mile. Two 75-yards straights and two half-circle ends.

There are also good tracks, specially laid for cycling, at Weston-super-Mare, Paignton, North Shields, Birmingham (new track at Aston), and many more places, whilst others are in prospect.

THE LAYING OF TRACKS.

This is a large question, to which only a passing reference can here be made. The inquirer who takes up the matter of a local path always asks one question first, 'What will it cost?' To which the track expert makes reply, 'Where is it to be? What is the subsoil, the price of labour, the cost of cartage,

the supply of suitable material?' and a thousand other questions. Thus, it might be pointed out that it would cost more to lay a permanent cycle track on the Goodwin Sands than on the London County Grounds, which, though a *reductio ad absurdum*, is a very useful argument with some people.

A roller-made track is almost invariably a foredoomed failure. The roller is carried over the soft parts on the harder portions, and when the weather consolidates the path the soft place sinks in. The rammer, and the rammer alone, should be used in path-making. A golden rule in track-making is to make the foundation good. If the bottom be sound and solid, all will be well; if, on the other hand, it is not so, has soft spots in it, and so on, the hardest working track man, unless the track be surfaced with wood, cannot keep the top right, and the few pounds saved by careless laying of the foundations will cost many pounds in cash, worry, and vexation on the surface.

The bottom of the track should be built up with big solids, stones, bricks, clinker and such like materials, rammed well down, over this a layer of rather smaller materials of the same class, and finally a layer of finish matter well raked in prior to the putting on of the surface.

The clay, gravel, and cinder surfaces which are to be used both for running and cycling are to-day very much at a discount, and wood or cement is used for all first-class cycling tracks.

Cement laid very smooth is very fast, but at the same time very dangerous when wet; nine men out of eleven fell in a few seconds during rain on cement at Ghent; and at the Velodrome, Buffalo, though the surface is repeatedly roughed, a special provision was made in the 24-hours race that if it rained the men could ride tricycles until the track was dry. Cement can, however, be laid in varying degrees of roughness; but if it is rough enough to be quite safe when wet, it is not fast.

Wood has proved both safe and fast, wet or dry; of course there are falls upon it, so there are upon the road at times, but the general result is in its favour, and the batten surface is likely to be very popular, more especially as it can be removed and

stored for the winter, thus leaving the grounds clear for football and other winter games.

The most popular shape is two straights and two half-circle ends. The most popular sizes, four and three-and-a-half laps to the mile. Plenty of width should be provided. The fence around the track should not be put right on the inside edge. There should be three or four feet of grass between the outside of the track and the inside of the fence.

Special attention should be paid to the dressing accommodation, as unless this is good men will not care to train on the path, and it is, in most cases, the men training on the path who have most to do with its welfare and popularity with the public at large.

In the Appendix will be found some special rules for the governance of tracks, and should any novel features in tracks or track construction present themselves they will be fully dealt with in the same place.

CHAPTER X.

THE NATIONAL CYCLISTS' UNION.

A SPORT such as this of cycling, so wide-spread, so valuable from a health-giving and economic point of view, so distinct from all the minor branches of athletics, which have their Alpha and Omega in the competitions on the cinder path, and moreover, so easily applicable to the stern business of life, was not likely to remain for any length of time under feeble control ; and although at first promoters of ordinary athletic sports did not care to push forward the new pastime, the steadily growing interest in cycling gradually encouraged them to include races for bicyclists in their programmes, as these contests excited the widest interest and thus benefited the meeting in a pecuniary sense. Such clubs or bodies as then existed for the guidance of amateur sport were solely concerned with these path competitions, and the larger interests of cyclists were entirely overlooked. The Amateur Athletic Club of Lillie Bridge promoted a four miles championship, but beyond this nothing was done for the larger section of cyclists, the road riders ; and these latter, together with a number of well-known racing men, determined to create a governing body elected by cyclists to rule cycling.

This determination was preceded by many crude suggestions in the pages of the press devoted to the sport, some of them embodying in the proposed scheme the functions of the C.T.C. and N.C.U. combined, and others only touching on a small

portion of the work to be done. There are not wanting cyclists who think that, had an association been then formed combining the C. T. C. and N. C. U., the result would have been for the benefit of the sport; whilst another section cling to the belief that the healthy rivalry which existed between our two great associations in their youthful days was the reason of their splendid development, as shown at present by the power and prestige which both undoubtedly possess.

In the year 1876 a flood of correspondence, notes, &c., appeared in the cycling and sporting press, advocating the establishment of a legislative body for the governance of the sport of bicycling chiefly as regarded touring, bicycling being the only branch of cycling then existing. Mr. Murray Ford of the Temple B. C. took a prominent part in the discussion, with a number of suggestions. A number of other well-known men, amongst them being Mr. Walter Cornell of the Wanderers B.C., M. D. Rucker of the London B.C., Mr. J. W. Beningfield of the Pickwick B.C., Mr. F. Jolly of the London B.C., and many more gave the benefit of their opinions and experience. In the press many advocates were found, amongst them Mr. Stephen Richardson, and others who still take an active interest in the sport.

The first definite move was made in the winter of 1876-77, and a debate was held at the head-quarters of the Temple B.C. in March 1877, in which a number of the most prominent riders of the day took part. In the result a draft scheme was unanimously accepted, and the hon. secretary of the Temple B.C. was asked to convene a meeting of delegates from every club in the kingdom to assist in the formation of a National Association for the full control of the sport. Without doubt the successes of the Union may be traced to the fact that its origin was brought about at an open and honest meeting in which all who cared to be represented could take part, and thus the opinions of all who had any right to speak were obtained. The more formal meeting was called on April 30,

1877, and was well attended. It was perhaps natural that each of the larger bodies wished to claim the credit of having founded the great cycling association, and a good deal of care was necessary before this difficulty could be smoothed over. At length, however, a sub-committee was appointed, the first, but by no means the last, named by the then newly established body. This sub-committee did not make very much progress, and it was not until September 1877 that it issued its report, which mainly consisted of a resolution affirming that the London, Pickwick, Surrey, and Temple Bicycle Clubs had jointly agreed to establish the 'Bicycle Union' to meet an obvious necessity. The cycling clubs of the Universities, the Cambridge, and Dark Blue (Oxford) Bicycle Clubs were consulted, and Mr. G. F. Cobb, M.A., of Cambridge, whose able assistance and great influence were undoubtedly of inestimable value to the young association, took the chair at a meeting held on November 17, 1877, as the outcome of which the following circular was formally issued by the Hon. Secretaries of the now supreme ruling association of cycling :

At a meeting held at Anderton's Hotel, Fleet Street, on the 17th of November, present Mr. G. F. Cobb, chairman, and Hon. Ion Keith-Falconer, C. U. B. C., Messrs. M. D. Rucker, junr., and F. Jolly, London B. C., Messrs. J. W. Beningfield and John Nixon, Pickwick B.C., Mr. F. Honeywell, Surrey B.C., and Mr. W. McWilliam, Temple B.C., it was unanimously resolved 'That a prospectus of the Bicycle Union be published in all the bicycle journals, and a copy of it sent to the secretary of every bicycle club in the United Kingdom, with the request that those clubs which may be ready to join an union formed on this proposed basis should communicate with the secretary *pro tem.* of the Bicycle Union it possible before the 1st of July, 1878, and further name a delegate or delegates to represent them.' I append the prospectus and await your reply. The first general meeting will probably be held in January next.

The prospectus, which was drawn up at some considerable length, ran as follows :—

1. *Objects of the Union.*

The Bicycle Union shall be a means by which bicyclists can co-operate together (by representation) for the following and other purposes :—

1. To secure a fair and equitable administration of justice as regards the rights of bicyclists on the public roads.

2. To watch the course of any legislative proposals in Parliament or elsewhere affecting the interests of the bicycling public, and to make such representations on the subject as the occasion may demand.

3. To consider the existing relations between bicyclists and the railway companies, with the view of securing, if possible, some modification of the present tariff for the carriage of bicycles, and greater security in their conveyance.

4. To examine the question of bicycle racing in general, and to frame definitions and recommend rules on the subject. To arrange for annual race meetings, at which the Amateur Championship shall be decided.

2. *Proposed Constitution of the Union.*

1. That the Union shall consist of all such bicycle clubs as may be willing to join it.

2. That the method of representation be as follows :—(a) Every bicycle club having thirty active members to be entitled to a representative. (b) Every club having more than that number to be entitled to an additional representative for every additional complete fifty. (c) That clubs with less than thirty members be invited to combine for the purpose of electing a joint representative. (d) That the delegate of a club shall not *necessarily* be a member of the particular club he represents. Provincial clubs can nominate some metropolitan bicyclist as their representative. But the delegate should be in all cases a member of some bicycle club.

3. That the representatives thus selected be called the Council of the Bicycle Union, and it shall be their business to discuss the above mentioned and other matters as occasion may suggest, and to pass resolutions, and take action concerning them.

4. That the Council of the Bicycle Union shall elect a secretary, treasurer, and executive, whose duty it shall be to carry out and apply the resolutions and orders of the Council.

5. That the secretary be, if possible, a member of the legal profession.

6. That every club joining the Bicycle Union shall contribute annually to the funds of the Union a sum equivalent to a capitation charge on each member of the club, the amount of such charge to be fixed annually by the Council of the Union, such charge for the first year to be one shilling for every member.

This was the first programme of the Union, and although its scope has been widened and its plan enlarged, on the whole the policy so briefly outlined has been carried out as far as circumstances would allow. The influence of Mr. Cobb is to be recognised throughout, in the very wide and liberal lines on which this first prospectus is drawn. The most noticeable point about it lies in the fact that the Union then as now was so constituted as to admit professionals to membership, and thus secure a body representing not merely a section but the whole sport. This prospectus attracted but little attention in the provinces, where things were scarcely ripe for the new departure, but several London clubs joined, notable amongst them being the West Kent B.C., a club which gave to the legislative work of the cycling world Mr. W. B. Tanner, a gentleman whose good services both to the N. C. U. and C. T. C. cannot be overrated. The first formal general meeting of the Bicycle Union was held at the Guildhall Tavern on February 16, 1878, Mr. G. F. Cobb being in the chair, and at this meeting the general lines of the constitution were approved, and arrangements made for their complete establishment. Necessarily in a general scheme of such dimensions, especially when the minor points were settled by a number of men without any practical legislative experience in this particular line, there were many points which have required and received reconsideration during the course of practical work, and on one of these, the basis of representation, the first split occurred ; the West Kent and other clubs seceding from the young body to its very decided detriment as far as prestige went, but to its advantage in another way, for those who were left in put their shoulders to the wheel even more vigorously than ever, with a determination to fight the thing through and make it a success.

On March 14 another meeting was held, and the constitution of February, faulty as it was, confirmed.

Almost at once the great 'amateur question' came to the front, and although it at one time threatened to wreck the little body, it proved in truth its salvation. There was no recognised athletic authority in the South, and the Northern Counties Athletic Association was more of a defence league, only interested in keeping the professional element out of the sports of the clubs which formed it. Thus it happened that the Bicycle Union was the only body ruling an athletic branch of sport which claimed paramount authority in its own sphere, as it still does, and which was ruled solely by the voice of the majority.

The action of the young body made a strong impression on the lovers of sport, and secured for it the respect of many who would otherwise scarcely have taken any interest in its working. It was soon evident that the first question which the Union would have to take in hand was that of the amateur definition.

On May 11, 1878, the Bicycle Union adopted the following negative definition of an amateur: 'That a professional bicyclist is one who has ridden a bicycle in public for money, or who has engaged, taught, or assisted in bicycling or any other athletic exercise for money, and that a bicyclist who shall have competed with a professional bicyclist for a prize knowingly and without protest (except at a meeting specially sanctioned by the Union), shall also be considered a professional bicyclist. Any person not included in the above definition shall be considered an amateur bicyclist.' This definition, ignoring as it did the social qualification as regards the amateur athlete, gave rise to an immense amount of discussion, and the cyclists were threatened with ostracism by some of the older followers of sport.

Two very important clubs, the Wanderers B.C. and the Temple B.C., both withdrew their support from the Union, and the movements of certain athletic clubs made confusion worse confounded, threats of protest being heard on all sides against

the cycling division, who had thus taken this bold step in advance of the older branches of athletic sport. Like Lord Howard when he boldly chased the ships of the Armada without any powder, simply showing a 'brag countenance,' so the newly born association boldly faced the storm, and even left its intrenchments to encounter the foe in the open. Without altering its course or modifying its energy, the B.U., as it was conveniently termed, next attacked the Amateur Athletic Club Championship of Four Miles, declining to recognise it as a *bonâ fide* championship, and deciding to replace it by two championships of its own, the Two and Twenty-five Miles, which were duly brought off on May 11, 1878, at Stamford Bridge. Excellent contests ensued, the races being supported by the best riders of the day. The Two Miles fell to the Hon. Ion Keith-Falconer, of Cambridge, and the Twenty-five Miles to Mr. A. A. Weir, of the 'Dark Blue' or Oxford University B.C. The fact that the University men competed, owing doubtless to the influence of Mr. Cobb, had much to do with the ultimate success of the Union Championships. Up to this point the work of the Union had been nearly all internal amongst the cycling community, and comparatively plain sailing, but in July of this year the Highways Act, 1878, was brought before Parliament, and an amendment was proposed which would have entirely checked the use of the bicycle on the highways ; consequently the Union was called upon to act promptly. Mr. Hutchens, a member of the London B. C., accepted the post of solicitor to the Union, and by instant and energetic action eventually secured the rejection of the amendment, mainly through the good offices of Sir Henry Jackson, M.P. for Coventry (the home of the wheel), and of the President of the Local Government Board, Mr. Sclater Booth. This action did the now growing association much service, and the support accorded to it rapidly increased. With characteristic boldness, the Union then authorised a contest between the best amateurs and professionals of the day. The event came off on October 23 at Cambridge, when the Hon. Ion Keith-

Falconer beat John Keen in a five-mile race. It would be ungrateful not to record the fact that the countenance accorded to the Union by the Universities was of great value at this period, as the University athletes were strong enough, numerically and morally, to give great aid to any cause they espoused.

The association was now at leisure to turn its attention to internal reform. It was found that there were many outside riders who would willingly join if they could, and a modification of the constitution was absolutely necessary. It was felt that to be a truly representative body it should be open to all interested in the welfare of the sport. Four championships were instituted, at 1, 5, 25, and 50 miles, and in the year 1879 the whole four were won by Mr. Herbert Liddell Cortis of the Wanderers' B.C., the contests being all run off at Stamford Bridge. In this year the Union promoted three races between John Keen, the professional champion, and Mr. H. L. Cortis, the amateur champion, the distances being 1, 5, and 25 miles; Mr. Cortis won the first race at Wolverhampton, the 25 miles, but Keen won both the 1 and 5.

Up to the end of 1880 the Union continued to gather strength, but the support was all, or nearly all, obtained from London men, the provincial cyclists looking on the cycling body as purely a London clique, despite frequent disclaimers on the part of the officials. One source of trouble was the general meeting of the Bicycle Touring Club, held in London. At this meeting the discussion grew somewhat warm, as the original constitution of the Touring Club, like that of the Union, was by no means equal to its after development, and it unfortunately happened that certain unpopular resolutions were put forward by London men and regarded by the provincial members present as an attempt to secure for the much objected to 'London clique' some of the power of the then B.T.C. Thus a feeling of opposition to the Union was created which it took a long while to live down, but though the fears then entertained have since proved without foundation, the effect was the same as if they had been solid facts. It came to be

daily more obvious that the Union required the support of the vast number of cyclists scattered throughout the country, and the activity of the newly formed Amateur Athletic Association stirred the then officials of the Union to renewed action. In October 1880, therefore, Mr. G. L. Hillier, of the Stanley C.C., brought forward a scheme for the establishment of branches of the Union, under the title of 'Local Centres,' in various important districts of the country. The scheme was of course very much modified when it was first considered, but it was eventually adopted, the provisions of the original plan having been in the main adhered to. The N.C.U. 'Centre' is a practically autonomous committee charged with the control of a specified district and subject only to the ruling of the executive, elected from the delegates of the local centres themselves. The scheme was soon put into practical working order, Mr. Hillier being the first local centre secretary, and strong branches of the Union have been established throughout the length and breadth of the land. Many details of the scheme were, of course, found to be incomplete in practical working, but the general plan has proved an unqualified success, and the accession of numbers to the ranks of the Union has been very great, whilst the centres have sent good men to the council and have also worked in the most commendable manner for the true interests of amateur sport.

A network of centres extending over the whole of the country has now been established, and has proved of notable benefit to the Union. The centre formed at Bristol, for Bristol and the West of England, has simply assumed the completest control over the whole of its very large district. Birmingham has also a local centre which has done good service to the Union. It started the agitation for improved roads, which has accomplished so much to bring the ruling body of cycling prominently and favourably before the general public, and has always worked energetically for the furtherance of Union interests. In Liverpool the second local centre exceeds numerically the first one established in the district—which for reasons which need not now be specified was dissolved—and the

record of the body is excellent. In Newcastle, Manchester, Nottingham, Brighton, Portsmouth, centres of the Union also exist, and aid the cause of the sport. The organisation which has thus enabled the cyclists of the United Kingdom to work together in opposing any attempt to interfere with the government of their own sport has much to commend it.

When tricycling as a distinct branch of the sport began to come prominently to the front, the want of some ruling association for the tricyclist division was felt, and as the Bicycle Union was composed mainly of bicyclists, the tricycling section established a body of their own, under the title of the 'Tricycle Association.' As a number of the gentlemen connected with it had no practical acquaintance with the rules of sport, they were easily led into adopting a somewhat impracticable definition, and after a comparatively short independent existence, the Tricycle Association, led by its secretary, Mr. Boverton Redwood of the Finchley T. C., threw in its lot with the Bicycle Union, the combined associations being known by the somewhat cumbrous title of the 'Bicycle Union with which is incorporated the Tricycle Association.' The tricycling section at this time were mostly what are sometimes known as 'family men' and elderly riders, and these gentlemen were not sorry to relieve themselves of the necessity of attending committee meetings, and such like useful but irksome gatherings. The management naturally therefore fell into the hands of the younger men, mostly at that time bicyclists. Difficulties arose into the history of which, however, it would be worse than useless to enter. The election of the then Lord Bury to the post of president was marked as an era in the history of the Union, the president being a practical cyclist who took an active interest in the questions of the day. The desirability of having one governing body for the two varieties of the sport was apparent, and ultimately the Bicycle Union, acting on the suggestion of its president, decided to change its name and to adopt a title which would cover all classes of velocipedes, to use an old but comprehensive term. Accordingly in June 1883, after a lengthy debate,



S.T. DADD

A DANGER BOARD

the original style and title of the Union was changed to that under which it is now known, viz. the National Cyclists' Union.

This was both politic and necessary, as the Union at that time included in its ranks a large majority of tricycling clubs, and a still larger majority of tricyclists, who were attached to the various mixed clubs in the kingdom ; and thus the word 'bicycle,' which had long been an eyesore to the tricycling section, was replaced by a name which will cover every sort of cycle which may in the future be placed upon the market.

From October 1883, when the late Earl of Albemarle, then president of the N.C.U., assumed office, the work went on vigorously for 'the conservation of the interests of cycling,' to quote the oft-repeated phrase. At this period the opening of the public parks to wheel traffic was attracting much attention, and the president of the N.C.U. was successful in securing an experimental extension of certain privileges to all wheels, with results which were in every way satisfactory. County government and highway bills and other enactments, which might directly or indirectly affect the right of wheelmen on the roads, were carefully watched and action was taken when required. Dangerous gratings placed in the streets were reported on, and notices were issued to the vestries responsible for the arrangement, that they would be held liable for any accidents which might result therefrom. Danger boards were erected, in conjunction with the C.T.C., at the top of dangerous hills ; these 'boards' being solid plates of iron bearing the words 'To cyclists, this hill is dangerous,' and there is little doubt that these warning notices, which are now to be found all over the country, have been of material service to the large class of touring riders. A reserve fund for use in cases of severe emergency was established and taken charge of by Major-General Christopher, a member of the executive whose energetic efforts on its behalf are worthy of all recognition. The fund amounted in the spring of 1886 to some 300*l.*, and of course frequent additions are being made to it from time to time. Assault cases have been taken up with a considerable amount of success, due to

a great extent to the care which is exercised by the members of the executive who belong to the legal profession, prominent amongst them being Mr. Robert Todd of the Stanley C.C. The question of road repair, started by the Birmingham local centre, has developed into a work of absolutely national importance. Many roadways, since the old coaches passed away, have been allowed to fall steadily into disrepair, and no effort was made to keep them in anything like a sound condition. This decay reached its maximum in the Birmingham district, and cyclists and others who had the misfortune to traverse the roads in question found them in a perfectly disgraceful state. The Birmingham local centre therefore called a meeting of persons interested in the question, over which the Mayor of Birmingham presided, and the strange spectacle of the hitherto despised cyclist heading a motion of reform and supported by a number of horse owners and drivers, showed how wise and politic a step had been taken. The road surveyors were at first inclined to regard the matter as a piece of impertinence on the part of the cyclists, some of them remarking that they were not called upon to make the roads good enough for that class of machine ; but the result of an action brought on behalf of the Union against eight road surveyors at the Halesowen Court speedily convinced them that the cyclists were in the right, and held powers sufficient to compel them to do the work. Since then this fact has been brought home rather forcibly to the understandings of many similar officials, and the improvement in the roads in some places is very noticeable. Mr. H. R. Reynolds, of the London and Oxford Bicycle Clubs, has gone very fully into the question of the right method of road-making, and has in an able article in the 'Nineteenth Century' and in letters to the public and cycling press, pointed out how little the systems of Telford and Macadam are followed even on roads which are described as 'Macadamised.' In a pamphlet containing the gist of his remarks and advice, prepared at the instance of the N.C.U., Mr. Reynolds demonstrates clearly the savings in the rates which would accrue from an intelligent adoption of Macadam's system ; and shows further the

very expensive nature of the unsatisfactory methods now adopted. The result is that these facts are being daily brought before the most interested section of the public, viz., the ratepayers, and the day is not far distant when the persons who pay the piper will insist on the appointment of intelligent road surveyors, who are acquainted with the best and most scientific methods of road construction, instead of, as is too often the case, supinely permitting the election of any ignorant or careless person who will undertake to dump certain cartloads of rubbish haphazard over the highways. One of the surveyors who was interviewed by a Union official admitted that he had never heard of Telford or Macadam, and did not know who they were or what they had done.

In addition to these, and many other matters affecting the majority of the cycling community, the road riders, the Union also assumes control of cycle racing throughout the country. The most important item in the racing work of the N. C. U. is the promotion of the annual amateur championships, which are duly recognised in the world of sport, and have completely replaced all the previous competitions that claimed to confer the honour. The first championships were held at Stamford Bridge on May 11, 1878, the distances chosen being 2 and 25 miles. In the first heat of the shorter race Mr. G. F. Beck won somewhat easily from Messrs. W. T. Thorn and E. York, whilst the Hon. Ion Keith Falconer walked over in the second. In the final Keith Falconer led throughout, and holding Beck safe, won in 6 minutes 30½ seconds. The 25 mile race fell to Mr. A. A. Weir of the Oxford University B.C. in 1 hour 27 mins. 47½ secs.—a best on record at that date; 1878 saw the practical extinction of the 4 Miles Bicycle Championship hitherto promoted by the Amateur Athletic Club, and the Union then launched out in 1879, and established four bicycling championships, at 1, 5, 25, and 50 miles.

In 1882 it was considered advisable to establish a tricycle championship, and one was run over a distance of 5 miles, and won by C. E. Liles. In 1883 the championships for tricycling were increased to two, the distances being 1 and 10 miles;

whilst in 1884 three championships were run, 1, 5 and 25 Mile Tricycle Championships being established. A complete record down to 1894 of all the championships run will be found in the Appendix.

These events, the blue ribands of the cycling path, have yearly attracted more and more attention, and the best men of the year are usually to be found competing. One of the most interesting of the great races of the past was the 25 Miles Tricycle Championship. On its first establishment in 1884 it was contested at Lillie Bridge upon the new track, and a very representative entry was secured. The race fell to C. E. Liles. The pace was very fast from the first, and record was beaten from the 12th mile. In the 16th mile Liles drew away from Webb and established a long lead, and at one time looked as if he was going to lap his opponent, but in the 19th mile it was Liles' turn to become weak, and this, with a touch of cramp, made him go slowly. Webb's friends seeing this encouraged the latter, and he made a desperate effort to overtake Liles, who, however, got better in the 22nd mile, and riding with great determination to the end won by 19 seconds.

In 1885 the 25 Miles Tricycle Championship run at the Crystal Palace again afforded the spectators a rare treat, and as record was made the year before, so was record again beaten on this occasion. An excellent entry was secured, no less than 14 riders, comprising the pick of the cycling world, facing the starter. John Lee of Clay Cross dashed away as the pistol cracked, and was soon cutting out the running at a fast pace, whilst from amongst the crowd the brown headgear of the University man (Gatehouse), and the flaming red jockey cap of English, from Tyneside, were to be seen creeping cautiously to the front; Cripps, capless as usual, and Cousens, with a white handkerchief bound round his head, were also early to the fore, and this quintette raced rapidly away from the rank and file. John Lee secured the two miles record, 6 mins. 21 secs., and Robert Cripps the three miles record, 9 mins. 38 secs. But English and Gatehouse, though not letting their men get away from them, were yet riding carefully and without the sharp

sputing which the others had indulged in. At six miles the pace had begun to tell seriously, Cousens, Cripps, Sid Lee, and others tailing off; whilst George Gatehouse, coached by his trainer Charley Wilson, was forcing the running at a fast but regular pace. Occasionally one or other of his opponents would spurt by him and get a few yards ahead, but his steady and powerful style very soon caused the leader to fall back and again resign the post of pacemaker to him. At 11 miles record again began to fall, Cripps beating the previous figures by 16 seconds, whilst Gatehouse without an undue effort secured the 12th mile; English the 13th, and then Gatehouse the 14th, 15th, 16th, and 17th miles. He covered 17 miles 986 yards within the hour, another best on record. The 21st mile fell to English, and then Gatehouse scored every mile up to the finish. At 22 miles only English and Gatehouse had a chance, and both were riding with due caution, Gatehouse cutting out the pace and the North Shields man waiting on his hind wheels as lap after lap was reeled off. The spectators, who formed a goodly crowd, were worked up to fever heat. At three laps from home Gatehouse bent to his work, and to the horror of his friends appeared to make his effort, crowding a lot of pace on and riding as if he imagined that it was the last lap. English, on the other hand, very cool and collected, hung on to him, and those who had been predicting a win for the Cantab began to feel rather uncomfortable. Two more laps were called, and still Gatehouse was swinging along as if he were bent upon settling himself before the final rush, but a very happy smile at Furnivall, who cheered him from the rails, revealed the fact that he had not as yet overdone it. English, on the contrary, looked rather drawn; and the excitement grew in intensity as the men dashed round the far side and came rushing round by the dressing-room. 'Last lap!' is cried, the bell rings, when with a marvellous if ill-timed effort, English rushes up outside the leader, and the hearts of the Cambridge men sink as he slips past Gatehouse before the latter appreciates what has happened, and takes the inside berth. But for once in a way the big Tynesider has made a mistake. Gatehouse pulls himself

together and, riding in possibly better form than he has shown all through, hotly pursues English. As the pair approach the wide clump of tall reeds which momentarily hide the competitors at the Crystal Palace track from the occupants of the grand stand, Gatehouse is seen to be riding hard—they disappear, and there is a momentary pause of expectancy, then a loud shout of applause, as Gatehouse emerges with a slight lead of English. Neck and neck the two men approach the entrance gate, 200 yards or so from the finish, English riding very wide by accident, and driving his opponent's off wheel on to the turf. Then, with a well-saved effort, Gatehouse draws out and wins one of the most exciting races by nearly 20 yards in 1 hour 26 minutes 29 $\frac{2}{3}$ seconds, a best on record.

Anyone who attains the highest honours of the racing path under the auspices of the Union must show to perfection every quality necessary in a racing man.

In its dealings with the racing path the N.C.U. was brought, early in 1885, into hostile contact with the Amateur Athletic Association. The Liverpool local centre of the Union had been for some time in a dissatisfied state, its rulers claiming for it the exercise of powers which would have made it practically independent of the supreme executive, and as such a policy could by no means be recognised, the executive felt bound to refuse the powers asked. These and other events produced an estrangement between the Metropolitan body and the first Liverpool local centre, whose members concerned themselves mostly with racing matters in the Liverpool district.

Into this bygone dispute, and the circumstances which led to the summoning of a general meeting of the A.A.A. Committee at Anderton's Hotel on January 16, 1886, it would be unprofitable to enter. On that date, however, important events took place. A treaty was duly agreed to, securing to the N.C.U. all the points it claimed. This treaty recognised the right of the Union to rule cyclists, as such, and this was and is the sole claim which the N.C.U. made in this matter, and the position of the N.C.U. is now most fully admitted on all hands. The rules of the body run as follows :



THE LATE EARL OF ALBEMARLE, K.C.M.G.

President of the National Cyclists' Union

REGULATIONS FOR THE GOVERNMENT OF RACE MEETINGS HELD
UNDER THE RULES OF THE N.C.U.

It is strongly recommended that all Competitions be confined to Amateurs

ENTRIES.

1. All cycle races shall be held under the rules of the National Cyclists' Union.

2. The committee reserve the right of refusing to receive, and having received, of cancelling any entry before the start, without giving any reason for so doing. All entries shall be accompanied by the entrance fee, but in case any entry shall have been accepted without the fee, and the competitor shall refuse or neglect to pay it when called upon to do so, whether he actually ride in the race or not, he shall be liable to suspension.

3. Competitors in handicaps shall be required to send, with their entries, a statement that they are amateurs according to the definition of the N. C. U., and also full and definite particulars of their last three performances. Furnishing false, misleading or incomplete information shall be a ground for disqualification, and in the event of a prize being won, will render the winner liable to prosecution.

NOTE.—*It is recommended that the N. C. U. entry forms (obtainable at the rate of 2s. 6d. per 100 at the Offices, 17 Ironmonger Lane, E.C.) be used, as they suggest clearly what information is required by the handicapper.*

4. All entries must be made and races run in the real name of the competitor.

PRIZES.

5. All prizes should be purchased *prior* to the date of the meeting, and when practicable, engraved with the name and date of the meeting.

6. It is recommended that no prize be offered above the value of ten guineas ; except for challenge cups or shields or the like, which have to be won more than once in order to become the property of the winner.

7. Clubs or others offering challenge prizes, subject to a guarantee for their return, must, if required, state explicitly to each intending competitor the exact nature of the guarantee required, and

in case any difficulty shall arise in arranging the terms, the decision of the N. C. U. executive in the matter shall be accepted by all parties as final.

ATTENDANTS.

8. One attendant only shall be allowed to each competitor in any race, but no machine other than a bicycle shall be started by an attendant.

9. The judge shall have power to act as he may think fit in cases of misconduct by attendants.

PROTESTS.

10. Any objection respecting foul riding, starting off a wrong mark, or other such like offence, committed during the race, shall be made to the judge as soon as possible after the heat, and before the distribution of prizes ; and all other protests against competitors, respecting their status as amateurs or otherwise, must be lodged with the committee before the prizes are distributed, and if possible before the race is run.

11. All protests must be made in writing, signed by the objector, and accompanied by a deposit of 5s., which will be forfeited if the protest be considered a frivolous one.

12. In the event of a protest or objection being lodged against a successful competitor, his prize shall be withheld until the judge or committee, as the case may be, shall have decided whether he is, or is not, entitled to the same. In the latter case, the first prize shall be given to the second man, the second prize to the third man, and so on.

STARTING.

13. A bell shall be rung before each heat ; and after sufficient time has been allowed for competitors to get to their allotted marks, a start will be effected.

14. No competitor shall be allowed to start unless he wear half sleeves and complete clothing from the shoulders to the knees.

15. Attendants, when pushing off competitors, must keep *both* feet behind the mark from which the competitor actually starts. Should the attendant cross such mark with either foot while starting such competitor, the competitor shall be liable to disqualification.

16. In starting, the *foremost part* of the competitor's machine

in contact with the ground, must be placed *on* that mark from which the competitor actually starts.

17. Any competitor shall be at liberty, with the consent of the judge, to start from a mark behind the one allotted him in the race; but in such case, as in all others, the point of contact of the foremost part of the machine with the ground shall be considered the starting mark, which the attendant shall not overstep.

18. Any competitor starting before the signal may be put back, at the discretion of the starter, not exceeding 10 yards for the race in question; and on a repetition of the offence, shall be disqualified. It shall be the duty of each competitor to see that he starts from his proper mark, and in default he may be disqualified for the race in question. A competitor, upon being disqualified, shall forfeit any fee or fees he may have paid.

19. As far as possible the times on the programme shall be adhered to, but no heat may be started *before* the stated time except with the consent of all the competitors in such heat.

20. In all races where more than one competitor starts from the same mark, lots shall be drawn by the competitors, who shall take precedence, counting from the inside of the track.

ENCLOSURE.

21. None but the officials of the meeting, the press, the competitors and attendants, shall be allowed within the enclosure, except by special permission of the secretary of the meeting.

22. Competitors and their attendants shall be allowed within the enclosure only during the time between the heats preceding and following that in which they are engaged.

GENERAL RULES.

23. The committee have no power to alter handicaps, after having received them from the official handicapper.

NOTE.—*It is recommended that the N. C. U. handicapper for the district be employed; and that entries for handicap races be closed 14 days before the race.*

24. Every competitor will receive, in the dressing-room, a ticket bearing a number corresponding with his number on the programme, which ticket must be worn by him in a conspicuous place during the race. It is recommended that in all cases the

ticket should be placed on the *back* of the competitor or of his machine.

25. Competitors may dismount during a race at their pleasure, and may run with their machines, but they must keep to the extreme *outside* of the track whenever dismounted.

26. A competitor overtaking another must always pass on the outside of the track (unless the man who is passed be dismounted or has retired from the contest), and must be a clear machine's length ahead before taking ground in front of his opponent. The inside man must allow room for his opponent to pass, and any competitor guilty of foul or unfair riding shall be liable to disqualification.

27. If a machine becomes disabled in the course of a race, the rider shall be allowed to use another, provided the substituted machine be not disapproved of by the judge.

28. The committee reserve the power of postponing all or any of the races in cases where they think it necessary. On no account will entrance fees be returned, or expenses allowed, to any competitor in case of such postponement.

29. The committee reserve the right of adjudicating on any questionable entry and on any other point not provided for, and of making any alteration in the programme that they may deem necessary.

30. All tracks shall be measured 12 inches from the inner side of the path, and all races shall be run left-hand inside when possible.

31. The finish of all races shall be judged by the *first part of the machine which touches* the tape, which shall be fastened flat on the ground, at the winning post.

OFFICIALS.

32. The officials shall consist of judge, umpires, starter, time-keeper or time-keepers, clerks of the course, lap-scorers, and the members of the race committee (including the secretary of the meeting).

33. It shall be the duty of the judge to declare the placed men in every heat; to instruct the umpires; to give judgment on protests received by him; to act as he may think fit in cases of misconduct by attendants, and to disqualify any competitors who have become liable to disqualification. His decision shall in all cases be final.

NOTE.—*As under these rules the duties of the judge are of a most important character, an experienced rider should be chosen for the post.*

34. The judge shall have the power of refusing to allow any person to act as attendant who has infringed the rules, or refused to submit to his ruling.

35. In starting scratch races, the judge shall give his instructions to the competitors and attendants, and shall see that the men are placed in position, after having caused them to draw lots; and every competitor shall go to the mark so drawn, and any refusing to do so shall be liable to be disqualified by the judge.

36. It shall be the duty of the umpires to watch the riding, and to report to the judge any competitor or competitors whose riding they consider unfair; and it shall also be the duty of the umpires to watch the starting, and to report to the starter any competitor or competitors whose starting they consider unfair.

37. It shall be the duty of the starter, when it has been reported to him by a clerk of the course that all the competitors are ready, to see that the time-keeper is warned, and before starting the men to say 'Mount,' in a few seconds after to say 'Are you ready?' and if no reply to the contrary be given, to effect the start by report of pistol.

38. The starter may, at his discretion, put back, to a distance not exceeding 10 yards, any competitor starting before the signal is given, and on a repetition of the offence shall disqualify him.

39. In case of a false start, the competitors shall be called back by the starter and re-started. Any competitor refusing to obey the starter shall be at once disqualified by him.

40. All questions as to starts in handicap races shall be in the absolute discretion of the starter.

41. It shall be the duty of the time-keeper or time-keepers to take the times of the first in each heat, and such other times as the secretary of the meeting may have previously arranged.

42. It shall be the duty of the clerks of the course to call over the names of the competitors in the dressing-room before the starting of each heat; to ring the bell shortly before the time that each heat should be started, and at the commencement of the last lap in each heat; and to see that the competitors are on their appointed marks, and have their numbers properly exhibited.

43. It shall be the duty of the lap scorers to check the number of laps ridden by every competitor, and to give the distance ridden

by any competitor at any point when requested to do so by time-keeper or judge.

44. It shall be the duty of the race committee to appoint the officers, to conduct generally the business of the meeting, and to adjudicate on any points not provided for.

45. It shall be the duty of the secretary of the meeting, under the direction of the committee, to see that the various officials are at their respective posts before the first race is started, to provide for any contingency that may arise, and generally to conduct the meeting.

46. The judge, umpires, starter and time-keepers shall not be permitted to compete in any race with which they are officially connected.

47. The judge and starter shall have the power to disqualify competitors without any protest being lodged by any other competitor.

The foregoing regulations are subject to revision by the executive of the N. C. U., which reserves to itself the right of adjudicating on any case of dispute or appeal.

NOTE.—*In all races stated to be held under the rules of the N. C. U., it shall be assumed (unless otherwise duly appearing) that the foregoing regulations are in force, and applicable.*

DEFINITIONS OF MACHINES.

The following machines are eligible for cycle races held under N. C. U. rules :—

1. *For Bicycle Races.* Any two-wheeled one-tracked machine, carrying one rider.

2. *For Tricycle Races.* Any machine three or more wheeled, two or more tracked, carrying one rider.

3. *For Safety Bicycle Races.* Any two-wheeled one-tracked machine, carrying one rider, and fulfilling the special conditions laid down by the race committee or promoters of the sport.

4. *For Tandem Bicycle Races.* Any two-wheeled one-tracked machine, carrying two riders.

5. *For Tandem Tricycle Races.* Any three or more wheeled, two or more tracked machine, carrying two riders, seated one directly behind the other.

6. *For Sociable Tricycle Races.* Any three or more wheeled two or more tracked machine, carrying two riders, seated side by side.

7. *For Double Tricycle Races.* Any three or more wheeled, two or more tracked machine, carrying two riders.

Note.—No machine which cannot be included in one of the above classes may be used in cycle races held under N. C. U. rules.

Any rider desirous of using a machine in any class of other than one of the patterns now ordinarily recognised in that class, must obtain permission to do so from the executive of the N. C. U.

DEFINITION OF A NOVICE.

A Novice, or person eligible to compete in a Novices' or Maiden race, is a rider who has never, up to the time of starting in such race, won any prize in any cycling race other than a race confined to members of his club. In any qualified novices' race such as a race open to those who have not won a first prize, the definition of a novice as contained in the foregoing definition shall still be held to apply, so far as circumstances admit.

CHAPTER XI.

THE CYCLISTS' TOURING CLUB.

THE Cyclists' Touring Club was originally founded on August 5, 1878, as the Bicycle Touring Club, being the outcome of a number of letters and suggestions which had from time to time found their way into the Cycling Press. The Bradford Bicycle Club and a number of north country clubs took up the idea with characteristic energy, and under their auspices Mr. Stanley J. A. Cotterell as honorary secretary was enabled to get the new association into shape, and to carry it on for some time. Its very rapid growth, however, soon caused it to outgrow the original scheme, and a certain amount of laxity having crept into the administration, troubles were frequent, and the Bicycle Touring Club, as it was called, was not growing at the rate that it should have done. Changes were tried; new secretaries were appointed, many efforts were made to carry the club over the dead point, till at length, after some stormy meetings, the work was done, and the Bicycle Touring Club began to go ahead on the new basis. Mr. Walter D. Welford was for some time secretary, and under his care the club prospered; but history repeated itself, the machinery was found inadequate for the full discharge of the business required of it, and there again occurred dissensions and troubles, until at length it became obvious that another move would have to be made. The club had long possessed an organ known as the 'Monthly Circular,' and this, after being edited by Mr. E. R. Shipton for some time, was on his sugges-

tion named the 'Gazette,' enlarged, and made into what is practically a monthly club magazine. The work of the honorary editor soon became practically overwhelming, and Mr. Shipton, in justice to himself, was contemplating the resignation of the office, when the train of circumstances above alluded to brought matters to a crisis. A new secretary was wanted, and just when the council were at their wits' end to find a suitable and trustworthy man, it was ascertained that Mr. Shipton would be open to an offer. Seeing that this gentleman was already well known to the council for his very complete acquaintance with the work of the club, and also for his untiring energy in the discharge of his honorary duties, there need be little wonder that they soon came to terms with him, and he was duly installed as secretary and editor of the Bicycle Touring Club. Since then Mr. Shipton has conclusively demonstrated his fitness for the post, and the prosperity of the Cyclists' Touring Club may be dated from his accession to office.

As it at present stands, the Cyclists' Touring Club is one of the largest athletic associations in the world. Its objects are best set forth in the prospectus of the club, which runs as follows :

As an essentially conservative nation, it is hardly a matter for surprise that Englishmen should have received with suspicion, which rapidly degenerated into factious opposition, the advent of the bicycle a decade and a half ago. Anything that tends to antagonise with the cherished traditions and old-fashioned habits of the average Britisher, is, by the more unthinking sections of the community, speedily condemned, aye, even without a semblance of a fair trial ; and it therefore need hardly be wondered at that a mode of progression hitherto almost unheard of, and which ran counter to all preconceived methods, should have met with disfavour almost as soon as it was introduced. The dogged and unreasoning opposition of one section of society is, however, generally counterbalanced by the equally characteristic determination of a second section to adhere to its opinion 'though the skies should fall,' and it fortunately happens that the art of bicycle riding was no exception to the general rule. A few of its persistent adherents remained steadfast in the belief of the capabilities of the

new invention, and when by a combination of fortuitous circumstances the wooden-wheeled vehicle of a dozen years since was superseded by the suspension and rubber-tired bicycle (which with countless improvements in detail remains in principle the same machine to the present day), the future of the two-wheeler was assured.

With the establishment of a new pastime or sport, it was not long ere the shrewder of the people became alive to the advantages that followed in its wake, and that might, with a little ingenuity, be diverted into their channel. Foremost amongst these was the hotel proprietor in the country town, whose receipts had gradually diminished since the octopus-like feelers of the railway had penetrated into the district, and diverted the traffic which formerly brought with it a handsome competence to himself and to the keeper of each roadside hostelry. Recognising in the tourist on foot or on horseback a legitimate subject for the extortion of 'back-sheesh,' the same generous line for argument was extended to the touring wheelman, who, with hundreds of followers, was scouring the country in every direction in search of the novel, the grand, and the beautiful, whenever opportunity offered. Nor was this drawback the isolated *bête noire* of the cyclist, for the ill-concealed antipathy, culminating at times in undoubted brutality, of the remainder of the road-using community, who knew little of the capabilities, and less of the advantages, of the new method of locomotion, was a patent and glaring concomitant. Added to these came the difficulty of obtaining reliable information of the nature of the route ahead—a route that often became treacherously un-serviceable—so that, to commit a plagiarism as well as concoct a parody, 'The rider's lot was not a happy one.' The old adage, 'Tis a long lane that has no turning,' proved, however, to be applicable even here, and it was not long after the real resources of the steel steed were indubitably proved that there sprang into existence an organisation, the name of which is now a household word in every clime. Commencing with a desultory correspondence in the press which the new sport had called into existence for its own especial interest, a league or brotherhood, called the 'Bicycle Touring Club,' was, at the North of England Meet held at Harrogate, Yorkshire, on August 5, 1878, inaugurated.

The leading objects of its programme are :—

To encourage and facilitate touring in all parts of the world.

To protect its members against unprovoked assaults.

To provide riding or touring companions.

To secure and appoint at fixed and reduced rates hotel headquarters in all parts of the country.

To enlist the co-operation of a leading wheelman, who should act as a Consul in every town, and who should render to his fellow-members local information of every description.

To inculcate and encourage an *esprit de corps* among the followers of the wheel, similar to freemasonry in social life.

When the B. T. C. was formed, some four years and a half ago, the only pedomotive carriage which had approached such perfection as to warrant one in supposing that it would establish itself as a permanent means of locomotion, destined to aid, if not entirely revolutionise, the somewhat tardy movements of mankind, was the bicycle—a machine, as its name implies, of two wheels only; but the pleasures of the new method of transit once partaken of, what wonder was it that the inventive genius of our mechanical experts sought to solve the problem of throwing open the practice of wheeling to every age and temperament, and to the able-bodied among both sexes? The difficulty once surmounted, it was still less a matter for surprise that the safer, if somewhat slower, machine—the tricycle—appealed irresistibly to thousands of gentlemen of mature years and methodical habits; to the Clergyman, the Doctor, the Lawyer, and every professional man, any and all of whom would have deemed—without good reason, if you will, but still not unnaturally—that the bestriding of a bicycle added not to their dignity of deportment; and to ladies of lethargic dispositions and retiring proclivities, to whom the art of cycling had hitherto been a sealed and unintelligible volume, beckoning each to share in the blessings Hygeia, the goddess of our pastime, was waiting to shower broad-cast upon all comers.

Cycling, as a national sport, to be indulged in by every class of the community, from the Queen upon the throne to the plodding artisan, has already taken a tenacious hold upon the sympathies of all unprejudiced people, and it is, perhaps, not too much to say that if the day has not already arrived, it is steadily and surely approaching, when, given a moderate endowment of health and strength, every soul within the confines of civilisation, where passable roads are by any means obtainable, may upon some one of the many modifications of the steel steed, in solitude or in company, participate in this health-giving means of locomotion. These postulates being admitted, it has recently been, by a large majority,

decided that the B.T.C. shall adopt a more comprehensive title—that of the Cyclists' Touring Club.

The advantages of membership in it may be roughly summarised thus :—

1. An unattached cyclist, who, until now, has been unable to avail himself of the company of other riders on a tour, may reckon with certainty on getting a companion suitable to his tastes, should he desire one ; whilst he will have the satisfaction of knowing that he is one of a large body bound together by the ties of good-fellowship—a body whose sole object is the encouragement of all that is admirable in the art of wheeling.

2. In small towns where there are insufficient riders to form a local club, it is becoming customary to seek admission to the Cyclists' Touring Club, when the members really form a kind of sub-division, and enjoy club privileges without the outlay attendant on belonging to a local club, such as cost of special uniform for a few only, rent of club rooms, &c. &c.

3. It is *par excellence* the club for professional men. It not only includes in its roll many of the nobility and gentry in all parts of the land, it is supported by some of the highest dignitaries of the church, by members of the legal, medical, military, and naval professions, and indeed by amateur riders of any and all of the numerous types of cycles now in daily request, who produce credentials showing that they belong to a respectable station in life. Membership in it combines all the manifold advantages of belonging to a local club with none of the disadvantages.

4. Clubmen readily join, not only to receive company on a tour, and guidance and advice from the local Consuls, but to avail themselves of the admirable arrangements the Council has made with hotel proprietors throughout the country, whereby any member can calculate with tolerable certainty the cost of any proposed run ; and, better than all, can feel assured that at the different towns on his journey he will not only meet with civility and comfort, but he will be charged, at the hotels selected by the Cyclists' Touring Club, so moderate a tariff that he must inevitably save his subscription many times over on a run of only moderate length.

To follow the progress of the club, and inquire how far it has fulfilled its mission, is merely to quote facts historical in the world of wheels. Essentially an utilitarian institution, at the present moment it boasts nearly 23,000 members, 1,030 consuls, and 2,160

hotel head-quarters and recommended inns ; while added to this, it has successfully supported claims for redress in the case of its members who have suffered gratuitous insults and unprovoked assaults on the road, and combated the inequitable charges levied for the carriage of the rider's steed by the railway companies. Its teelers have penetrated the Continent, as well as encircled our island home, and it may be safely asserted that the time is fast approaching when the rider of the iron horse, in any of its manifold modifications, who has emerged from his novitiate without hearing of the Cyclists' Touring Club will be a living curiosity. The subscription to its funds is altogether incommensurate with the benefits it confers, and it behoves every lover of our sport to lend it his steadfast patronage.

The promises of this prospectus are most fully carried out, and the cyclist who only tours for a few days in each year will derive the fullest benefit from membership. Putting aside the question of routes, the mere fact of a cycling consul being found in every town is of the greatest service to the rider who wants assistance or advice. The hotels chosen are in the majority of cases the most suitable for the use of the touring wheelman, although, of course, mistakes do occasionally occur. A complete and exhaustive hand-book is published, containing all the information as to hotels, consuls, repairing places, and so on, and each member of the club is thus enabled to go through the country without any assistance but this valued little guide-book.

The Cyclists' Touring Club cloth for uniforms is a most carefully chosen one which has stood the test of several seasons' wear, whilst the Club flannel is also very popular. The ladies' costume, which was decided upon at a specially called meeting of the lady members of the club, has proved very successful, and this is an especial boon to lady novices, who in the past were often sadly at a loss to know what to wear.

The consuls of the Cyclists' Touring Club, as the local representatives are called, are now co-operating in the production of a road-book, and as each official will send to the editor a *résumé* of those roads only with which he is most intimately acquainted, the result cannot fail to be very valuable ; and

as the writers are all users of the lightest vehicles on the highways, their acquaintance with the roads is bound to be of a most intimate character. The Cyclists' Touring Club has also co-operated actively with the Union in the very necessary work of erecting warning notices at the tops of dangerous hills, and also in the great effort at road reforms which the two bodies have been carrying on with such vigour of late. The institution is thus doing good public work, but its main policy is to look after the interests of its members, and this it does most fully. The Cyclists' Touring Club has its offices at 14c Fleet Street, and is a body which every rider should support.

CHAPTER XII.

CONSTRUCTION.

PART I.—MECHANISM.

WHEN the first edition of this book was published there were many patterns and designs in bicycles, tricycles, and double machines, and a long chapter was devoted to the explanation and discussion of their peculiar points ; to-day such elaboration is unnecessary, for the cycles used by the vast majority are all much upon the same lines, built from much the same patterns as regards their plan, and generally assimilating to the one type, the rear-driving safety bicycle. This type has been in the main made possible by the air tire, and will, as far as can be judged, remain for a long time the standard pattern of the bicycle.

Before a rider can be considered thoroughly competent for the pursuit of the sport, more especially as to the touring side of it, he must of necessity know something of the construction and mechanism of the machine he rides, and he should also possess sufficient general knowledge of the working parts and their functions to be able, on an emergency, to put them right enough to insure at any rate a certain amount of safety in case of accident. The general intention of this chapter is to describe the various parts of the machine and their uses, the proper methods of adjustment, and the commonest accidents which occur to them.

Preparatory to dissecting the various parts of the machine, the first thing will be to name them correctly, and for this purpose fig. 5, 'a roadster bicycle,' has been inserted.

This may be conveniently divided into two parts : 1. The frame ; 2. The wheels.

The frame consists of the tubular pieces, marked A A A, fig. 6 ; all running into strong joints at the pedal bracket, and steering sockets ; B is the saddle standard conveniently known as the ' L pin,' this part having been in the shape of an inverted L in the earlier types of cycle—on B is placed the spring and saddle or combined spring-saddle C, fig. 5. D D is the steering head part of the tubular frame, through which passes the rod or tubular connection between the forks and

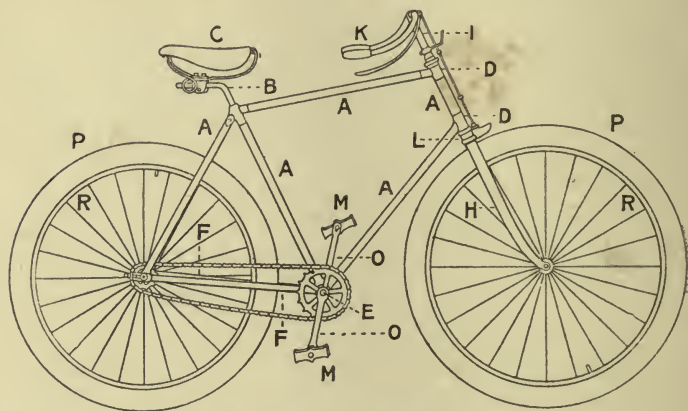


FIG. 5.—A ROADSTER BICYCLE.

handle-bar, whilst at the point E the tubes meet in a central boss, which retains the name bestowed upon the corresponding part of the frame in the earlier tricycles—the bracket—sometimes it is termed the bottom bracket. The tubes F F are now for the most part built into the frame, though in a few makes they are simply stays, and that is the title by which they are now known. This, then, is the frame of the bicycle (fig. 6). As made to-day it is marvellously strong for its weight ; all its parts have been the subject of careful study and experiment, and it is difficult to see in what direction it can be materially

improved. A part of the frame—but not solid with it—are the steering handles, head, and front forks marked κ , l , and H in fig. 5. The retention of the word 'head,' used originally in connection with the ordinary bicycle, is common, though 'steering pillar,' a more modern phrase, better describes the arrangement.

The front forks H , fig. 5, run into the 'crown' L , which in its

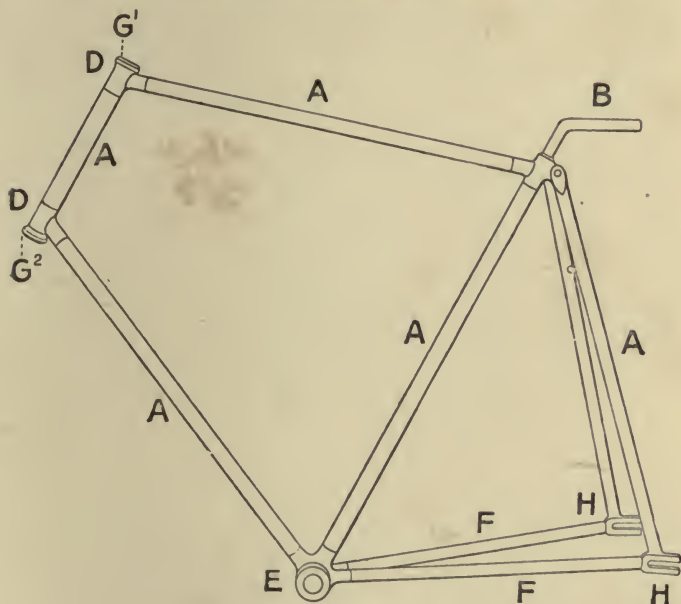


FIG. 6.—THE FRAME.

turn forms part of the attachment to the steering pillar l , and the top of this carries the handle-bars and handles κ .

The wheels need not be indicated further: mm are the pedals, placed upon oo the cranks; pp are the tires, placed upon rr the rims.

The steering head or hinge $D D$, figs. 5 and 6, upon which the whole machine turns, is a development from a long series of

heads, designed to meet the varying developments of the cycle, and to stand the very considerable strains necessarily thrown upon it. The appended illustration shows the earlier form of head adopted by the Coventry Machinist Company—one of the oldest cycle-making concerns.

Figure 7 shows the original head first used on velocipedes, and known as the 'socket head:' (1) shows the head complete as it used to be turned out by the Coventry Machinist Company on the 'Gentleman's Bicycle.' HH the backbone and backbone head. In this case the backbone head was placed outside, and carried in front a projection, on to which

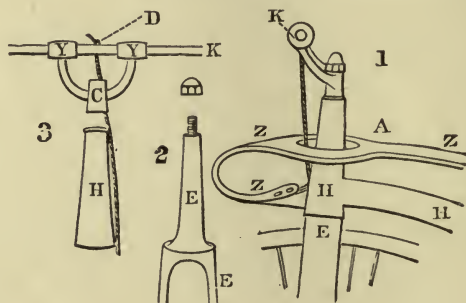


FIG. 7.—THE SOCKET HEAD.

was fastened the old 'bow spring,' z z. The front forks E E, also shown in (2), were continuous with a coned spindle, which passed through the backbone head, which was bored with a conical hole to admit of an adjustment theoretically claimed, but hardly practically possible. The spindle head of the forks E, having been well lubricated, was passed through the backbone head H. The bracket c (3) was then placed over the top of the spindle, and a nut being screwed down upon the bracket on the top of the spindle as shown in (1), the socket head was complete. The handle-bar passed through the lugs y y, in which it revolved to wind up the cord of the break D. The old socket head allowed the wheel to

turn right round, and when a fall occurred the wheel often did so, and nipping the rider's leg between the backbone and the rim, caused a very dangerous complication which sometimes resulted in a broken limb. At the same time the theoretical method of taking up any looseness proved to be very inadequate in practice; the coned spindle wore fore and aft, and would not admit of adjustment, which, if attempted, simply caused it to bind, and thus made it absolutely dangerous in practical work; and then some genius invented the 'Ariel Head,' fig. 8. Even now certain firms—the Referee Company for example—fit a modified Ariel head

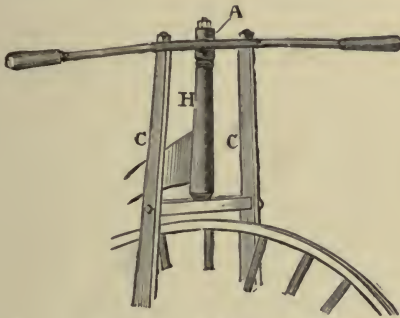


FIG. 8.—THE ARIEL HEAD.

to their safety bicycles, as it is a very strong and steady head, and is moreover easily cleaned and oiled. A is the adjusting screw, H the backbone head, and c c the forks.

In the best types of rear driver the steering head is mounted on ball bearings, the ball-cups being shown at G¹ G², fig. 6, and the adjustment is effected in various ways from the top of the steering head. It is advisable for the user of a cycle to get the adjustment of this steering head fully explained at first, so that should such an operation become necessary it can be easily effected. The cones, or rather coned surfaces, upon which the balls run in either end of the frame end can easily be seen, and by screwing, or otherwise bringing the top loose cone down

upon the top row of balls, the steering is steadied and any wear adjusted. The matter is a very simple one, but care is necessary not to over-tighten the head. Play in the head may be detected by pressing the ball of the thumb firmly on the point at the top of the steering head where the frame and adjusting cone meet, and then jerking the machine backwards and forwards by the saddle.

Any slight movement will be easily detected, but, as in the rear-driven safety, weight on the saddle tightens the steering, whereas in the old bicycle it had a tendency to loosen it. A slight amount of play is no drawback, but a head too tightly screwed up is a great drawback in every way.

THE BEARINGS.

The bearings are a very important item in the machinery of bicycle or tricycle, seeing that on them to a very great extent depends the easy running and practical working of the vehicle. The earliest bearing was, of course, simply a hole in the frame through which the axle ends were thrust, but the oil caught the flinty grit of the road, and soon produced wear, which upset the whole arrangement and necessitated the renewal of an integral part of the frame. This of course suggested to the constructors of the earliest velocipedes that some arrangement would be necessary to provide against this wear, and so they hit upon the expedient of fixing two adjustable and removable blocks of steel or gun-metal on the ends of the forks, through which the axle passed. This simple plan, of course, possessed many disadvantages. The strain of the pedalling and the lateral twist of the bearings, but ill supported by the thin and inadequate forks of that date, caused any amount of irregular wear, and plain or parallel bearings as they were called were soon improved upon. This time the coned bearing was introduced, which, as its name implies, was constructed of a coned shape, the axle ends being similarly arranged. The disadvantages of the coned bearing were a tendency to lock if carelessly

manipulated, and the very awkward results of irregular wear, which could only be provided against by frequent and careful adjustments.

For some time bearings remained stationary and unimproved, but inventors were of course at work, and at length the ball bearing was introduced to the cycling public.

The ball bearing, as its name implies, is a device in which the wearing parts of a machine are so fitted as to run accurately upon a row of carefully made steel balls held in a suitable groove in the case.

The result of this arrangement satisfactorily designed is obviously to make it very easy to adjust and take up the *equal* wear of such a row of balls, and at the same time to lessen materially the friction set up, seeing that in place of a grinding there is a rolling friction. The great desiderata are thus fully provided for in the ball bearing ; ease of running, minimum of wear, and simplicity of adjustment being all attained. Of course the first bearings were not perfect in all details, and used as they were in conjunction with weak and inadequate forks, the tendency to a cross or twisting strain was very great ; the single row of balls thus got thrown out of running, nipped, dented, or broken, and some of the pioneer wheelmen suffered so much annoyance from them as to entertain a determined and fixed prejudice against them for a long while afterwards. This obvious fault was met by the invention of the double ball bearing, in which two rows of balls were placed, sometimes steadied by means of a cage, some fraction of an inch apart, and the adjustment being accurately and carefully made, the bearing withstood that tendency to torsion and twist which the single ball bearing yielded to almost without resistance. The double ball bearing in the days of weak forks was a decided advantage ; nowadays, as the forks fitted are infinitely more rigid in every direction, the merits of double ball bearings are not so apparent, although they are of the greatest value and importance even now in minimising and directing the strains on the frame.

The frames have at present reached so high a degree

of strength and rigidity that any dependence upon the bearings themselves to resist torsional strains—except in the case of the bottom bracket—is unthought of. The patent rights which once checked enterprise in the making of ball bearings have expired, and the ball bearing of to-day has reached a very high point of efficiency—so much so, indeed, that the experiences of the cyclist have been borrowed by electrical and other engineers, and high-speed engines and electrical machines run their rapid race upon ‘the latest’ in ball bearings.

Ball-bearing adjustment is effected by the approximation of two cones—one usually fixed, the other loose as in the case of the steering head described above. Thus in fig. 6 the ball race at G^2 lies round a cone which is simply an enlargement of the steering pillar; the ball race at G^1 is entered from above by a loose cone, which can be directly or indirectly screwed down into it, and the result of the closer approach of the cones is the ‘tightening up’ of the bearing. Whenever ball bearings are found in modern cycles this is the rationale of the operation of adjustment, though the methods of effecting it, and locking it when effected, are numerous. Here, again, the purchaser of a new cycle would do well to obtain a practical lesson in the methods of treating the adjustment of the ball bearings with which his chosen mount is fitted. The care of ball bearings, wherever they are used, is a very important item. The services of such delicate fittings cannot be satisfactorily secured without taking some trouble; and ball bearings, submitted to the strain of constant use, need much care—frequent adjustment, careful lubrication, and, whenever necessary, a complete clean out of the bearings by rotating the wheel after injecting paraffin copiously, re-oiling after all the spirit has been worked out. Should it be necessary to take the bearing to pieces, which occasionally happens, inexperienced wheelmen have sometimes found considerable difficulty in replacing the balls; but the task will be simplified if each ball is *stuck* in its place with lard or vaseline, which can be washed out with paraffin after the bearing has been finally put together.

Care of the bearings is the very life of a cycle of to-day, and racer and roadman alike should give these vital parts of the cycle the best and most careful attention.

Ball bearings are now usually fitted to the steering head, bracket, both wheels, and pedals.

The saddle standard marked B in fig. 6 is usually called the L pin, from the shape of the pin originally used on tricycles. By loosening the nut just below, the saddle standard can be raised or lowered to suit the rider's length of limb, and the adjustment presents no serious difficulty.

Upon the standard are placed the spring and saddle, or, as is more usually the case nowadays, the combined spring-saddle. These contrivances are very numerous, and more or less effective, as a sound and easy spring is not such an essential as it used to be before the air tire was invented.

Spring-saddles are usually so fitted as to be adjustable as to 'tilt,' and the arrangement of the position of the saddle is of the utmost importance if the rider is to pursue the sport with comfort and satisfaction. The saddle should, as a general thing, and except at moments of great exertion, carry the major part of the rider's weight, and the best and most practical method of testing its position is to have the machine held up on a level road with the rider seated upon it, and then to let him remove his feet from the pedals and his hands from the handles. If he now remains supported by the saddle with, if anything, a slight tendency to slip forward, the saddle is properly placed. A position which causes the rider to slide backwards—that is, a very much raised peak—is very bad indeed, and nowadays so complete are the means of adjustment provided, that no cyclist should ride for any length of time on an unsuitably or dangerously placed saddle.

Thus far the frame and its fixed attachments have been dealt with. The steering pillar and front forks, or more technically the front carriage, now come under consideration.

The rear frame of a safety bicycle is made of tube, and it is only in the front forks that any remnant of the frame and

fittings of the original bicycle can now be found. Owing to the length combined with strength required in the front forks of big-wheeled ordinaries, an immense amount of attention was given to their production ; so that now, when the forks are considerably shorter, taking a 30-inch instead of a 60-inch wheel, the hollow tapering front fork, with its rounded edges—A, fig. 9—is especially suitable for the work it is called upon

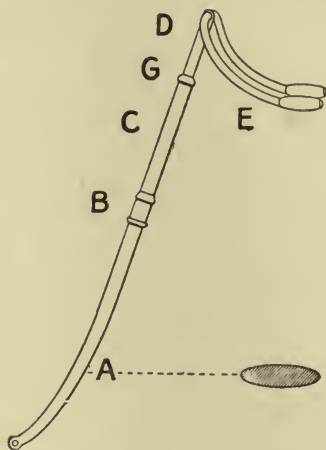


FIG. 9.—FRONT CARRIAGE.

to do. Its lower end simply fits over the end of the steering-wheel axle. At the upper end the forks A run into the fork crown B, there being many varying patterns, all aiming at great strength and rigidity, combined with lightness in weight. Double crown plates, supporting ferrules and caps, and many other contrivances, are adopted to secure these important points.

From the fork crown rises the steering pillar C, and again very special care is taken to strengthen this pillar at the point—the junction of B and C—where the greatest strain comes. At its top, above the bearing adjustment G, it receives the handle-bar standard D which carries the handle-bars E.

The handle-bar standard usually slides into *c*, being fixed by some locking arrangement at *g*; and it is very necessary that the handle-bars should be firmly fixed, and, further, that they should be fixed straight, otherwise the steering will be seriously affected.

The break, if any be fitted, is usually attached in front of the outer tube of the steering head, but it is, of course, fastened at *b* and above the top bearing below the handle-bar standard, so that the break turns with the wheel. Unfortunately, a really satisfactory break for use on the air tires of to-day is difficult to find.

Through the bottom bracket at *e*, figs. 5 and 6, passes the crank axle, running on ball bearings, and carrying the 'lower pulley wheel;' for although in the modern machine there is little difference in the position of the pulley wheels, in the early days of tricycling the chain wheel, placed in the bottom bracket, was in every sense of the word the bottom wheel.

On either end of this axle are placed the cranks, *o o*, fig. 5, the short levers which are used for the propulsion of the machine. Cranks are from five to seven inches in length, have a long slot in them, into which the pedal fits, and the length of the throw can be adjusted to the satisfaction of the rider. Some years back the idea of cutting grooves in the face of the crank, into which corresponding projections on the face of the inside of the shoulder of the pedal-pin fitted, was adopted, but nowadays the fitting is so good as to make this detail unnecessary. Sometimes the crank is fixed to the end of the axle with a tapered pin which gives trouble by becoming loose. It is no good in such a case to try and tinker it up; the machine should at once be taken to a good mechanic to be put right; when once the crank pin has been loose, it will in most cases come loose again, unless remedied at once. Variable cranks are not altogether novelties, many inventors having from time to time tried their hands in this direction, the idea of course being that by making the length of the throw variable, the rider can so shift the pedals as to have a long leverage for up-hill and a short one

for the level. The variation is wide, no less than two inches, and as a result the rider would never have a quite satisfactory reach ; thus if he had the machine to fit his reach when working the 5-inch crank, which is the speed crank, it is clear that he would be overreaching himself considerably with the 7-inch throw, and *vice versa*, and moreover, without a great deal of practice the alteration of a throw makes a practised rider feel all abroad, for a time at any rate.

The result of practical trials by many riders has been a consensus of opinion against the variable crank, and the several particularly perfect designs of this sort which have seen the light are now quite forgotten.

The pedals are placed in the crank slots, and form the grip and rest for the feet. They are divided into two classes, rat-trap and rubber pedals. Rat-trap pedals are so called because they resemble in shape the old style of rat-trap or 'gin,' being made of two parallel iron plates, with teeth cut thereon, the sides being a little raised, with a pin running right through them, the pedal originally running on adjustable cones. The march of improvement has, however, made ball pedals practically universal, the design being exceedingly simple, the end plates of the pedal having in their centres two light cases in which are placed the necessary number of balls, with an adjusting cone fitted upon the pedal pin.

The 'rubber pedal,' as its name implies, consists of two or more stout rubber cylinders upon iron cores which replace the boot-destroying teeth of the rat-trap pedal. Rubber pedals are comfortable and check vibration ; but the danger of slipping them in wet weather is very considerable, and can only be met by the use of toe-clips.

THE WHEELS.

In discussing this subject it would be impossible to go at great length into minutiae, and as the various parts will all be duly considered separately, it is only necessary to allude

generally to the various types. The bone-shaker, with its equal sized and heavy wheels, has been replaced by the lighter machines of to-day, the suspension principle being introduced and being mainly responsible for the wondrous lightening of the machine. Racers are now built weighing under twenty pounds, whilst a twenty-two pound machine is considered amply strong enough for an eleven-stone rider. The principle of the suspension wheel is best described by the means of a few simple diagrams.

Fig. 10 represents a simplified wheel. A A A is supposed to be a rigid rim, B is the hub, and c c c c the spokes, whilst

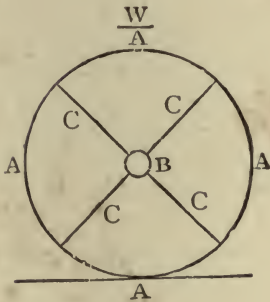


FIG. 10.



FIG. 11.

w is the weight the wheel is supposed to carry. It is clear that hub, spokes, and rim would all have to be very stout and strong to withstand the wear and tear of the road. In the suspension wheel as applied to the modern bicycle, the rim is by no means so stout and rigid as the ideal rim A A A would have to be. The hollow rims fitted to many machines are both strong and rigid relatively, but nothing approaching in strength that of the ideal one. The rim in its turn is supported by

the spokes themselves consisting of wire, which under pressure would crumple up at once, but which under a tensile strain will withstand a 'pull' of many pounds. In the Crystal Palace Electrical Exhibition some years back was exhibited a piece of very thin wire, looking scarcely thicker than a horsehair, by which was suspended a 400-pound round shot ; thin piano wire is used in some wheels, and it is clear that if the spokes of this wire simply went direct from the rim to a flange at the hub the danger of a lateral collapse would be imminent. To meet this obvious tendency the hub is spread until the spokes are carried alternately to flanges some distance apart, as shown idealised in fig. 11. Here the rim A A is represented in section, the spokes C C, as will be easily understood, being screwed up to a strong tension and tending to keep the rim true and in position whilst the strain on all the spokes is a tensile one ; so fully is this principle carried out that the butt-end of the spoke is sometimes headed through a plain hole, as shown in fig. 14 (illustrating an old lock-nutted spoke), so that were it possible for the rider's weight to so far overcome the tension of the spokes as to *press* upon those which happened to be below the axle, they would slide through the hub and carry no weight at all. It will thus be seen that the wheel is really a *suspension* wheel, and that the weight carried by it is hung or suspended on the spokes, although the tension put upon the spokes is much greater than any strain they may be expected legitimately to encounter. This principle has been very fully carried out, and several well-known firms have made wheels with hollow rims and spokes of marvellously thin wire, one especially having turned out a 60-spoked 40-inch wheel, the spokes of which only weighed five ounces. The spokes, however, were not at first drawn quite so fine as this, as nearly all the earlier wheels had direct spokes. Fig. 12 shows the method of fixing the direct spokes in the old crescent rim ; the spoke having been cut to the required length, the end was passed through a counter-sunk hole in the rim as at c, and then a head B was made on the end with a hand vice and a hammer. The head

was drawn into the countersunk hole in the rim, in which it revolved as the spoke was screwed up in the case of direct spokes, of which fig. 13 is an example ; H H being the hub, into which a hole with a thread in it is bored, and then the spoke with a corresponding worm cut upon it is screwed in until the

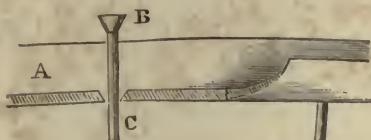


FIG. 12.

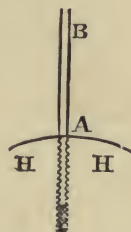


FIG. 13.

necessary tension is obtained. Fig. 14 shows the earlier arrangement, a lock-nutted spoke. This spoke was headed at both ends, at the rim and at E inside the nipple nut C C, which was screwed further into the hub to increase the tension on the spoke, and when the wheel was true the lock nut D was firmly screwed

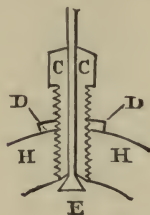


FIG. 14.

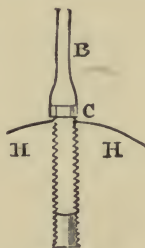


FIG. 15.

down in its turn to fasten the whole. This plan proved cumbersome and unsatisfactory, and has long since been discarded in the best machines. In the earlier direct spoked machines the cutting of the thread sometimes caused the spoke to break off just at the point of insertion into the hub, and this accident,

now of less frequent occurrence, was met by the invention of butt-ended spokes, shown in fig. 15, the end of the spoke being thickened and made sexagonal to admit of adjustment. There are, of course, a number of other contrivances more or less ingenious in connection with direct spokes, such as the plan of fitting a screw and socket in the middle of each spoke and securing adjustment in that way, and so on ; but these are points into which it would scarcely be profitable to go at length. There is another very distinct type of wheel, divergent in many points from the direct spoke, and that is the Tangent wheel. As its name implies, the spokes, in place of going direct from the rim to the hub, are arranged at a tangent, thus affording a more rigid connection between the hub and rim, and in many cases the rigidity obtainable from this arrangement has been most ingeniously utilised. In many tangent wheels very fine spokes are used, and their most delicate point is at the bend in the hub, where the double spoke is bent 'hair-pin' fashion and again carried out to the rim, where, beneath the rubber tire, is a small screw, with which the tension is secured.

The 'hair-pin bend' was the fatal point, and several very neat designs have been perfected to remedy this defect.

There have, of course, been many other plans tested in the construction of wheels with more or less success. Thus we have tangent wheels with binding rings of wire running round the spokes on either side, and many other schemes for producing a sound, rigid, and stable wheel ; but for all purposes of description the details given of the direct and tangent spoked wheels will prove sufficient.

A reduction of 50 per cent. has been made in the size of the wheels, the rear-driven safety's 30-in. diameter wheels being but half the size of the lordly ordinary's 60-in. driver. The question of wheel construction, indeed, has been much simplified, whilst the design of the modern machine permits of wider hubs, in proportion to the diameter of the wheels used, so that many points previously of vital moment have now sunk into comparative insignificance, and the direct and tangent spoke controversy has quite died out.

The rims, or felloes, of wheels were at first made simply of solid iron pressed into shape ; they were called **V** rims, as their section was exactly like a wide **V**. These were followed in turn by the **U** rim, also solid, and presently the crescent rim came to the front, this rim being **U** shaped, but thick in the middle and fining off to a comparatively thin edge when seen in section. Then came the hollow rims, undoubtedly the best of all. These rims are made in various ways : some of strips of metal soldered into place ; others from steel tube, stamped into shape ; others again from a long strip of fine metal, folded by machinery, and brazed ; others by the process of ' spinning ' from one ring or circular sheet of metal, the rims thus produced having no join. Rims are even made of wood—an American invention that has found some favour upon the path.

The attention, ingenuity, and talent which have been devoted to the question of suitable rims for cycle wheels must excite admiration, and the degree to which this comparatively simple portion of a cycle has been improved within the last few years affords something like a gauge of the energy with which the cycle trade has been pushed.

There are many sound, tried, and tested hollow rims in the market, and there are many minor variations in detail, all designed to effect one purpose or another. The hollow rim adds much to the stability and rigidity of the cycles of to-day on both road and path.

The hubs, or bosses in the middle of the wheels, are also of very various patterns, to accommodate the various types of spokes with which they are fitted. Some are almost cup shaped, with small holes through which are threaded the tangent spokes ; others are somewhat heavier and stouter, to take the threaded ends of the direct spoke. Some hubs have wide flanges, and others are almost rudimentary, being reduced to simple collars fixed or turned on the axle. Many other ingenious little plans and adaptations have been made in hub fittings, but none are of sufficient importance to need a lengthy notice.

The care of the wheels is a material point in the life of a cycle. Never play tricks with them ; if a spoke is loose, a spoke-tightener may be very carefully used, taking especial care to see that the rim is not pulled out of truth ; and in fact the job, however small, would be much better left to a competent workman.

If a rider is compelled by adverse circumstances to try and adjust a damaged wheel, he should spin it rapidly whilst holding a piece of chalk against the fork so as just to touch the rim. This, if the wheel be untrue, it will do only occasionally, and the marks will guide the worker. At the same time, it is by no means a task at which everyone succeeds, and if it is by any means possible to put it in the hands of a skilled workman, this should be done.

In some makes the hub ends of the spokes are but poorly protected from rust ; where the spoke runs into the hub a little cranny remains to hold the moisture, which rusts through the spoke. With a very small brush and some liquid 'Brunswick black' or enamel each of these crannies can be filled up. In a new machine rust will have little chance, for a time at least, of eating through the spoke and weakening it to breaking-point.

Both the wheels of a safety run upon ball bearings in the hub ; and these are all simply adjusted in most cases by loosening the outside nuts and turning the *milled* edge of the adjusting cone, or else effecting the same thing with a specially shaped spanner. Such adjustments should always be very carefully made, and it is better to have the bearings too loose than too tight ; the latter error usually results in a broken ball.

Upon the rear wheel hub—sometimes as part of the hub at other times attached to it—is the upper pulley wheel, considerably smaller in ordinarily geared machines than the pulley wheel on the crank axle, and over the two pulley wheels passes the chain.

It was the practical application of chain driving that made the safety bicycle a success, and this method was first exploited

upon the tricycle. To that type the cyclist of to-day owes his safe and speedy mount, for it enables him to 'gear' his machine to suit his individual capacity.

One of the first points which a novice requires to have explained to him is the gearing of his machine, for 'What are you geared to?' is a question which very often non-plusses the beginner. The gearing of a cycle is dependent upon the relative size of the pulley wheels over which the chain runs, the difference in size increasing or decreasing the number of wheel revolutions as compared with the pedal revolutions.

Fig. 16 is merely a guide diagram to illustrate the positions of the pulley wheels; the left one B fixed firmly to the pedal crank, and the right one A attached to the hub of the rear or driving wheel; the relative sizes of A and B control the gearing of the machine.

GEARING UP.

A machine is said to be geared up when the pedal revolutions are fewer than the revolutions of the driving wheel. Fig. 16 illustrates this point. In this figure the driving-wheel pulley A carries nine teeth and the pedal pulley B eighteen teeth. If the

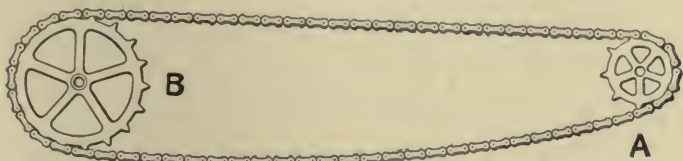


FIG. 16.—GEARING UP.

pedals (rigidly connected with B) are made to complete one revolution, the pulley wheel B will eat up eighteen links of the chain, but as wheel A only carries nine teeth, it must make *two* complete revolutions to satisfy the requirements of the wheel B. Wheel A being attached to the driving wheel, it will have to

make two complete revolutions for one turn of the pedals, and a 28-inch machine so arranged would be said to be 'geared up to 56.'

The mechanical advantages obtainable from this method of gearing are obvious. A rider can, with the same crank throw, use a high or low gear as he pleases, have a heavy and slow action, or a light and quick one, adapt his gear to the district he lives in—a low gear for hilly roads, a high gear for the level country. It is a balance between time and power that the rider seeks, and each man can suit his own peculiarities. For example, a geared-up machine requires more muscular exertion, but the pedals move more slowly. Supposing anyone foolish enough to have a machine geared up to 90 inches or 100 inches, the rider would be driving a 90-inch wheel with a 6-inch crank, which would of course necessitate very hard labour indeed. A moderate gear of about 64 to 68 inches will be found amply high enough for the strongest rider on the road. Light active riders without much muscular power will do better with a lower gearing, as they are able to pedal quicker with less exhaustion. For this reason a tolerably low gear is very advisable for ladies who cycle, and 56 inches may be taken as a very fair average. Very heavy men with great muscular power are very soon exhausted by rapid pedalling, but they can be easily suited with a higher gearing, which simply requires more muscular exertion and less rapidity of motion. On the racing path, higher gears have proved successful. The machines used in races are exceedingly light, and the paths being level and the going easy, there is nothing to interfere with the running of the machine. Some riders have tried very high gears, up as high as 76 or even 80 inches, but the slow action was all against that quick spurting which is a *sine quâ non* in race riding; and except behind pacers a 68- or 72-inch gear is ample.

A low gearing is most advisable for weak riders and road men who primarily desire ease and comfort at the sacrifice of speed. A roadster cycle geared to 56 inches or so is in many cases a most suitable machine for the steady tourist.

For those who have the misfortune to be lame or weak in one leg, 'gearing down' affords a complete relief, for a machine geared down as low as 24 inches could be easily propelled with one leg, though, of course, at no very great pace. Beginners should always adopt a low gearing in the earlier stages of their novitiate, as they will not wish to attempt high speeds, and the easier work will enable the muscles to adapt themselves to the novel conditions without breaking down. After the first few months of riding different arrangements of gearing should be tried, until the one most suitable to the individual rider is discovered.

Gearing up, as pointed out above, offers especial advantages to strong, heavy, and muscular men, who, gifted by nature with plenty of physical energy, are capable of exerting the extra power required to propel the highly geared machine. Such persons are easily exhausted by rapid movement, just as a heavy cart-horse, which would soon succumb if forced along at high speed, works satisfactorily at heavy but slow tasks. Many muscular and heavy men, somewhat past the heyday of youth, and not so active and lissom as they once were, have relinquished cycling solely because their attempts to attain a good average pace upon a low-g geared machine led to exhaustion and distress. Gifted with plenty of the power necessary for propelling a cycle, they found themselves practically unable to apply it because of the rapid rotation of the pedals, the heavy and slow muscular frame suffering from the effort at rapidity. For such riders the change from a low-g geared machine to one geared up to 64 inches or even higher produces a complete revolution in their ideas as to the labour of riding. In place of the hasty plying of the feet and the breathless and exhausting attempts to accelerate their pace still more, the uncomfortable position, and the obvious waste of muscular power, the rider, mounted anew upon a high-g geared machine, will be seen sitting upright, in an easy attitude and driving his wheels with slow powerful strokes, finding a new and enhanced pleasure in the comfortable exercise of his muscular power and the use of his

bodily weight. The experiences of the last few seasons will provide every cyclist with numerous instances of such a course proving in every way successful.

The advantages of gearing up have been much increased by the reduction which has been effected in the weight of cycles, a reduction for which every road rider owes to the racing men a debt of gratitude, inasmuch as the use of light machines upon the path has enabled and encouraged the makers to try and construct the road machine lighter too, so that at the present time machines are in constant use upon the road which a season or two back would have been considered light racers. The lightening of the roadster has enabled road men to use a much higher gearing than they could have done under the old system.

High gearings can only be used upon the road with any real success by riders who, in addition to mere physical strength, are also practically accomplished in the art of pedalling, fully described elsewhere, which is a necessity in the matter of racing and fast road work. When this has been thoroughly mastered, the rider can make the necessary experiments to ascertain which gear suits him best. It is customary with many cyclists to alter their gearing for the winter. The crank pulley wheel is changed for another of smaller diameter and fewer teeth, and the chain shortened, thus making the machine easier to propel, but of course slower at the normal rate of pedalling. A good many racing men, on the other hand, ride all the winter through on high-g geared machines, thus building up heavy muscle against the racing season, when plenty of path work and no road riding will again fine it down to racing shape ; for hard work of any sort invariably slows the racing man, whilst path work will weaken him, so that he cannot ride well on the road for some time after he gives up racing and racing training.

As will have been gathered the chain is a vital portion of a rear-driving safety's equipment ; here again the ingenuity of many inventors has been concentrated upon its improvement,

and the modern chain is indeed a wonderfully perfect piece of work. Each link is composed of many parts, and the various stresses and strains, and the particular points of wear, are all carefully calculated and allowed for. The chain must not be kept too tight, as not only does this course seriously strain the frame, but it has a tendency to break the balls in the bearings, and even snap the chain itself. The adjustment must be carefully made, whether it be effected from the ends of the frame or from the bottom bracket, and the chain should have a certain amount of play after all nuts have been screwed up tight again. The adjustment is either at H H, fig. 6, or at E, but more commonly in the first position, the open ends of the slit being capped with a crosspiece carrying the adjusting screw—fig. 17,



FIG. 17.—CHAIN ADJUSTMENT.

A—the slotted fork end, B—washer with screw ; C cap, E adjusting nut; the end of the driving wheel axle passes through G, and the method of adjustment can easily be understood. A heavy nut on the axle screws down on B, and with a corresponding nut on the other end of the axle, locks up the whole adjustment firmly. When the adjusting nut E is screwed right home, it is advisable to have a link taken out of the chain, the adjusting arrangement being of course by this proceeding pulled down almost to the end of the slot again.

Trouble is often caused by the chain, and several points need looking to before a cure is effected. The most common troubles are a chain too tight or too loose. The remedy is obvious. Sometimes by careless adjustment, or through the slipping of the adjustment owing to undue strain—by a fall for example—

the two pulley wheels will get out of alignment ; unless they are fairly well in line the chain catches on the side of the teeth, and kicks and jerks in a most uncomfortable fashion. The rear wheel can usually be so manipulated as to bring the pulley wheels in line, though it sometimes happens that the larger pulley wheel gets out of shape, and then the job is one which only a skilled workman can accomplish satisfactorily.



FIG. 18.—CHAIN FIXING.

The chain is usually fastened through one of its links with a screw-bolt and a small lock nut on the inside. This arrangement should be carefully inspected occasionally, and when the nut has been removed it is well to slightly burr the end of the screw after replacing the nut—as otherwise it may jar off and be lost (fig. 18).

PNEUMATIC TIRES.

In 1845 a Mr. Thompson patented a tire for carriage wheels, which was in fact an air-inflated tire ; but it lacked the modern cycle to put it to a practical test and to demonstrate its merits.

In 1889 the pneumatic tire, as it is known to-day, was brought before the public by an Irish company formed to manufacture it under the title of 'The Dunlop.'

The pneumatic tire when first introduced was in a rather crude state ; it punctured, burst, and slipped, and the vast majority of the tire patents which have been taken out during the last few years are designed to provide a remedy for one

or other of these original drawbacks. Either they aim at preventing punctures or bursts, or at remedying the side slip so common in the earlier tires, whilst others again are designed to admit of easy and rapid access to the inner tube for patching purposes in case of injury.

The advantages obtained by the use of the air tire are most remarkable, and it is difficult to estimate the increase it has made in the average pace of the cycle, whilst it has not only made the task of propulsion at a given pace so much the easier, but has also materially reduced the vibration—a point which specially appeals to the elderly and more nervous rider. The younger cyclists, when the tire was first introduced, were apparently not conscious of the vibration in the majority of cases, judging from the widespread use amongst the faster riders of small tires and springless saddles; but without doubt they would be fully aware of it to-day if they changed from their air-tired machines to the solid-tired cycles of 1888.

The tire of 1889 of course had the first run, and is still widely popular, despite a material change of design in 1892 and further modifications in 1893, and there are almost hundreds of other tires—many of great merit—some of which are being actively put upon the market.

One of the soundest and most serviceable pneumatic tires now before the public is the 1895 Clincher—tires, like wines, are known by the year of their birth. This represents one of the earliest air tires, and its radical principle—the *clinching* of the edges of the outer cover against the in-turned edges of the metal rim—has never been varied. There is no sounder or more trustworthy air tire on the market. The projecting ridges on the surface of the cover reduce very materially the chances of side slip, and make it peculiarly suitable for use on ladies' cycles.

One of the most promising of the newer tires is the Palmer, the invention of an American, who brought a few samples to England early in June 1894, and persuaded several well-known racing men to try them, with such remarkable results that

though but a few pairs of tires were in use for a few weeks, the Palmer tire is now second to none in popular estimation. The Palmer is a tube tire, but in place of the one or more layers of canvas which are used to strengthen ordinary tube tires, the inventor winds spirally around the inner tube a continuous thread, keeping the turns just clear of each other. This layer of thread is then buried in a rubber coating, and another spiral is wound across the first the reverse way; again the threads are buried in rubber, and a thickened 'tread' affixed to come in contact with the ground. The absence of inter-thread friction and the directness of the pull in the line of strain are said to be the reasons of the undoubted pace of this tire, repairs of which are effected by the introduction of rubber plugs, as in other tube tires. The Palmer tire is now being manufactured in England, and will unquestionably be a success, if it does not actually prove to be *the* tire of the future, whilst a combination of the Palmer fabric with the Clincher principle has produced a very excellent tire of the detachable type.

The Boothroyd tire—the original tube tire—is also a success, the difficulties encountered in the earlier stages of its manufacture having now been overcome; the method of repair has also been perfected, and it has been adopted by one of the largest makers in America for general use.

The various contrivances for affording rapid access to the inner tubes of composite tires vary from the intricate to the extremely simple.

In some cases the soundness of the tire depends upon extremely accurate fitting, and then the removal and replacing of the outer cover is a serious task for the ordinary cyclist; so much so that in many cases the average user will rather seek the train than face the difficulties involved.

A large number of methods dealing with this drawback have been laid before the public, which may or may not commend themselves to the possible purchaser, who should be careful to choose a tire that is easily accessible, and to ascertain by practical experience or inquiry from expert friends that he can

himself mount and dismount the tire from the rim. An expert workman, daily handling hundreds of tires with strong fingers, can whip tires on and off with charming ease ; but—apart from the possibility of the tires experimented upon having been specially prepared with that end in view—it is often found quite impossible for an ordinary person to accomplish the apparently simple feat, and it will be more satisfactory to procure some easier pattern.

To remove the cover of a Dunlop or Clincher tire, it is necessary to see that all the air is out of the inner tube by releasing the valve ; then, starting at the side opposite to the valve, begin to push the edge into the central gutter of the rim. A glance at the two diagrams will more easily explain the *rationale* of the proceeding.

Fig. 19 shows an exaggerated rim section with outer cover of the tire A depressed into the gutter B, the depth of which is exaggerated.

Fig. 20 shows the rim A ; the tire edge, a shade smaller than the outer edge of A, being indicated by the dotted circle B.

Obviously if this dotted circle be thrust at c well into the rim-gutter and carried round on either side towards the point D, it will there slip over the outer rim, and the whole cover can easily be removed ; the reverse operation replaces it.

In actual practice the bow of a door key, or even a coin such as a penny, inserted between the rim and cover as shown in fig. 21, will materially assist, not only the putting of the edge into the gutter, but keeping it there and getting the edge over the rim, particular care being taken not to nip the inner tube in using the key or coin.

The repair of pneumatic tires was at first a very serious operation for the uninitiated wheelman, but experience has

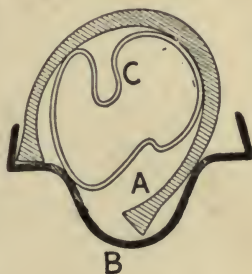


FIG. 19.—DISMOUNTING
A COVER.

simplified the task both as regards the composite, and the simple tube, tires. In the first class the outer cover is removed, the inner tube carefully examined, the hole discovered—if necessary by inflating the tube and immersing it in water—and a small patch of rubber stuck over it with rubber solution. The neighbourhood of the hole should be well scraped with a knife or glass-paper, and the solution carefully spread over it. The

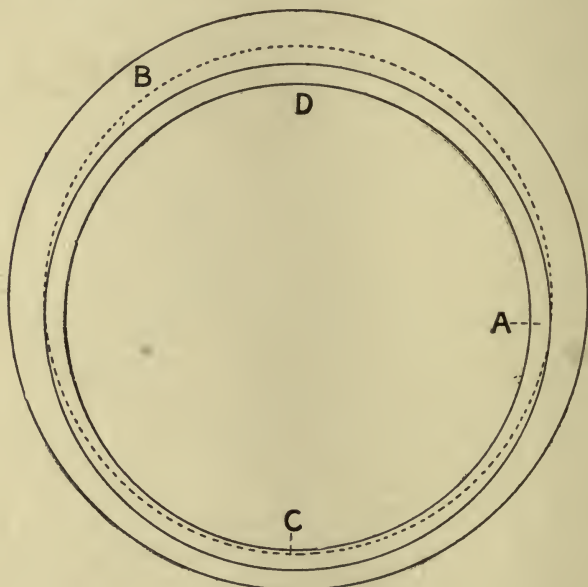


FIG. 20.

small patch should be similarly treated, and a short time permitted to elapse before bringing them together, when the two surfaces will adhere firmly. A little French chalk is rubbed over the repair to prevent it from sticking to the outer cover. The latter is replaced, and the tire re-inflated.

In the case of tube tires rubber cord of varying sizes is passed through the puncture in a perfectly simple manner with

the aid of a specially made needle. Such repairs, as regards small holes, are permanent. Larger holes are best cut with a special tool to a symmetrical circle, and repaired with nail-headed plugs of rubber, specially made for the purpose. These, when properly inserted, also make a sound repair. It often happens that if, after a repair of a tube tire, the surface in the neighbourhood of the plug be soaped, many minute leaks will be discovered. This is due to the air reaching the canvas, passing along or through the fibres, and finding its way out at any minute holes it may discover. To remedy this, half a teacupful of water should be injected into the tire with the aid of the pump, the wheel spun a few times, and the seat of the

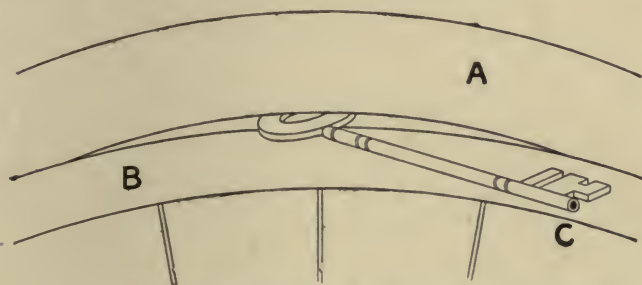


FIG. 21.—REMOVING A COVER. A. THE COVER. B. THE RIM.

leaks put upon the ground, the tire being fully inflated : the water will pick up any dusty matters in the tire, and, being forced into the canvas, will effectually stop the leaks from that point for a practically indefinite period.

Tube tires can be temporarily repaired in many ways : thorns will often remain in the tire, effectually plugging the hole they have made, whilst a common medicine bottle cork, firmly fixed by tape, not only carried a heavy man over nine miles of hilly road, but held the air, without appreciable leakage, for several days after. The tube tire user should never despair of patching his tire up sufficiently to enable him to reach home.

HOME TRAINERS.

These are contrivances, more or less ingenious, upon which a cyclist can take exercise at home. Sometimes they are so designed that the rider can fix his machine upon them and pedal away against a graduated resistance ; others are simple standards or pillars, carrying a saddle and a flywheel, with cranks and pedals, upon which riders can exercise in the same way.

In the winter home-trainer races are promoted by many clubs, the competitors pedalling away at top speed, whilst the excited spectators watch the progress of certain hands round the face of a dial—a contrivance put upon the market by Messrs. Hutchins & Hamilton, of Queen Victoria Street. There are home-trainer champions and home-trainer records.

The use of these contrivances in gymnasia is not altogether to be commended, as in such places other exercises might well be followed by cyclists, and the actual value of the home trainer from a racing point of view is practically *nil*. None of the men who have shone on these machines have done any real good upon the racing path.

In any case the trainer should never be used quite 'free ;' some amount of check should be put upon the wheels, so as to make the task of driving them somewhat hard. This will to some extent develop the muscles, which mere pedalling fast against no resistance at all will never do ; in fact, such a process only fines them down and weakens them.

It is possible that a rational use of the home trainer might to some extent assist a racing man who could not afford all the time necessary to get into condition ; but even this is very doubtful, whilst for average cyclists, during the winter months, there are many exercises which would prove of much greater service physically. A little boxing, dumb-bell exercise, Indian clubs, or simple 'extension movements,' are all calculated to

do more practical good than home-trainer work, during the dead season.

As our knowledge increases, exercises may be devised which will assist in the development of muscle suitable for cycling. Skipping is an excellent thing for the ankles, and strengthens them vastly, whilst the swing of the rope throws the chest open and exercises to some extent the upper part of the body. Of course, for working out the *rationale* of ankle action, the home trainer is of the greatest service at first, care being taken to have some resistance to work against.

Possibly the home trainer of the future may prove successful, but at present it can be safely said, with the above reservations, that there is nothing in it from a racing or road-riding man's point of view.

TWO-SPEED GEARS.

The increasing popularity of the Tandem Safety Bicycle, and its use by ladies as well as by men, brings the 'two-speed gear' once again to the front.

The gear known as the Crypto-Dynamic was probably the most scientific ever constructed, but its weight went against it, and possibly the time was not ripe for its adoption.

There are several good gears which will doubtless come forward in due time.

The object of the gear, as its name implies, is to secure 'two speeds'—that is a high gearing, say 66 in., for use on the level, called the 'speed,' and a low gearing, say 54 in., for use up hill, called the 'power.' This is effected in various simple ways, the mechanism being actuated by a lever conveniently placed on some part of the frame.

The principal error into which the beginner in the use of a gear falls is to attempt to keep up a high rate of speed when using the 'power.' As will have been gathered from the foregoing remarks upon gearing up, the pedals are the special point affected by the change. The machine running

on at the same pace, when the change is made from a high gearing (speed) to a low gearing (power), the pedals will be notably accelerated as to the pace of their revolution. Now it is quite possible for a cyclist to mount one of the machines known as home trainers—consisting mainly of a fly wheel fitted with pedals, which the rider rotates as rapidly as possible for the purposes of practice—and without any check upon the fly-wheel, which revolves with very great ease, to utterly exhaust himself within three minutes, although when the fly-wheel has once been started very little muscular power is required to keep it moving. It is, in short, ‘the pace that kills,’ the extremely rapid motion of the legs, without any call upon the muscular powers for an effort, beyond that necessary to keep the legs moving, being quite sufficient to cause the exhaustion. In using a two-speed gear, the beginner rides at a fair pace with speed on until he arrives at a hill. Being naturally anxious to see how his new acquisition works, he puts on the power at once, and finding the pedals suddenly revolving with ease and rapidity, he almost unconsciously attempts to keep up the speed thus suddenly developed, with the inevitable result that in a very few minutes he is completely exhausted, not by the actual muscular effort, but by the rapidity of the action. ‘To climb steep hills requires slow pace at first,’ and this maxim is especially applicable to the use of speed and power gears. The user will therefore do well to bear in mind this strict injunction. ‘Do not attempt to acquire speed when using the power gear.’ When riding along the level with the speed gear in action, the rider should count the revolutions of the pedal and try and accustom himself to a regular rate of work. On arriving at a hill the pace should be kept up with the speed gear until it is obviously slowed by the stiffness of the gradient; the rider, counting steadily and keeping the same rate of pedalling, should then shut in the power gear sharply, and, without accelerating the pedal revolutions at all, keep steadily at work. The relief will be instantly perceptible, but it is at first very difficult without great watchfulness to avoid undue rapidity in pedalling;

the work suddenly becomes so much lighter, whilst the pedals seem almost to run away from the feet, that the novice is betrayed into hurrying ; all the more so because at the same time the pace of the cycle slows noticeably, and as most riders involuntarily gauge their rate of progression by the road or hedges they are passing, this is a sore temptation to spurt, which must, however, be resisted. By keeping up a regular and unaccelerated beat, the user of a gear will find that the ascent is easy, though the pace is relatively slow. At the same time it is sufficient to overtake all ordinary pedestrians, most carriages, and every cyclist who walks his machine up-hill, and this, more especially when the cycle is laden with luggage, is a material advantage, as the work of pushing the machine up-hill is both irksome and awkward. In those districts where long gradients or steep hills are frequent, an intelligently used two-speed gear will soon be regarded as indispensable. If the gear is not intelligently used, if the rider indulges in scrambling and frantic attempts to attain a racing pace with a 54-in. gearing, he will find the gear worse than useless, and had better discard it. It will take the most careful and observant rider a couple of months to become properly efficient in the management of a gear, so that he knows in a moment when, where, and how to use it, and at what rate of speed he may safely attempt to progress. In many cases so much is expected from the gear that the user's first feeling is one of intense disappointment, which is only modified into doubt after some weeks of constant use.

The usual error is having the 'power' too high—if real ease is wanted 54-in. is ample for up-hill work—whilst in the Tandem Safety or tricycle this point is even more important, and should therefore be particularly borne in mind if a lady is going to share in the propulsion of the machine.

In using two-speed gears attention should be given to the methods of shifting from speed to power and the reverse, as this will enable the rider to make the change smoothly and well. Some gears require a smart push to put them right, others a momentary lightening of the pressure on the pedals ; the

shifting lever should be put over smartly, and care should be taken that it goes well home. There must never be any hurry in changing a gear, seeing that it can never be a matter of seconds, and the satisfactory working depends to a great extent upon its being properly used.

Lubrication should not be forgotten. The oil should be freely applied, especially at first, so that all the parts of the gear may be fully supplied, and the superfluous oil which will ooze out carefully wiped off from time to time. When once one of the better class gears has got into running order by a few days' use, it will remain right in most cases for a very long time. And always supposing that the running is satisfactory after the first stiffness, which is inseparable from a new fitting, has worn off, it is highly impolitic to attempt to peer into the mystery box which contains it.

Tandem pairs, if fond of touring, and especially those who carry a fair amount of luggage, will find a properly fitted two-speed gear with a reasonably low 'power' a distinct gain from all points of view; the faster riders of machines carrying two or three riders will find in a design such as the Collier the best method of 'gearing up' to the abnormal heights which they appear likely to adopt in the near future.

LUGGAGE BAGS AND CARRIERS.

Carriers come first. There are a large number of capital luggage carriers to be bought, and nowadays they have been reduced to a point of simplicity combined with effectiveness hitherto unapproached. The best are probably those simple plates of metal, with loops for straps, which screw rigidly on to the handle-bars. They are light, easily attached, and carry a heavy load with ease.

Luggage bags are also made in many patterns, but in most cases they possess the drawback of being awkward to handle and carry when only half full, and the cheap square of water-

proof in which the rider's scanty kit can be rolled will in the end be found more satisfactory, at any rate for short journeys. A short strap should be passed round the middle of the bundle when rolled up, and it will then travel well on the carriers, and be easily removable at the journey's end, when by the way the traveller will do well to slip the straps from the carriers and take them to his room, as a nice stout leather strap possesses immense attractions for some people.

The wallet, or tool bag, is generally supplied with the machine, and in the case of mere fancy appliances the choice rests with the rider, but it is always well for the buyer of a machine to inspect carefully the wallet supplied ; in some cases the thing furnished is a cheap and ill-made piece of leather work. Stitching, however good, is by no means everlasting, the jar will soon shake the small straps loose, and the bag and its contents be lost, even if it does not cause an accident by falling into the wheel or chain. The best way to deal with this class of bag, if it cannot be replaced by something better, is carefully to cut the stitching and remove the two straps ; then with a sharp knife or chisel cut two parallel slits on either side of the back of the bag, each slit being made just beyond the stitching. If the straps are then put through with the buckle in its proper place the attachments will be practically secure, and any accident which might be caused by their breaking away will be averted.

In the old days of the ordinary bicycle small size was a conspicuous merit in a cycle wallet, but at the present time with plenty of space to spare the cyclist should supply himself with a large tool bag, and should habitually carry in it : (1) The spanners supplied with the machine or an adjustable spanner ; (2) an oil can ; (3) a repair outfit for pneumatic tires ; (4) three or four links of the chain used with three or four screwed chain bolts with nuts. The spanners &c. should be wrapped up in a piece of rag to prevent rattling. A warning of some importance may well be given here against the practice, in which so many riders indulge, of carrying pumps, spanners

&c. in their pockets. Nothing can be more dangerous in the case of a fall than a spanner or pump, for example, in the breast pocket of a riding jacket. Serious bruising, if not actual breaking of the ribs must ensue, and no rider can consider himself as absolutely safe from the chances of such an accident. Against these dangers a stout and properly fitted wallet is a complete protection. The pump is best carried in clips attached to the frame.

BELLS.

Every cyclist of sense carries a bell, as this appliance is by far the most convenient and also the most usual method of announcing the approach of a cyclist, and the public being now accustomed to the bicycle bell it is highly advisable to continue its use.

Of late years the English market has been flooded from the Continent with cheap and very nasty bells and gongs, and in the effort to compete with this class of goods, English makers have in some cases made very inferior bells. The simpler the interior mechanism of a bell the better, and there are now many patterns from which the purchaser can pick and choose. The bell should have a loud, clear note, should be easily sounded, and should have a fastening likely to withstand the strain and jar of ordinary use.

LAMPS.

A lamp is an absolute necessity nowadays, as the law requires cyclists to light up one hour after sunset. The lamp is a great help at night, and its manufacture has now been brought to quite a high point of perfection.

There are, as might be expected, a very large number of patterns in the market, but the variations are generally to be found in the minor details of fixing, fitting, or attachment. A

successful lamp for the use of cyclists should be of sound construction, of medium size and reasonable weight, with a good-sized reservoir, a fair width of wick, giving a good light, and with an easily reached reflector. Many such are to be found in the cycling depôts, and each cyclist of course will exercise his own fancy in selecting one or other of the numerous patterns on view.

Colza oil—into each quart of which a lump of camphor the size of a walnut has been put—will be found the best thing to burn ; mixed oil will often smoke, and fancy oils are not always obtainable. Colza is, however, to be purchased everywhere, and the rider is always sure of a supply in the most primitive village ; olive oil burns well if all the other oil be first emptied out.

Nowadays, when all sorts of ingenious wind-excluding shutters are fitted to lamps, very little difficulty is found in lighting them even in a high wind. Fixed flaming matches, which are very useful, may now be readily found, though in a very high wind the lamp itself may be blown out ; under such circumstances the flaming match may be laid across the wick and the lamp shut, when it will usually light up. Should the rider only have wax or ordinary matches, he may lay a couple across the wick and try to touch them off with another, and close the door in time to keep the wick alight, or if he has a vesuvian he can strike it, put it alongside the matches and shut the door.

It very often happens that the comfort and safety of the rider depend entirely upon his getting his lamp alight in a heavy gale, and these hints collected by practical experience may under such circumstances be found of service.

ADJUSTABLE LAMP BRACKET.

An adjustable lamp bracket is most useful, though care must be taken not to pinch the tube when using it, as tubes are now so thin that an accident easily happens. The lamp can

in ordinary use be carried as usual ; but when a tour is contemplated, it may be put a few inches lower, and more room will be secured for luggage, &c. An adjustable bracket is an important item in the practical wheelman's outfit.

PUMPS AND PUMP CLIPS.

A long pump for pneumatic tires is almost a necessity, and the most convenient way of carrying it is to clip it with metal clips to the tube into which the L-pin drops ; here it will ride comfortably, and it is instantly accessible. There are many good pumps and some good clips. It is well to have the pump fitted with varying valve ends to suit the different tires.

SADDLES AND SPRINGS.

In the earlier edition of this volume these two important items had to be treated separately. The saddle was separate from the spring ; nowadays everything is changed, and the saddle and spring are welded together in the spring-saddle—Protean in the shapes which it assumes. A sound and satisfactory spring-saddle should be (1) long as regards the leather, so as to cause the rider to sit on the leather only, and not, as is too often the case, upon the metal attachments, adjusting blocks, &c. (2) Narrow in the peak ; this is also a most important point ; in these days of ' narrow-tread ' (i.e. the pedals not too far apart) a wide peak is a great nuisance. (3) Broad at the back—a matter little considered by the makers, but also most important. (4) Of good material—not too thin—well cut out down the middle. The springs should be easy, but not weak. There should not be too much lateral play, and the adjustment of the tension of the leather should be simple.

One very important point requires attention. The *tilt* of the saddle should be easily adjusted. This means that the spring-saddle having been placed upon the L-pin it should be

possible to adjust to a nicety the angle of the seat. Most people find that when the saddle is absolutely horizontal it suits them best ; others like the peak depressed ; others again like it raised, and this ease of adjustability is a very essential item in a sound saddle. Many riders, and especially elderly ones, find the ordinary saddle unsuitable, and indeed often cease riding under medical advice for that reason, but feel relief in a saddle known as Henson's 'Anatomical,' which is a very ingenious peak-less saddle, and has been found excellent in practical use.

There are patterns almost innumerable of saddles in the market offering a wide range of choice to the cyclist ; and when once a really suitable saddle has been found it is advisable not to part with it.

Pneumatic saddles are in process of being perfected. Whilst they suit some riders, they prove most uncomfortable to others, the amount of clothing worn having some bearing on the point. The close clinging of the air saddle, the imperviousness of the rubber bag to the air, and other points make it in most cases an unsatisfactory seat, and, after many experiments, the public verdict appears to be in favour of leather saddles, mounted upon suitable springs.

PART II.—MODERN CYCLES.

When the first edition of this work was issued one type of machine held pride of place : the bicycle—the Ordinary bicycle—a development of the dandy horse and bone-shaker, in which the equivalent of gearing up was only obtained by the use of very big driving wheels. This necessitated long yet rigid forks and backbone, strong yet light wheels, and so on, and the Ordinary rider of the early eighties worked out the problems in a practical manner which, as a result, gives the cycle of to-day its lightness, rigidity, and strength. The Ordinary bicycle held

its own until the advent of the inflated tire, and was the popular machine up to this point, though there were a large number of men, riders of the tricycle, who would never under any circumstances have essayed to climb the giddy heights of the bicycle. To this large and increasing class the

REAR-DRIVEN SAFETY BICYCLE

came as a very welcome innovation. Its most conspicuous point of advantage is to be found in the fact that, as it is a geared machine, the actual leg-reach of the rider makes no difference at all, and, whether he be 4 feet or 6 feet in height, the cyclist can ride a machine geared as high as he pleases. The Rear-driven Safety thus puts the shortest man on an equality with the tallest, and, as a result, relatively very few big men have ever shown to advantage on the path on a Safety. The best Safety riders are, almost without exception, men of, or under, the average height, stocky and muscular, and in very marked contrast to the best riders of the Ordinary on the racing path, who have nearly all been tall men. Messrs. Keith-Falconer, H. L. Curtis, J. S. Whatton, W. L. Ainslie, Harry Osborne, Herbert Synyer, Fred. J. Osmond, Richard Howell, R. H. English, and many more notable cyclists, stood six feet and over in their stockings.

Out of one thousand men chosen at random from the ranks of cycling, possibly not more than 10 per cent. would be tall enough or long enough in the leg to stand any chance in first-class Ordinary racing, and even then, when these riders were trained, very few would possess the special gifts which make a man a champion. On the other hand, *every one of the one thousand riders* can be a Safety champion, providing he has the powers, whatever his height and length of reach.

What applies to the path in this connection applies also to the road, and the safety of the rear-driver down hills, and in the dark, the smaller surface it presents to the wind, and the

unlimited possibilities of 'gearing,' all made it speedily popular amongst the large and growing army of wheelmen.

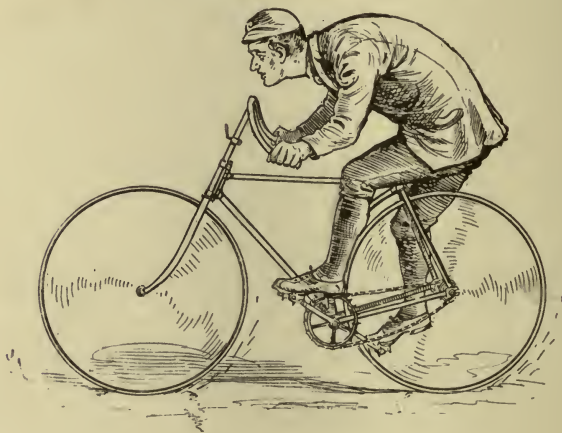
The development of the Safety was very rapid. The original cross or T frame was replaced by a 'diamond' or lozenge shaped frame, or by a five-sided frame, every effort being made to secure rigidity. The coned hinged heads were superseded by the ball head, a decided improvement, as it afforded great ease of steering, great rigidity, and easy adjustment. The introduc-



GOOD STYLE.

tion of this improvement added still further to the rigidity of the already very stiff frames, and as the faster riders ignored springs, had for lightness sake very narrow rims and very inadequate tires, they unquestionably found the machine by no means comfortable, owing to the increased vibration, unless they were wise enough to learn by experience to remedy these defects by insisting on bigger rims and rubbers, and the fitting of an adequate spring and a comfortable saddle. It was not to

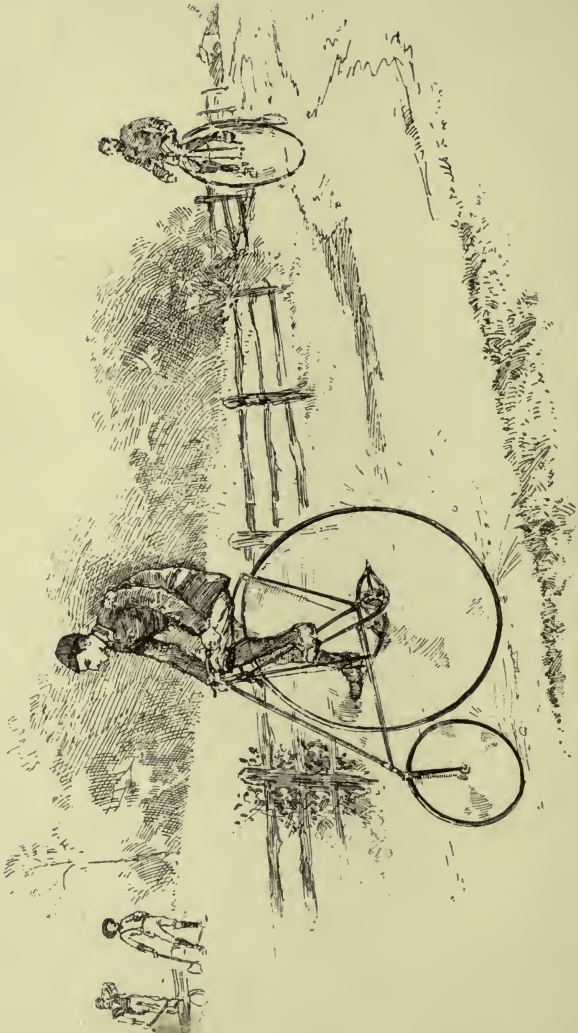
he wondered at that riders who habitually used narrow-rimmed wheels, with tires so small and hard as to be 'no better than bootlaces,' to quote one authority on such subjects, found in the inflated tires an amount of comfort which at once caused them to become enthusiastic over the new contrivance, and thus the best and fastest riders were engaged in popularising the new development ; a sequence of facts which had without doubt a great deal to do with the rapid development of the pneumatic tire in public estimation.



BAD STYLE.

The old Ordinary bicycle to some extent forced a man to ride in some sort of form, though even on that machine there were some wondrous exhibitions ; but, owing to the very much wider range afforded by the various fittings, this is not the case with the later type.

Unless some care is taken in the placing of the saddle and the adjustment of the handles, the rider is pretty certain to acquire a very bad style, crouching forward, with the arms fully stretched, the saddle being placed far back. This is utterly wrong as regards the average road rider who does not wish to



THE AMERICAN STAR MACHINE

race. The position is borrowed from the racing path, but it is only crudely copied. The racing man, it is true, lies over and sits back, but, if he is carefully watched, it will be seen that his chest is kept open, all his muscles are strung up, his lungs in full action, and that the whole effort only lasts for a relatively short time. He sits back because, on the path, skill is more effective than strength, and the best results from ankle action at high speeds are attained from a position more or less behind the work.

For the road rider all this is different. He wants to work continuously for hours together ; he is not strung up to a high pitch of excitement, and his lungs are not fully called upon ; his position should be fairly upright, and his arm position easy when holding the handles ; his saddle should not be placed too far back, as he can put in sufficiently effective ankle work on the flat, and in climbing hills the nearer approach to the vertical position will prove of assistance.

Nor should the saddle be put too high, as anything like over-reaching is a mistake ; it is better to ride with too short than too long a stretch, though the short stretch idea has been carried a good deal too far in some cases. Having got the saddle position right, the handles require very careful adjusting ; they should never be put too low, the most usual and most fatal error, as it is very difficult to cure when once a rider has got set to it.

A break should always be used ; it is absurd to do hard work back-pedalling down-hill, and to put the feet on the foot-rests and let the machine fly unchecked is a reckless and dangerous proceeding. With a properly fitted break long down-hill runs become purely restful ; the feet, being put on the foot-rests, which should be within easy reach, assist in steadying the steering, whilst the break is ready to pull the machine up at short notice. The tourist especially benefits by such rest.

THE ORDINARY AND RATIONAL ORDINARY BICYCLE.

The Ordinary bicycle is dying out, though it is not altogether dead, because some few riders still adopt it as a winter mount.

The rider of the Ordinary bicycle in pre-Safety days considered it necessary to have his saddle very close to the head, so as to put him well over his work and to bring his handles close to him, these conditions being then considered essential to satisfactory riding. Naturally there were many falls, and the cyclist sought safety in a dwarf machine. He soon found, however, that in this type his handles were some way in front of him without interfering with his power ; and the same thing was true of his pedals. When fairly convinced of this, the rider reverted to the 'Ordinary' with the saddle placed relatively a long way back, and then found himself possessed of a large amount of added safety, at the same time enjoying all the real pleasure which 'Ordinary' riding affords. But he also discovered that the vibration from a small and insufficiently tired hind wheel was an immense drawback, and to meet that trouble a larger wheel was introduced. Of course the size was overdone at first ; but a fairly large hind wheel, stoutly made, makes the new type of 'Ordinary' when air-tired a singularly comfortable machine for winter work, as the extra height diminishes the tendency to side slip, and to a very great extent keeps the rider out of the mud. The Ordinary bicycle gave great scope to the acquirement of a good style, and of body balance, and many a racing man might very materially improve his methods of riding by devoting a winter to the Ordinary, with, of course, all the latest improvements as to tires and so on.

There have been many strange patterns of bicycle at one time or another before the public, some designed to secure safety, and others fitted with wonderful contrivances which were to be productive of still more amazing results. The Xtraordinary belonged to the first class, and was a success in

some degree. The Claviger belonged to the second class, and has disappeared altogether. Another highly successful Safety-Ordinary was the 'Star,' a machine constructed in America, and very popular in that country, as owing to its peculiar form it can be ridden with impunity over very large obstacles and rough ground. Mr. Stanley Heard, of Swansea, during visits to America, has ridden many miles on a 'Star' between the railway lines, bumping over the 'ties' or sleepers. As will be gathered from the illustration facing page 301, the machine is steered by means of the small wheel in front ; it is driven by levers with a strap and pawl, the action on either side being independent. As might be supposed, it is heavy, and the steering is at first very unsteady. It possessed unquestionable merits, but has gone down before the Safety, which has quite as great a hold in America as in England.

THE GEARED ORDINARY.

This, a relatively new type, has not secured that measure of success which its friends hoped for it. The gear most usually adopted is that made by the Crypto Company, and is an application of the Crypto two-speed gear. It is placed in the hub of the front wheel, the crank axle running right through the bearings in the ordinary way ; but the driving wheel runs on bearings on the axle, and the wheel is driven through small pinions which engage with a fixed cog-wheel on one fork end and an internal row of teeth in the hub, these pinions, four in number, being carried on a flange of the crank axle.

This type presents many of the advantages of the Ordinary, especially for winter use, if the wheels are not too small. The machine is drawn from the first point of contact with the ground, and not pushed from the last as in the Rear-driven Safety, and the front driver very certainly slips less.

The front driver lends itself very kindly to the fitting of mud-guards, and can be made a particularly clean mount for winter use with a little care in this direction ; and on the path,

when used by the right men, it is but little behind its rear-driven rivals.

It can be made of very light weight, is very handy in use, and possesses many points of merit.

THE TRICYCLE.

In broad-gauge machines a tremendous revolution has been effected since the first edition of this work was published. The types then popular have been superseded by others, and the machines generally are much better fitted and finished.

When in 1880 an effort was made to improve the existing types of the broad-gauge cycle, Mr. Thomas Humber turned his attention to a clumsy experimental machine with 60-in. driving wheels and a narrow handle-bar, which had been in the Beeston works for some time prior to 1879, and he soon effected such improvements that the remodelled machine was adopted by many prominent riders. The tricycle 50-miles road championship of 1880 was won on a machine which was only colourably a tricycle. It was an ordinary bicycle, with two hind wheels a little distance apart. This, of course, gave the rider of the 'Rara Avis,' as the machine was called, a very great advantage; but the Humber tricycle, though it failed to overhaul the winner, who had this somewhat unfair pull, beat all the other tricycles in the race under somewhat unfavourable conditions. This machine, in its single form, has now quite disappeared; it has been superseded by the direct-steering tricycle, the first of which type was made at Beeston, and the second machine constructed was sent to London for trial. It is shown in fig. 22.

The steering is of the direct pattern, by means of a handle communicating directly with the front steering wheel, and the most convenient method of mounting and dismounting is by stepping on the axle from behind, most makers fitting for that purpose some sort of guard upon the left hand side of the axle. In its details the original direct-steering tricycle pretty closely

resembled the ordinary centrally driven machine of its time, but it was not long before alterations and improvements were made. The earlier machines were all automatic; that is to say, they were fitted with a cam and spring which brought the steering wheel back into position when the handles were released. After a time free steering was tried and pronounced successful, and automatic controllers are decidedly in the



FIG. 22.—THE DIRECT-STEERING TRICYCLE.

minority nowadays. Presently another alteration began to be noticeable. The wheel base grew longer and the front wheel began to increase in size, whilst simultaneously the rider was moved rather more forward, and the large-sized steering wheel became in part a carrying wheel as well.

The introduction of the air tire enabled the makers further to lessen the size of all the wheels, and to reduce the weight of the machine very materially. But the success of the Rear-driven Safety had a very marked effect upon the popularity of the tricycle, the 'elderly gentleman' and the 'lady,' who

formed the bulk of its patrons, taking with enthusiasm to the single-track cycle ; so the tricycle fell from its high estate, and was only ridden by a minority. Of late, however, more attention has been given to the tricycle. The fear of side slip with air tires, more especially on very greasy roads or in traffic, has caused quite a revival in the broad-gauge cycle for winter work, and the machines of to-day have been so carefully thought out that they approach the ideal. Strange as it may seem, the adoption of 'Rational' dress by women has brought the tricycle forward as a suitable machine for their use. The reason is that the skirt made the operations of mounting and dismounting very awkward ; and in case of a run away down-hill, the skirted rider was helpless.

The skirtless rider can mount a tricycle over the axle and dismount in the same way, and—this type of machine presents special merits—there is much less danger of side slip, less chance of falls, and less nervous strain as regards balance and steering ; on the other hand, the three tracks are a great nuisance, especially over rough or stony roads.

There have, of course, been a large number of patterns or types of tricycles, but the development of these types has almost without exception been influenced by the modifications suggested by use upon the path. The further the pattern has diverged from the path type, the less popular it has been, and the direct-steering tricycle is practically the only pattern which finds acceptance to-day.

DOUBLE OR SOCIABLE TRICYCLES.

The success of the tricycle very soon brought about the production of a double machine, and the 'Sociable' tricycle was much appreciated by the public when first introduced. The Sociable was simply a tricycle of nearly double the width of a single machine, in which the riders sat side by side. It had tremendous break power ; and even now, when the Tandem Safety has completely overshadowed its predecessor, there is

little doubt that for quiet and comfortable touring the Sociable possessed many valuable points.

To this type of cycle the lady riders of to-day owe a very deep debt of gratitude, for it was upon the Sociable that the pioneer lady cyclists made their earliest efforts in company with their husbands and brothers, and were thus initiated into the pleasures of the sport. These machines were brought to a high pitch of perfection, but died out very rapidly before the

TANDEM TRICYCLE,

in which the two riders are seated one behind the other, presenting less surface to the wind, and not covering so much of the road—the last two points compensating completely for the less sociable position of the riders. A number of excellent tandem tricycles were brought out, and some of them remain more or less popular to-day.

The Humber tandem, for example, is the survival of the double form of a tricycle which in its single form is practically extinct. The driving wheels are placed on either end of the balance-gear axle, from which rises a head carrying a trailing backbone and rear wheel, the axle steering by means of handles rising from it, and not as in the original type with a bicycle handle. Dropping forward over the axle comes the front frame, carrying pedal bracket, saddle and purchase handles. The machine having an open front, it is a very convenient type for those who ride with ladies. This tricycle is steered by the rear rider. The riders are seated on each side of the axle, and the heavier must be placed behind or the machine will be liable to tip up, to meet which tendency a little safety wheel is fitted in front of the machine. Both riders drive it directly, and as a result the machine runs very straight; the weight is for the most part carried on the driving or, as it is much more reasonable to call them, carrying wheels, and the bite of the hind wheel upon the ground is rather more than just sufficient to enable the steersman to control the machine.

The result in actual practice is that the machine runs marvelously fast, whilst the steering is particularly accurate and steady in the hands of a practised rider.

In purchasing a Humber tandem, the buyer should consider who is likely to occupy the front seat, as a light rider cannot satisfactorily fill the rear one if a heavy man is in front ; but the disadvantages of light weight can be to a certain extent nullified by moving the saddle well back, which is usually very necessary with this type of tandem, for road work at least.

THE DIRECT-STEERING TANDEM TRICYCLE.

This is simply the front-steering tricycle constructed to carry two riders. It has been made in varying shapes, but has now settled down to a simple type, with, if anything, too much weight upon the front wheel and front forks, which causes it to be somewhat erratic in its steering at first. For road work the tandem tricycle is fairly popular, though the effort to make the frame convenient for ladies with skirts has added much to its weight without apparently securing the necessary rigidity. The tendency to make the front carriage weak is a serious drawback, and in any case adequate break power should be provided.

THE OLYMPIA TANDEM.

This is another survival of the double form of a single machine ; very few Olympia single machines are to be seen, though the tandem is one of the most popular of tricycles. The machine is driven exactly in the same way as a rear-driven Safety bicycle, and the balance gear is eliminated altogether. The steering is effected by two small wheels, and is differential, the inner steering wheel when turning striking automatically a smaller circle than the outer one. This makes the steering, which is done by the rear rider, very easy and steady. The front rider sits almost over the steering wheels, and the machine, like the Humber tandem, is open-fronted. This type, introduced

by Messrs. Marriott & Cooper, has retained its original popularity, and is one of the best of the tandem tricycles.

THE TANDEM SAFETY.

All these varying patterns of double or tandem tricycles were only leading up to an inevitable development, the Tandem Safety. Double bicycles had been made prior to the advent of even the tricycle, but nothing of a practical sort had come before the public ; then, when the Safety bicycle came in, various attempts to produce a satisfactory 'bicycle built for two' were made. The second rider was placed in front of the handle-bar, or behind the first man, with levers to drive the front wheel ; but after a while the tandem bicycle as made to-day was designed and tried, and with the aid of the air tire achieved an assured success.

The tandem is without doubt a very fast form of the cycle, and this of course means that it is easy to propel, that two riders on a well-built tandem can go faster than they could upon single machines. The Tandem Safety is another purely path development. The successes of Mr. G. E. Osmond and his several partners at once established the merits of the type, and, the start made, the tandem has become very popular.

If two reasonably good riders will ride together steadily for a time, unless their styles are radically different they will get accustomed to one another, just as is the case with men rowing together, and they will do well on the tandem. Husband and wife, especially, can get well set to tandem riding, and the companionship and sociability of this type are sure to make it increasingly popular, more especially if the lady adopt a suitable dress, as the rigidity of frame so necessary to the tandem is of course considerably impaired by the alterations necessary to admit of the use of a skirt. This point acquires added force from the fact that it is usually found that the double Safety runs best with the heavier rider on the front seat, and this being also the position from which the machine

is in most cases steered, it is clearly the man's proper position, but the rear saddle can only be occupied by a rider in bifurcated garments, so the conclusion is inevitable.

The Tandem Safety has its drawbacks. The front rider has an awkward job to mount, he is hopelessly hemmed in in case of accident, unless he can throw his leg clear over the handle-bar, and it is more liable to side slip than the single machine for reasons which are obvious; but the roadster machine can be fitted with big broad-seated tires with corrugated or roughened treads, such as the Clincher, which will most materially modify this tendency.

TRIPLETS AND SIMILAR CYCLES

Safety bicycles and tricycles to carry three, four, or more riders have been tried. For a while the military authorities preferred a long machine made by coupling many pairs of wheels together, steered by one rider in front, and this type is even yet a favourite at the Norwood Normal College for the Blind, where, the steersman only having his sight, a number of the pupils mount the machine and enjoy riding it around the grounds, and even make tours upon it; but these machines have little in common with the triplets used for the most part for pacing purposes upon the racing path.

The triplet accommodates three riders, and it is usually geared very high—over 100 inches in some cases; it forms an ideal pacing cycle, as the speed is even and it shelters the record breaker most effectively from the wind.

Similar cycles to carry four riders have been used in America.

MANUMOTIVE VELOCIPEDES.

Just as many a cyclist on entering a rowing-boat for the first time longs to use his legs instead of his arms for its propulsion, so the rowing man, condemned through absence from the river to idleness as regards his favourite form of sport, desires to propel himself by the use of his arms upon a tricycle;

and since the development of the lighter machines of the present day, the idea of a manumotive carriage, so familiar to our forefathers, has been frequently mooted. A large number of designs have from time to time been laid before the manufacturers, but very few have been sufficiently promising to warrant their being put into execution. The best known and most widely used manumotive carriage, and the only one which has been pushed for any length of time, is the 'Velociman,' made by Messrs. Singer & Co. of Coventry. This vehicle, invented

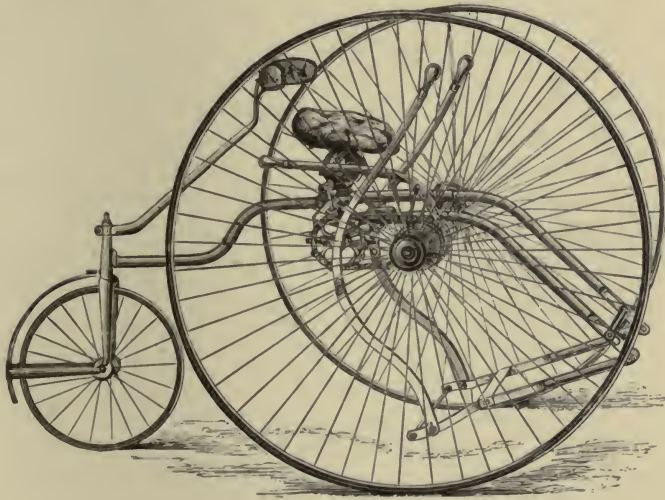


FIG. 23.

by the Rev. Mr. Charsley of Oxford, has been carefully tested in practical use, and much improved by its inventor since the day when, in a rather crude condition, it first saw the light. It has been widely adopted. As will be gathered from fig. 23, the machine is a balance-gear'd rear-steering tricycle, but in place of the familiar rotary action and pedomotive gear there is a fixed crossbar which is practically the rider's stretcher. Mounting, the rider seats himself upon a comfortably uphol-

stered seat, and finds on either side the horn handles of two vertical levers. These drive a cranked shaft carrying upon its right-hand end a toothed wheel, and this in turn engages a short chain which runs over the gear box ; the action is a reach-out and pull-back, the seat does not shift, and the feet are placed firmly against the stretcher, though the machine is also fitted with a lever attachment in the form of a crossbar on which the feet can be placed when the work becomes very hard, and thus assist in driving the machine. The steering is perhaps the most original feature of the whole arrangement. A bar comes from the hind-wheel head to the back of the seat, where it is fitted with a half-circular cushioned back, against which the rider leans, and thus as long as he keeps his back unmoved steadies the steering, and makes the machine run straight ; a very slight twist of the hips will at once steer the carriage round any ordinary corner or curve, and for complete and short turns, which are never made at high speeds, the rider can reach round with one hand and steer. Strange as it may seem, this method of steering, when mastered by practice, is accurate and remarkably steady.

The machine has an excellent record on the road, the Rev. Mr. Charsley himself, though no longer young, having ridden some very long distances thereon. Messrs. Singer hold testimonials from riders which at once demonstrate its use in special cases. A rural postman at Llandilo, who had the misfortune to lose a leg in an accident, has not only been enabled to continue his work, covering over ten miles per day, by the aid of a Velociman which was presented to him, but actually boasts of his pace, stating that he has covered six miles in 35 minutes. In another case a machine was purchased by subscription for a gentleman who was only 3 ft. 6 in. in height and had little or no power in his lower limbs. His first essay was to ride twelve miles in three hours over hilly roads. Another rider, who had the misfortune to lose both legs, finds his Velociman invaluable, and travels long distances upon it ; and in many other such cases the machine has proved an invaluable

boon. The following notes from the pen of one of the most experienced users of a Velociman in the country convey all the necessary hints for its adequate management. Some details of the machine's performances are also added.

VELOCIMAN MANUMOTORS.

It may be advisable to give a few hints to beginners in riding the Velociman tricycle, but before doing so, it will be well to remark that when the peculiar action is acquired, there is no exercise more easy or more adapted to the natural motion of the body and limbs.

The Velociman is essentially a hand tricycle, and therefore the inventor has made the motion of the hands his first consideration. There is no doubt, however, that the additional foot power adds immensely to the ease of propulsion, especially when stiff hills have to be overcome.

Anyone who has had experience in rowing has realised the enormous power he gets when each scull meets an equal resistance from the water. There is no side strain, such as is felt when propelling a canoe by means of a paddle. For that reason the inventor of this machine so arranged the throw of the cranks that the lever should act simultaneously, giving as nearly as possible the sculling action when the cranks are below the centre ; as they rise above the centre, the action of the arms becomes a pushing force, equally with both arms, thus retaining the equal tension of the muscles. Now there cannot be a pulling force without a stretcher, carefully adjusted, nor a pushing force without something to push from ; hence one leg at least must always rest on the stretcher, while the back of the rider must feel the guiding pad during the entire forward stroke. This leads one to speak of the guiding pad. There is no part of the machine which needs a nicer adjustment than this. On it depends chiefly the ease of working. The writer has often met men riding this tricycle with apparent labour, because the adjustment of the levers to the pad was incomplete. He has

altered it by shifting the ends of the levers, or reducing the throw of the cranks, and the consequent relief has been immediately visible. Let the rider bear this in mind. The machine must be so adjusted that, *when the arms are fully extended, the back must still just feel the pad*. This is necessary, too, for the guiding, and gives the rider perfect confidence. He feels the machine to be part of himself.

In turning a sharp corner, or completing the circle, since the movement of the back would be excessive, it is very easy to move one hand from its lever, and apply it immediately to the guiding pad.

The steering by means of the back is most perfect. The idea frightens many people, but the practice immediately dispels all fear. The movement of the back is so slight for any deviation required in ordinary riding that it is scarcely perceptible. The will of the rider seems to guide the machine without any thought of the why and the wherefore.

The inventor of the Velociman has ridden from London to Oxford without a dismount at any of the hills. Those who know the road will recollect some formidable ones—for instance, Dashwood Hill, rising from the Wycombe Valley on to the Chilterns, through Stokenchurch, a hill always very loose and exceedingly steep, about three-quarters of a mile in length. He has also ridden from Oxford, through London, to within a few miles of Brighton, i.e. a hundred miles in a day. In fact, he was the first to show, on his machine, that a tricycle was capable of performing such long distances, a fact which has since been proved, in a much greater degree, by younger men than himself.

It will be seen from the engraving that the chain of this machine is very short, and at a considerable height from the ground. Hence it is not so subject to get clogged with road sand, and wants very little adjusting.

THE DICICLE OR 'OTTO BICYCLE.'

This type of machine, in which the rider balances himself above an axle running between two wheels, found much favour with a few enthusiasts. For some seasons it has now, however, fallen into desuetude. Should it ever again become a popular mount, it will be in the shape of the Club Dicycle, made by the Coventry Machinist Company.

This very pretty little machine is a 'positive' steerer—that is to say, when the steering handle is turned to the right the machine at once turns to the right, whether the rider be driving or back-peddalling. It has been tested by some of the most experienced riders belonging to the Otto Cycling Club, and pronounced by them to be a decided advance upon all previous dicycles.

The merits of this peculiar class of machines are many : the balance is only maintained by the 'fixed points,' the pedals and saddle always being balanced one against the other, and in practice it is found that the weight of the rider is for the most part carried on the pedals. This must result in the perfection of propulsion, inasmuch as the bodily weight is inevitably employed at each descent of the pedal ; moreover, the peculiar balance makes the machine progress very well against the wind, as on encountering a fresh breeze a rider can get so much more directly over his pedals. The machine makes but two tracks, and the running is peculiarly 'lively.'

THE CARRIER CYCLE.

The issue of 'The Tricyclist' for August 10, 1883, contained a somewhat lengthy leader from the pen of its then editor, Mr. Lacy Hillier, upon 'The Practical Carrying Capacities of the Tricycle,' based upon a remark made by the Postmaster-General on August 1, in Parliament, to the effect that tricycles were not adapted for parcel carrying. The writer went at some length into the question, and pretty clearly demonstrated the

fallacy of the Postmaster-General's remarks. In subsequent issues of the same journal, many correspondents bore out the editorial remarks, one writer saying that he often carried 50 lbs. of goods upon his tricycle on a round of twenty-four miles. In the issue of September 7 of the same paper appeared another article headed 'A "Carrier Tricycle," a Suggestion Adopted,' announcing the fact that Messrs. Singer & Co. had taken the matter up.

The 'Evening Standard' was one of the first of the daily papers distributed by means of the 'Carrier,' and Messrs. Singer & Co. supplied the proprietors with some excellent machines, the weak points of which were soon discovered in practical work and corrected rapidly. At the present time the 'Carrier' is found very stable, and wears well.

The next material advance made by this useful vehicle was its adoption by the Post Office authorities for use in connection with the Parcel Post. Not only were single 'Carriers' adopted, but some excellent double ones were also put upon the road. The Parcel Post carriers are now fitted with a high round-topped holder, with separate compartments for heavy, light, and lengthy articles. The appearance of the scarlet official tricycles in the streets of London, alongside the heavily laden newspaper tricycles, opened the eyes of business men to the capacities of the machine in this direction, and many of them soon began to adopt the tricycle for use in their own businesses. Singers have fitted up a carrier with a milk-can for the matutinal delivery of milk in the London district; another with the ladders, paste-pot, and bills of a bill-poster in an extensive way of business,¹ whilst a thousand and one articles of daily consumption are distributed throughout the metropolis by means of the ubiquitous 'Carrier.'

THE COVENTRY CHAIR.

Yet another departure is to be found in the use of the tricycle as a passenger vehicle. The Coventry Chair, made by

¹ See Introduction, page 55.

Messrs. Starley & Sutton, has been rather extensively tested, and it is found that an active rider can carry an average person at a good rate for remarkable distances. On several occasions the regular use of passenger tricycles has been mooted, but up to date only spasmodic attempts have been made to put this scheme in working order. Possibly the day is not very far distant when the use of the passenger tricycle will equal in England the popularity of the jinricksha of Japan.

THE COOLIE CYCLE.

The Coolie Cycle is a tricycle made by the Coventry Machinist Company, fitted with a seat and footboard in front for the 'sahib,' whilst a saddle and pedals behind accommodated the coolie, who, to use the phraseology of the early inventors of self-moving carriages, 'conducts' the machine. The company sent a number of these cycles to the East, where they doubtless afforded amusement for the passengers and exercise for the drivers.

Several other firms have from time to time made passenger-carrying vehicles, and doubtless in the future others will be introduced.

CHAPTER XIII.

THE HYGIENE OF THE CYCLE.¹

THE rapidly increasing popularity of that form of exercise which is taken upon wheels, and the large number of persons of both sexes who have within the last few years become possessed of a cycle, has led to many inquiries as to the suitability of this kind of physical exertion for individuals of various ages and constitutions.

Much has been written by those who have practical experience of this pastime and by those who have not, and many contradictory opinions have been enunciated as to whether the bicycle and tricycle should be considered in the light of a boon or the reverse. In the following pages it is intended to discuss this question, and to formulate a few simple rules, also to give some hints as to riding, dress, diet &c. which may be useful to many who wish to ride but dread an injury to their constitution.

First of all, with regard to those who enjoy sound health, there can be no question that, whatever their sex or age, the exercise of cycling is in every way most beneficial. Though, of course, the muscles of the lower extremities are principally developed by the propulsion of the machine, they are not the only ones which are utilised. Those of the arms, back, shoulders and abdomen have secondary but important parts to play, while those which control the respiratory movements have a large amount of work thrown upon them, work which is enor-

¹ That part of this chapter which refers to cycling for young children has already been published in a paper by the Author which appeared in *Bicycling News* of October 15, 1892.

mously increased when the pace is fast or the road uphill. The pressure exercised by the large flat muscles of the abdomen also stimulates the many important organs which lie beneath. The heart of course participates in this increased action, and the improved circulation, both through the lungs and system generally, promotes reoxygenation of the blood, and that tissue change which is so essential to the maintenance of a sound state of health.

One of the most important questions with regard to cycling is whether young children should be allowed to ride, at what age they may begin, and how much they should do. It may be laid down as an invariable rule that no child with any organic weakness of heart, lungs, joints, or nervous system should be permitted to ride under any circumstances whatever. At an early age any such defect would be much accentuated by injudicious exertion, and permanent mischief very probably set up. But if a child be passed sound there is no doubt that moderate and properly regulated exercise on a bicycle or tricycle is one of the best forms of recreation for both sexes. It develops the body, and at the same time the self-reliance and resource entailed by the management of a machine strengthens and enlarges the mental and intellectual faculties.

Great care is nevertheless necessary, and a few simple precautions will insure good and avert evil. Some children are more forward than others, but as a rule an average boy or girl six years old may begin to learn to ride. To this rule, of course, there will be exceptions, but for the great majority it will be found appropriate. Great care should be exercised in choosing and fitting a machine for a young rider, as an unsuitable article might easily produce mischief, or even deformity. The machine must be light, the gearing low enough to permit of a short crank throw (four inches is generally ample for a child of six or seven), and the saddle and spring must be properly adapted to the weight and size of the rider. But most important of all is the length of reach. This should be quite short ; the child should be able to touch the pedal easily with

the heel when it is at its lowest point, for nothing is more injurious than a reach so long that the unfortunate boy appears as if riding on a rail, just touching the pedals with the tips of his toes. The position must also be carefully studied. Young growing tissues being easily distorted, a saddle too far back or handles too far forward would probably cause a curved spine and permanent 'camel's hump.' The peak of the saddle one inch behind the crank axle, and the handles so brought round and back that the child can sit perfectly upright on the machine, are two things that must be insisted on in buying either a bicycle or a tricycle for a young rider.

If these essentials be present, the question of tires is not so important, though, of course, some form of air tire is by far the best. The distance that may be safely ridden is a question which cannot be answered in miles and furlongs, as no absolute rule can be laid down, no two children of the same age being alike. The only thing that can be said is that anything more than moderate fatigue is injurious. A young growing child suffers much from over-exertion. Though at the finish of a ride he may seem fairly fresh, if he has done too much the results will be apparent soon after, and a sleepless night, with distaste for food, will show that the system is poisoned by its own waste. And it must be remembered, while treating of this subject, that excessive speed is more injurious than excessive distance—and excessive hill climbing than either. The great test by means of which a judgment may be formed as to the distance which is sufficient for each child is to observe : (1) How he sleeps the night after the ride ; (2) how he takes his food ; (3) how he feels the day after. If he sleeps well, eats well, and is bright and lively the next day, the riding has not been pushed too far, and has done good, not harm ; but if he is feverish and sleepless, refuses his food, and is languid, dull and thirsty the day after a ride, then it is certain that too much has been accomplished, and that such rides, if persisted in, will lead to mischief. In the case of children, as of adults, condition is, of course, attained by practice, and at the end of a few weeks the distance ridden

may be increased with impunity. To sum up in a few words, a sound child, six years old, properly fitted with a machine, and riding in proper form and position, may cycle within the limits of moderation, derive benefit, and suffer no harm from the exercise.

To pass to the other extreme of life, it may be asked what limit does age put to the enjoyment of this pastime? It is 'never too late to mend' so far as learning to ride is concerned; old men of eighty years and upwards have begun cycling, continued it for several years, and derived benefit from so doing. Of course a veteran of that age who, when well past the allotted span, starts a new athletic exercise is, in the great majority of cases, one who has used his body wisely and well, and consequently his muscular and circulatory systems are better prepared to stand the fresh strain thrown upon them than those of one who, having passed a sedentary and inactive life, takes up in his old age that physical culture which would have better become the days of his youth. While not actually forbidding sound and healthy individuals who have passed the rubicon of three score years to begin riding, great care should be inculcated. Old blood-vessels are brittle, old muscles easily snap, and a moment's over-exertion may result in most serious injury. But guided by good sense and discretion, cycling exercise is better for an old man than too much armchair, and in many cases will improve the digestion, ward off rheumatism^o and prolong life. The late Major Knox Holmes, who began to ride in his seventy-fourth year, furnishes a case in point. He was a man who for the whole of his long life had been addicted to every kind of exercise, and when he was crippled with rheumatism had the energy to ride a tricycle, and continued riding until the day of his death. When eighty-three years old he stayed for some weeks at Hitchin, and enjoyed daily rides, some of great length, on the level stretches of road in that district, and at the end of the time it was found that he had actually developed fresh muscle, a thing almost unheard of in one of his years, while his general condition could only be described as perfect. Middle-

aged riders, therefore, may take heart, and continue their favourite amusement in the certainty that 'age cannot wither nor custom stale its infinite variety,' and that they are laying up for their old age a store of health and vitality which will carry them, active and full of vigour, well past the ordinary term of existence.

With regard to young girls and women learning to ride, much of what has been stated above applies. There is no reason whatever why they should not ride either a bicycle or tricycle, whichever may suit or please them best. For the great majority a bicycle is the more suitable, because it is both lighter and runs more easily, considerations not to be neglected in the case of the physically weaker sex, and, more important still, is decidedly safer in case of accident. If a tricycle be upset a woman is terribly hampered, for being hemmed in by the handle-bar in front and the saddle-pillar and axle behind, she finds it exceedingly difficult to get clear of her machine, and has to fall with it. If, however, she be on a bicycle, and danger is apparent, it is comparatively easy to dismount, even when travelling at some speed, whether she be wearing a skirt and using the dropped frame, or, garbed in 'Rational' dress, bestride a man's pattern of machine. Of course the one objection to a bicycle is the tendency of the air-tired wheel to slip sideways when ridden in greasy mud, and thus cause an awkward fall, but there are many fairly safe contrivances which reduce this risk to a minimum, and if one of these be employed the slight extra danger from this cause is more than compensated for by the increased convenience and handiness of a one-track machine; while, though the balance shortly becomes automatic, the extra care and attention required to manage a bicycle, which must be kept in motion, increases the rider's self-reliance, and is an excellent tonic for what are known as 'weak nerves.' For those, however, who find that increasing bulk and years render the act of mounting and dismounting irksome and difficult, the more stable three-wheeler must suffice, and they will discover that, if used with discretion, their

reward in increased health and vigour both of body and mind is ample. For æsthetic reasons alone the upright position on the saddle, with the handle-bar sufficiently high and the ends properly brought round, should be insisted on in the case of every woman. The humped 'note of interrogation' attitude, with the saddle too far back, the reach too short, the handle-bar too far forward and dropped too low, is not only excessively unbecoming, but positively injurious, and if adopted by a young girl would soon permanently distort the spine, as well as cause other mischief more easily incurred than cured.

The distance that can be covered by a woman in a day, and the pace that can be maintained without injury or distress, depend in each individual on her skill, strength, and condition. One woman can ride seventy or one hundred miles with less fatigue than is incurred by another in compassing twenty, and one can battle with and conquer a hill, to attempt which dooms her sister to the sofa for a week. It should, however, be an absolute rule never to exceed the golden mean. Over-fatigue *must* be injurious, and for many reasons is more harmful to a woman than to a man. No pastime, not even excepting horse exercise, is so calculated to raise the level and improve the tone of female health as the regular and judicious use of the modern cycle, confined within the bounds of due moderation. It banishes minor ills, strengthens the constitution, and many a girl now blooming with health owes her rescue from a life of invalidism to the beneficent magic of country air and regular exercise which the possession of an air-shod wheel has rendered possible.

It is very difficult to lay down any definite rules with regard to the cycling of the unsound. This is a matter which requires careful consideration in each particular case, and no invalid, or person with any organic physical lesion, should venture to ride without taking the best obtainable advice. The one thing that can be said in favour of the cycle as a means of obtaining that due amount of exercise which is sometimes needful, even in cases of grave illness, is that the weight of the body is rolled on wheels and the rider is relieved from carrying his own weight

as well as having to propel it. This will be clear to anyone who will make the experiment of trying to carry a man of twelve stone weight on his back for a few hundred yards, and afterwards pushing the same person seated on a tricycle. In the first case the labour is irksome and soon becomes extremely fatiguing, especially if the pace is at all fast ; in the second a mere push suffices, and a quick run can be maintained for a long distance with hardly more exertion to the pusher than if he were running alone. For this reason the exercise of cycling is particularly suitable to the weak and delicate, and many miles can be covered on smooth and level ground without the expenditure of more force than would be necessary to proceed a mile or so on foot. It is an actual experience that persons suffering from mild valvular disease of the heart, who had been condemned to a life of inactivity, have derived benefit and improved their condition by gentle and regulated exercise on a machine. In such cases the muscle of the left side of the heart becomes increased in size, in order to enable that organ to overcome the difficulties which the defective valve places in the way of the due performance of its functions. Unless muscles, and especially enlarged muscles, are duly exercised, they are very prone to degeneration of their tissue. The heart-muscle is no exception to this rule, and if a person who on account of some lesion has to humour his circulatory system refrains altogether from that physiological use without which no organ can remain in an efficient and healthy condition, he will soon find that the efforts of nature to aid his damaged heart are in vain, that the enlarged muscle will decay, and his last state will be far worse than his first. But if he be well advised, and, while carefully refraining from all over-exertion, will give his heart just as much work to do as will keep it in the best and most healthy state possible, his general health will improve, while the local mischief will not be increased, but may even remain stationary for a longer time than it would under less favourable conditions. In such a case as this the use of a bicycle or tricycle is invaluable ; it is far more beneficial than

walking or riding ; but it must be most clearly understood that any undue exertion will undo at once all the good that may be obtained by weeks of careful exercise. Level ground and a slow pace are essentials ; the machine must be light and easy-running, and the gear low. The ascent of hills must be scrupulously avoided, and every temptation to fast riding resisted. The distances which may be accomplished under such circumstances must be moderate, all fatigue considered harmful, and on no account should any risk of catching cold be run. The clothing should be loose and warm, and the position on the machine erect and easy. If a meal be taken while out it must be light and easily digested, and the saddle must not be resumed for some hour or more after its conclusion.

It does not by any means follow from what has been written above that it is advisable for every sufferer from heart mischief or disease of the circulatory system to mount a bicycle straightaway in the hope of thereby reaping benefit. There are some lesions of the heart in which such a proceeding would be sheer madness, and some diseases of the blood-vessels, such as aneurism, in which it might be instantaneously fatal. Each case must be judged on its own merits by a competent authority, and his decision unhesitatingly bowed to. As to mischief in the lungs and other organs essential to life, nothing need be added to what has already been laid down. In each class of disease there are some forms and some cases that will derive benefit from cycling exercise, with others in which it is entirely inadmissible, and it is quite outside the scope of such a work as this to formulate rules which may apply to any particular instance. For the blind nothing is more beneficial than a tandem steered by another rider having the use of his eyes, and the good work done at the Royal Normal College in providing recreation in this fashion for those who have lost their sight, and the excellent results in improved physical health obtained by the sufferers at that institution, speak for themselves in favour of urging the adoption of this means of exercise for all those who, though sightless, are otherwise sound and well.

A cycle worked by hand power alone is an unparalleled blessing to anyone who, either by accident or disease, has been deprived of the use of his legs, and many such instruments of different design are in constant use at the present time.

From what has just been stated it will be seen that the use of the bicycle in organic disease is somewhat restricted, but on turning to the much larger field of what are called 'functional' ailments it is apparent that there is great and increasing scope for its good offices, both in the way of prevention and of cure. Most of the disorders arising from the present advanced state of civilisation will yield to its influence, and it must be reckoned a deadly enemy to most of those symptoms which are popularly known as 'liver.' Gout and its first cousins, rheumatism, lumbago, and sciatica, fly before it, and it has recently been found a most useful adjunct to the course of treatment at various foreign watering places. In many cases of indigestion, and of the sleeplessness consequent thereon, it acts like a charm. After a country spin 'good digestion waits on appetite,' the rider seeking his couch with a pleasant sense of fatigue finds the demon of sleeplessness exorcised, and awakes refreshed and fit for his day's avocations. No victim to 'nerves' can long resist the genial influence of a few hundred miles toured on a bicycle, and the fads and fancies dependent on that very uncomfortable condition will be dissipated into thin air after a very few days spent on the high road.

Young girls in their teens often suffer from 'bloodlessness' and a long train of consequent symptoms, and it will be found an invaluable aid to other measures taken to restore health if the sufferer be sent for a daily ride, and encouraged to use her machine, only taking care to avoid over-fatigue. Contrary to popular impressions, varicose veins and allied disorders are improved by cycling, and riders who suffer from rupture will not find their ailment increased, providing they use a proper truss, while it is difficult to see how this particular weakness can often originate from this cause.

There are also other functional derangements of the organs

common to both sexes and special to each in which cycle exercise acts almost as a specific, and very many others in which a judicious and well-regulated use of it will much accelerate the process of cure ; but this is a subject that can only be fully discussed in a purely medical work. It must suffice here to point out in a general way what a powerful weapon in the daily combat with invalidism is now placed in the hands of the medical profession, and to prophesy that it will be more and more extensively employed as the prejudice against this form of locomotion dies out, both in the minds of the faculty and their patients. And there are not wanting signs that this prejudice is now rapidly disappearing. The advent of the tricycle and the lowly 'Safety' rendered it possible for men to cycle who could not afford to fall from the old high machine, and the later developments of the air tire and so-called 'Rational' dress have drawn numbers of women to the wheel, especially abroad. Many physicians who, profiting by the athletic revival of the last thirty years, tasted the benefits of physical training in their youth, now in their maturity are anxious to confer the same boon on those who trust to their advice, and the old parrot cry that training and athleticism of every kind meant permanent injury is fast dying out, smothered by the practical and personal experience of many of the professors of the healing art.

It is not intended to refer at any length to the subject of dress in this chapter. This matter is very fully treated of in another part of the work, and it is only requisite here to insist on the necessity of all riders, both male and female, being loosely clothed. All tight bands and constrictions anywhere are harmful, and everyone who means to do anything more than merely play at riding must allow the chest ample room to expand. Discretion must also be exercised as to the texture of garments. Mischiefs have as often ensued from the use of too thick clothing in summer as of too thin in winter. With reference to the controversy, which is raging at the present time, as to the cycling dress of women, there can be but one opinion from a purely health point of view, and that is that

the so-called 'Rational' dress (i.e. knickerbockers and tunic) is far more suitable for athletic exercise of every kind than any arrangement of skirt or ordinary female garb that can be devised.¹ So far as bicycle riding is concerned, it has the extra recommendation of greatly increased safety.

The question as to what constitutes the best form of diet for cyclists has provided a wide field on which the members of that large army of amiable faddists who are prepared at short notice to reorganise the human race have trotted out their several hobbies. The vegetarians pure and simple, the fruit-eaters, and those who support existence on vegetables tempered with milk, eggs, and cheese, together with the teetotalers and the moderate drinkers, have each in turn insisted that he who wishes to extract the greatest good from cycling must conform to that particular tenet regarding food and drink which is held by the professor who may happen at that time to be enlightening the listening world. Now, whatever might have been good and natural food for man in the days of our prehistoric ancestors, there can be no doubt that the nineteenth-century representative of the race will thrive and flourish best on that form of food to which through countless ages that race has become accustomed, and to which his digestive system has gradually been modified. And looking at the teeth, the stomach, and other accessory portions of that system in present-day man, it is evident that he is best suited by, and will attain his greatest perfection on a mixed diet. The proportions of vegetable to flesh will vary, of course, in different climates and degrees of temperature, but it requires a human being with the stomach of a cow or the teeth of a lion to get the best results from a dietary exclusively consisting of meat or of vegetable. Let, then, the votary of the wheel eat and drink whatever he finds by experience suits him best, and live, while riding, in the same manner as any other rational being who takes his exercise on foot or horseback. The only alteration which bicycle riding should cause in his daily regimen

¹ This must be strictly understood as the individual opinion of the writer only.—ED.

is, that in a short time he may find that his improved digestive powers may permit him to indulge in articles of food which prudence would tabu when taking no active exercise.

What has just been written about food will apply word for word to drink. A man need not become a teetotaler, or, on the other hand, take to alcoholic drinks, because he cycles. If he be a water drinker, well and good, let him remain so ; he will ride a bicycle none the worse. If he takes a moderate quantity of beer or wine at his meals, it will do him no harm. Excess in either direction is dangerous, and alcohol between meals is always bad. With regard to tea, coffee, cocoa, and such like beverages, experience must teach each individual what is best for himself. The great bulk of present-day riders are devoted to tea ; some of the best racing men even drink it at dinner, and it does not appear to do them any harm. No absolute rule can be laid down as to what should be taken to drink between meals while actually riding on the road. Some simple non-alcoholic beverage is generally chosen, such as milk and soda water in equal proportions, the juice of a lemon squeezed into some 'fizzy' water, soda or lemonade, or mixed with cold tea without milk or sugar. Stimulants, such as brandy or whisky and soda and the like, are always bad, and should never be indulged in even if the rider be exhausted. He will be whipped up for the time, but after covering a few miles the inevitable reaction must set in, and leave him far worse than he was before. This rule also applies to long-distance races. Many a rider's chance in such a contest has been ruined by injudicious friends plying him with alcoholic stimulants. Great quantities of fluid should never be swallowed at one time. Such a practice spoils digestion, and does not effectually quench thirst. Drinks, again, should never be taken too hot or too cold, and it should always be kept in mind that

. . . Quibus intumuit suffusâ venter ab undâ,
Quo plus sunt potæ, plus sitiuntur aquæ.¹

It is a most important thing that a novice who is beginning

¹ This may be freely translated : 'The more you drink, the more you want.'

to cycle, especially a youthful one, should be properly placed on his machine. The so-called 'scorcher attitude,' with a bent body and humped back, is both wrong and injurious. It, however, still continues to exist among the unknowing, and not all the ridicule which has been showered upon it, nor even the dreadful term 'Kyphosis Bicyclistarum,' with which it has been honoured, have sufficed to crush it out of existence. In ordinary riding, even if the pace be fairly fast, the cyclist should sit upright and easily on his machine; the spine should always be kept quite straight, and the head erect. To insure this proper attitude the saddle must not be placed too far behind the crank axle, and the handle-bar should be sufficiently high and the handles brought so far round and back that they can be easily grasped without stooping. In riding against a heavy wind, or racing, it is of course necessary to bend forward so as to offer as little resistance as possible to the air. But there is a right and a wrong way of doing this. If the backbone be bent at an angle, and the elbows curved and held out from the sides, with the whole body stooping and the head hanging down, the position is most unscientific and injurious, cramping and contracting the chest, preventing the proper expansion of the lungs, and tending to produce a roundness of shoulders which might well drive a drill-sergeant to despair. But if the body be bent as a whole from the hips, with the spine perfectly straight, the shoulders rather back and the elbows kept in to the sides, then not only is the smallest possible surface presented to the opposing air, but the rider is in the position best adapted for filling the lungs. The body is instinctively held thus by sufferers from spasmodic asthma during the crisis of an attack. This position does not distort the body, and the vital capacity of the chest is increased rather than diminished.

It is very necessary also that the saddle should be rightly shaped and made, and that it should be set at a proper angle on the seat-pillar. It should be of sufficient size to allow the rider to sit fairly and squarely upon it, resting his weight upon his ischial tuberosities, and the peak should exercise no

injurious pressure. Various contrivances have been adopted from time to time to obviate this pressure in those riders who are predisposed to receive injury from it. Of these the 'hygienic' saddle is one of the best. The front part of this saddle is divided, and the division carried right forward to the end of the peak, so that the affected parts are free from all contact with the seat. Another kind of saddle, called the 'Anatomical,' which is shaped to the form, and has no peak at all, is designed to remedy this evil, and seems likely to be effectual. When once a rider has found the proper position for his saddle, and the shape and make that suit him best, he should be constant to both, and should never make experiments.

Very little need be said in this place about pedals. Rat-trap pedals certainly conduce to better and more accurate ankle action in pedalling, and should be used unless the rider suffer from direct vibration conveyed to his feet, in which case he must put up with rubber.

Much has been written about and numerous ills have been attributed to the vibration experienced on a cycle when ridden over rough surfaces, and many ingenious modifications in the frames and other parts of machines have been introduced with a view of minimising this evil. These complaints have been much less frequent since the advent of the pneumatic tire, and this fact some years ago led the author of this chapter to undertake an exhaustive series of experiments to determine, if possible, the cause of the various symptoms laid at the door of vibration, particularly as to why the air tire should diminish them. The results were published at the time—in the 'Cycle' of January 6, 1894—and showed that nearly all the discomforts that arose after hard riding on bumpy roads were caused by over-exertion, that the effects of vibration were mainly local, and confined to the results of the direct concussion of the hands and feet conveyed through the pedals and handles, that this local vibration was just as perceptible with a properly inflated hollow tire as when an old-fashioned solid one was used, and that the immunity from ill effects following the use of an up-to-date shod

cycle was simply owing to the increased ease of propulsion, and the lessened tissue combustion consequent thereon. The so-called symptoms of vibration were simply those of fatigue-fever caused by the intoxication of the system by the products of its own waste, and the cause being removed the results also disappeared. The provisions of nature for protecting the central nerve organs are too complete and well designed to be thrown out of gear by the puny shaking of a modern velocipede. Let no wise man be deterred from conquering the bicycle by dread of the slight vibration he must experience in riding it.

A matter which frequently puzzles inquirers is that the regular practice of cycling sometimes has the effect of reducing and sometimes of increasing the weight of the body. The explanation of these apparently opposite results is, however, simple. Professor Murchison many years ago showed that excessive leanness and excessive corpulence both arose from functional derangement of the liver, in the one case favouring and in the other preventing the absorption of the fatty elements of the food. May not beneficial exercise on wheels regulate the hepatic machine, and, promoting proper assimilation, insure the due proportional nutrition of all the bodily tissues? It must also be remembered that the 'too too solid flesh' has a tendency to melt in perspiration, that the motive power for hard physical labour is mainly derived from the reserve stores of fat deposited in and about the frame, and also that an excessively spare man beginning work puts on more muscle, and consequently goes up in weight. The true reasons for the thinning of the stout and the building up of the lean must, therefore, be sought for in a combination of all the above-mentioned causes.

So long as young men remain what nature has made them, there will be those *quos curriculo pulverem Olympicum collegisse juvat*, and racing and other severe forms of athletic competition will be with us at the end as they have been from the beginning. Though the speed attained in races on bicycles is more than double that which can be reached by man's unaided efforts on his feet, yet the actual exertion is much less, and the

exhaustion after a hardly contested mile race on wheels is not by any means so marked as after a foot-race of less than half that distance. This can be easily explained, as it is more labour to carry a weight than to roll it. The foot-racer carries his own weight, the bicyclist rolls it on wheels. This has already been referred to when treating of cycling for delicate persons. Other conditions in a race being equal, the greater the speed the greater is the effort on the part of the racer required to produce it, and consequently the fatigue and subsequent reaction is increased in proportion, and, providing the speed on either occasion be the same, a contest of one hundred miles entails twice the strain of one-half of that distance. In present-day racing the tendency is for both the speed and the distance competed over to increase, the drafts on the vital capacity of the contestants are therefore deeper, and the question whether such competitions are for the benefit of those who take part in them or not is forced into the foreground. As to racing, there are two rules which should be fixed and unchanged as the laws of the Medes and Persians. The first of these is that no person should ever be allowed to take part in a race unless he be properly trained, and the second is that no one should on any pretence whatever be allowed to train if he be in any way organically wrong. The pursuit of cycling has been advocated above as a means of improvement and even of cure in cases of delicate and unsound health, but racing on bicycles is a very different thing from the quiet easy riding there inculcated. The strain on heart, lungs, limbs, and nervous system involved in a hard and fast finish to a well-fought-out race is such that it can only be sustained with impunity by a perfect and sound machine brought by a judicious system of practice to the highest perfection of bodily health and condition, and any latent flaw which might have passed unnoticed for years under the conditions of ordinary life is bound, sooner or later, to become painfully or even fatally apparent under the stress of frequent and severe competition.

It stands to reason, therefore, that no person, parent or

guardian, placed in authority over a young man should allow him to undertake active training for racing until he has been subjected to a thorough and searching physical examination and passed as absolutely sound. And this applies even more to present-day football and foot-racing than to cycle racing, for the reasons given above. But if a youth be sound and well, train wisely, and race with discretion and moderation, then he will reap consistent benefit from the regular life, the self-control and the discipline requisite to attain success. Many breakdowns have been supposed to have originated from injury to the constitution caused by too much training and racing ; but on investigation these cases resolve themselves into two classes. The one class comprises those who have come to grief from any cause rather than their love of physical competition, such as the after mischief left from an attack of enteric or some tropical fever, from some accident or fall, or from over-indulgence of some sort or other subsequent to their ceasing to take a part in active athleticism, mischief which a steady persistence in some of the more important training maxims would have prevented. The remainder consists of those who have received some injury from over-exertion either in the preliminary training or the competition itself, but the great majority of these sufferers are men who never were fitted for the fierce joy of contest, in whom the spirit was mightier than the flesh, and their pluck and resolution too much for the frail and damaged weapons which were all they had to rely on in the strife. A man, however brave, cannot slay an elephant with a shot-gun, or batter a fortification with an 8-bore rifle, and for his own sake and for that of his friends should never be allowed to attempt the impossible. But granted that a man be sound and well and properly trained, the question then arises whether the twelve and twenty-four hours contests which are at the present time popular are likely to cause injury or not. This is a question which will answer itself in the future. At present all that can be said is that the men who have accomplished the best performances in and won these races have at present taken no ill from their exertions. A careful

examination of the leading competitors just after the finish of the first all-day race promoted by the London County Cycling and Athletic Club revealed the fact that their general condition was wonderfully good, that the signs of exhaustion were few and slight, and that, in fact, the only thing complained of was saddle soreness, an inconvenience which might well be anticipated after twenty-four hours' continuous riding. One well-known rider has won in succession six all-day races, three on the high road and three on a racing path, and at the present time is in the most perfect health, while another has five or six times ridden from Land's End to John o' Groat's, on each occasion beating the record for the 860 odd miles, and sleeping but a few hours *en route*, yet he is to-day in the pink of condition. Whether these gentlemen will in the after years live to repent the enormous strain to which they have subjected their whole organisation, both physical and nervous, can only be answered when they have passed 'the grand climacteric.' Some of the professional riders who took part in the six-day races at the Agricultural Hall in the early seventies are still alive and flourishing. But these are the exceptional men, and though giants of their calibre may pass through such ordeals unscathed, the average man cannot, and the man who is still young and undeveloped should never be allowed to try. Many who might race at moderate distances and be benefited will simply court physical ruin by engaging in such prolonged trials of skill and endurance.

A word of warning must also be written to the man who may have been first class at any competitive sport in the past, and who is tempted to re-enter the lists after a period of retirement without long and assiduous training. Such an one is certain to injure himself. His pristine skill, and the mastery which his will has obtained over his muscular system during past years of training, will enable him to overtax his strength and push his powers of endurance beyond the limit of safety in a way which would be impossible to a novice. The novice does not know how 'to run himself out,' and is compelled by nature to stop short of injurious over-exertion when untrained.

The old athlete conquers nature, and his pluck enables him to persist to his own detriment.

During the past two years some few women have competed in cycle races on the path, and others have ridden various distances against time on the road. This is not the place to discuss the ethical and æsthetic phases of this development. Whether the sight of a troupe of scantily clad, perspiring, and exhausted females careering lap after lap round a race track, encouraged by the plaudits and subject to the jeers of that sort of crowd which would be attracted to such an exhibition, amid openly expressed criticisms, favourable or the reverse, on their personal proportions, and liable at any moment to a beauty-spoiling 'spill'—whether such a spectacle is likely to promote the good cause of healthy and recreative cycling among women or not, is a question which must be left to the good taste of those chiefly interested, and to the firmness and discretion of those governing bodies without whose permit such an entertainment cannot take place, except under the auspices of the professional showman. But it is right to speak out, and speak out plainly, as to the effects which such races would have on the health of the participants. Woman, as she exists in the present day, is not a racing animal. What modifications in her form and economy nature might have effected had she been accustomed to violent and competitive outdoor exercise for the last few thousand years cannot now be told, but the result of her so-called 'subjection' is that in this nineteenth century she is utterly unfitted, whether she be 'new' or 'old,' to undergo that continuous course of training without which, as has been stated above, no one, however strong or sound he or she may be, can engage in hard athletic competition except at the risk of incurring grave and perhaps permanent injury. The old adage that 'it is not the distance but the pace which kills' is more true in cycle racing than in other sports. It is quite possible for any healthy woman by regular and steady riding to attain such condition that she can accomplish fifty, sixty, or even an hundred miles in a day at a fair speed, and she may even keep up

an average of fifty or sixty miles a day for some weeks and be all the better for it. But this is not the condition that is required to excel in the last lap of a path race. To reach the necessary fineness which will enable a competitor to hold her own in such a contest, a long, severe, and continuous course of work is necessary, and such an ordeal no ordinary woman can pass through without imperilling all her future health. Some of those who advocate the advent of women into the athletic and cycling arena point out that she has participated with success in many other so-called manly sports, and instance riding, golf, hunting, shooting, rowing, and tennis. But all these pastimes differ essentially from racing, and even in some of these less harmful exercises mischief has resulted when they have been pushed to the point of competition, not so much from accidents whilst actually engaged in their pursuit as from ill effects only recognised in after years. Hunting alone is responsible for many a young life cut short, for years of pain among those of its female votaries who, carried away by enthusiasm and the spirit of emulation, have converted what should be a mere recreation into the main object of their lives. Let womankind take her part in every outdoor sport that is possible to her—she will improve her health and sweeten her days; but let her not attempt to fit herself for those trials of speed and endurance in which man alone, by reason of his strength and conformation, is able to indulge with impunity. By so doing she will reap all the good, and escape the aftermath of repentance and suffering which always awaits these who infringe the laws of the great and good goddess Nature.

APPENDIX.



A RAPIDLY developing sport like cycling never stands still, its advance is constant ; the records of to-day are but the average performances of to-morrow. Development follows development, existing standards are swept away, and others are erected in their places. New fields are sought by the active tourist, new courses for road records are discovered. The path records are simply so many ninepins, set up to be knocked over by the next comer.

Machines are being invented, developed, remodelled, day by day ; the apparently perfect contrivance is but the crude germ of some startling development. Men and women are getting more expert as time goes on ; the art of riding is becoming more commonly understood ; obstacles are breaking down, prejudices passing away ; the whole aspect of the sport is altering. These facts being so, any work which essays to attain finality in dealing with cycling must soon be overwhelmed by the advancing tide and rendered obsolete.

General principles, general lines, may be laid down once for all, practical hints are current for all time and so on ; but such a volume as this no sooner leaves the press than it falls behind in the matter of the ever-changing developments alluded to above.

The scope and purpose, therefore, of this Appendix is to keep the Cycling volume of the Badminton Library abreast of the times, to inform the reader of the latest and best performances, and the most notable feats accomplished on the cycle. The historical chapter brings the history of cycling down to a recent date, it traces the progress of the sport through what may be termed the Dark Ages of Cycling, and records, step by step, its advance to a period

when its value to the community at large, its economic importance, its immense possibilities, were fairly guessed at, if not accurately gauged.

From this point forward, the particular steps in the general progress of the sport are not of special moment; all that is required for their full appreciation is to note the actual point reached, and to credit the men who have pioneered with all the merit of the task they have accomplished.

This is the scope and the object of this Appendix, which will undergo careful and frequent revision.

Every effort has been made to secure absolute accuracy in the records &c. herein set forth, but the authors will esteem it a favour if any reader detecting errors, or willing to afford additional information, will communicate with them.

All rights are reserved, and the tabular and other matter has been 'ear-marked,' and any unacknowledged excerpts will be dealt with accordingly.

THE LEGAL ASPECTS OF CYCLING.

It would take more space than can well be spared to give anything approaching a satisfactory summary of cases of interest to cyclists. It will suffice to say that a cycle is a 'carriage' in the eye of the law, and to point out that 'Universal By-laws' now obtain all over the country, and although in some benighted towns blue-coated authority does occasionally call upon the wheelman to light his lamp in accordance with the once obtaining local by-laws, the wheelman can now courteously inform his interlocutor that the law only requires him to light up one hour after sunset and to carry a bell. On all other points, if a cyclist finds himself in any trouble, and desires to study precedents and look into matters generally, he should communicate with the National Cyclists' Union, at 57 Basinghall Street, London, E.C., where a record is kept of all such cases. Here can be obtained much valuable information on all such points as may arise in such a matter, and, although in many ways the laws as applied to cycle users are somewhat vague and misty, there is never any harm done by looking up precedents and cases bearing upon the one at issue.

A MODEL RACE-MEETING PROGRAMME.

Clubs organising race meetings for the first time often ask, 'What races should the programme include?' Appended is an answer, but the proposed list must be modified to suit particular circumstances.

One Mile Open Handicap.

This is one of the stock pieces at a race meeting, and it may, if the entry is likely to be a very large one, be divided by the handicapper into first and second class handicaps, separate sets of prizes being offered in each race. The heats of the second-class race will be found very useful in arranging the time card so as to give the first-class riders a rest, a desideratum which has become difficult of attainment since all racing men adopted the one type of cycle.

A Scratch Race,

to be successful, must be supported by good and well-known riders, and a Challenge Cup of good value is the best prize, as it has the effect of bringing known men to compete for it year after year.

If further items are wanted, a short level race or handicap often produces a good race, and sport promoters will of course watch for any novelty or revival in cycle racing, such as Tandem Safety racing, Tricycle racing, and so on.

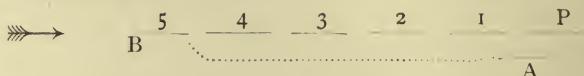
An interminable succession of heats should be avoided, and if an overwhelming number of entries is anticipated, it is much better to shorten the distance of the open handicaps, half-miles proving much less monotonous.

Careful management, with no waits, will under these conditions secure success, if success is to be secured.

HERNE HILL PACING.

Appended are the Rules for 'Herne Hill Pacing,' which, if strictly enforced, insure fair pacing all round—a most important point. A strong pacemaker marshal is needed to secure their absolute enforcement.

1. No pacemaker may remain *in* the string.
2. A pacemaker who has led his man up to the string must either take him right by or drop out.
3. The general pacer leading the string must take orders only from the second man. Thus—



P, the pacer. 1 calls the pace. 5, finding it not fast enough and wishing him to go faster, must ride out from B to A, and, *being then in second place*, can call for a faster pace.

4. No pacer is to remain on the path, unless actually pacing, on any pretence whatever.

RACING TRACK RULES.

The absence of rules always constitutes a distinct danger to men training on any path; but rules, however good, are useless unless they be enforced with a strong hand.

It is very seldom that a mere ground-man is found who will enforce the rules of a track with the proper degree of completeness. In most such cases the attendant, dependent to a great extent upon the generosity of the frequenters of the path, hesitates to check them when they do anything which is not exactly regular.

On the other hand, it is difficult to keep one in authority at the track at all times to enforce the rules, which, though theoretically accepted by everyone, are often broken by the very men who grumble most if they are infringed by others.

Under these conditions, if a ground-man is found who *does* enforce the rules, despite obloquy and abuse from the more thoughtless of the training-men, he should be supported by the authorities as a valuable and exceptional servant.

It is necessary that the rules should be short, brief, and to the point, and the following, drafted by Mr. G. Lacy Hillier, and to be found in 'The Art of Training for Cycle Racing,' a work published in 1888 in Berlin, in three languages, probably reduce the necessary regulations to a minimum :

RULES TO BE OBSERVED BY RIDERS TRAINING
ON THIS TRACK.

1. This path may only be ridden left (or right) 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 much lessened.

4. A rider, before dismounting, should always give a signal (holding up his hand), and, if possible, should always ride off on the inside of the track, before getting off. If he must go to the outside, to a stool or similar convenience, 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 to 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. Where all sorts of cycles train on the same path, this is a most salutary rule, as thoughtless tricyclists sometimes stop right in the middle of the path after a spurt.

If the above rules are consistently and carefully enforced by an attendant whose authority is steadily supported by the track authorities, the risks of accident will be most materially reduced.

AMATEUR CHAMPIONSHIPS.

THE AMATEUR BICYCLING CHAMPIONSHIP.

Run at Lillie Bridge, by the Amateur Athletic Club. Distance 4 miles.

		m.	s.
1871.	H. P. Whiting, A.A.C.	16	30
1872.	F. V. T. Honeywell, Surrey B.C.	17	25
1873.	H. P. Whiting, A.A.C.	14	37
1874.	H. P. Whiting, Velo. Sport de Paris	14	56
1875.	H. P. Whiting " "	13	30 $\frac{1}{2}$
1876.	The Hon. Ion Keith-Falconer, Camb. U.B.C.	13	6
1877.	Wadham Wyndham, London B.C.	13	6 $\frac{1}{2}$
1878.	R. R. Mackinnon, Brighton A.C. ¹	14	9 $\frac{1}{2}$
1879.	H. L. Cortis, Wanderers B.C. ¹	13	10

This competition was finally abandoned in favour of the Amateur Championships established by the then Bicycle Union, now the N.C.U. (See p. 346.)

THE 50 MILES ROAD RACE
FOR THE TRICYCLING AMATEUR CHAMPIONSHIP.

(Sometimes called the Fifty Miles Road Ride.)

The first race was promoted by a tricycle agent in Kensington, and then a committee of the Tricycle Clubs took it up. It was dubbed a 'Ride' under the somewhat fatuous idea that this would disguise the fact that it was a race. The police interfered with the last contest for the title, run in 1883, and it was discontinued.

1879.—*Course—Kew Bridge to Blackwater and back.*

A. E. Derkinderin, 1st. S. Corbett, 2nd.

Time, 4 hrs. 55 mins.

¹ Walk over.

1880.—*Course—Tally Ho Corner, Finchley, to St. Ibbs and back.*
Roads good, day fine.

C. D. Vesey,¹ 1st. G. Lacy Hillier, 2nd.
 Time, 4 hrs. 2 mins.

1881.—*Course—10th milestone from Hyde Park, at Hounslow, viâ (just short of) Maidenhead, through Cookham, to a point 25 miles from the start, and back. Some parts very bad, loose shingle; very wet.*

G. Lacy Hillier, 1st. P. G. Hebblethwaite, 2nd.
 Time, 4 hrs. 53 mins.

1882.—*Course—From Barnet (Ganwick Corner), through Welwyn, to a point 25 miles out, and back. Roads good; day fine.*

M. J. Lowndes, 1st. T. R. Marriott, 2nd.
 Time, 3 hrs. 47 mins. 40 secs.

1883.—*Course—From Caterham Junction, viâ Oxted, Westerham, and Riverhead, to a point half a mile beyond Ightham, and back. Roads good; day fine.*

T. R. Marriott, 1st. G. Smith, 2nd.

The police stopped the winner a mile short of the winning-post, and, in view of possible proceedings, no time was given.

¹ Vesey rode a machine called the 'Rara Avis,' which was simply a bicycle with two very light hind wheels placed close together. No special definition of a 'tricycle' existing, the Committee had no option but to give the medal to Vesey. Hillier, who started 13 minutes late, covered the course in 4 hrs. 10 mins., a record at the time.

WINNERS OF THE AMATEUR CHAMPIONSHIPS PROMOTED BY THE
NATIONAL CYCLISTS' UNION.

	NAME	CLUB	TIME	DATE	PLACE
			h. m. s.		
1878	—2 miles Bicycle..	C. U. Bi. C.	0 6 29	May 11	Stamford Bridge, Fulham, London.
"	" 25 miles Bicycle..	O. U. Bi. C.	1 27 47 2-5	May 11	" "
1879	—1 mile Bicycle ..	Wanderers	0 2 59 1-5	June 12	Stamford Bridge, Fulham, London.
"	" 5 miles Bicycle..	"	0 15 27 3-5	June 19	" "
"	" 25 miles Bicycle..	"	1 24 4	June 26	" "
"	" 50 miles Bicycle..	"	2 56 1 4-5	July 11	" "
1880	—1 mile Bicycle ..	L. A. C.	0 2 55 1-5	June 24	Stamford Bridge, Fulham, London.
"	" 5 miles Bicycle..	Wanderers	0 15 10 3-5	June 24	" "
"	" 25 miles Bicycle..	"	1 22 15 2-5	July 1	" "
"	" 50 miles Bicycle..	"	2 56 11 2-5	July 8	" "
1881	—1 mile Bicycle ..	Stanley	0 3 11 3-5	July 16	Belgrave Grounds, Leicester.
"	" 5 miles Bicycle..	"	0 15 39 4-5	July 6	Recreation Grounds, Surbiton, Surrey.
"	" 25 miles Bicycle..	"	1 27 43 3-5	July 16	Belgrave Grounds, Leicester.
"	" 50 miles Bicycle..	"	2 50 50 2-5	July 27	Recreation Grounds, Surbiton, Surrey.
1882	—1 mile Bicycle ..	Warstone	0 2 47 2-5	July 8	Aston Lower Grounds, Birmingham.
"	" 5 miles Bicycle..	C. U. Bi. C.	0 15 12 4-5	July 22	Crystal Palace, Sydenham, London.
"	" 25 miles Bicycle..	Warstone	1 25 8 1-5	July 8	Aston Lower Grounds, Birmingham.
"	" 50 miles Bicycle..	C. U. Bi. C.	2 43 58 3-5	July 29	Crystal Palace, Sydenham, London.
"	" 5 miles Tricycle	L. A. C.	0 19 39 2-5	Oct. 14	" "
1883	—1 mile Bicycle ..	Ranelagh H.	0 2 55 2-5	July 14	Crystal Palace, Sydenham, London.
"	" 5 miles Bicycle..	Edgbaston H.	0 16 42 2-5	July 7	Aston Lower Grounds, Birmingham.
"	" 25 miles Bicycle..	L. A. C.	1 22 42 3-5	Aug. 2	Taunton Athletic Grounds, Taunton.
"	" 50 miles Bicycle..	Surrey	2 46 26 3-5	July 21	Crystal Palace, Sydenham, London.
"	" 1 mile Tricycle..	L. A. C.	0 3 18 1-5	July 7	Aston Lower Grounds, Birmingham.
"	" 10 miles Tricycle	"	0 33 45	July 14	Crystal Palace, Sydenham, London.

1884—1 mile Bicycle ..	H. A. Speechley...	Ranelagh H.	0 3 30 4-5	June 21	Lillie Bridge Grnds., W. Brompton, Lond.
" 5 miles Bicycle...	R. Chambers	Speedwell	1 15 36 4-5	June 26	Sophia Gardens Track, Cardiff.
" 25 miles Bicycle...	R. H. English	North Shields	0 22 20 4-5	July 20	N. Durham Track, Newcastle-on-Tyne.
" 50 miles Bicycle...	F. R. Fry.....	Clifton	2 51 16 3-5	July 19	Crystal Palace, Sydenham, London.
" 1 mile Tricycle...	C. E. Lites	L.A.C.	0 3 29 1-5	July 12	" "
" 5 miles Tricycle	"	"	0 17 30 1-5	July 12	" "
" 25 miles Tricycle	"	"	1 28 58	June 21	Lillie Bridge Grnds., W. Brompton, Lond.
1885 — 1 mile Bicycle ..	Sanders Sellers	Preston	0 2 47 1-5	June 13	Aston Lower Grounds, Birmingham
" 5 miles Bicycle...	M. V. J. Webber...	Vectis	0 14 22 3-5	June 27	Jarrow Track, Newcastle-on-Tyne.
" 25 miles Bicycle...	R. H. English	North Shields	1 20 13	July 25	Aylestone Road Grounds, Leicester.
" 50 miles Bicycle...	"	"	2 45 13 4-5	July 18	Crystal Palace, Sydenham, London.
" 1 mile Tricycle...	P. Furnivall	Berretta	0 3 5 2-5	July 11	" "
" 5 miles Tricycle	R. Cripps	Nottingham	0 16 53 1-5	June 13	Aston Lower Grounds, Birmingham.
" 25 miles Tricycle	G. Gatehouse	C.U. B. C.	1 26 29 3-5	July 11	Crystal Palace, Sydenham, London.
1886—1 mile Bicycle ..	P. Furnivall	Berretta	0 2 46	June 26	Jarrow Track, Newcastle-on-Tyne.
" 5 miles Bicycle...	"	"	0 14 44 1-5	July 24	Recreation Grounds, Long Eaton.
" 25 miles Bicycle...	J. E. Fenlon.....	Gainsborough	1 19 29 2-5	June 14	Recreation Grnds., Weston-super-Mare.
" 50 miles Bicycle...	"	"	2 47 21 1-5	Aug. 14	Lillie Bridge Grnds., W. Brompton, Lond.
" 1 mile Tricycle...	P. Furnivall	Berretta	0 3 5 2-5	June 14	Recreation Grounds, Weston-super Mare.
" 5 miles Tricycle	F. W. Allard	Cheylesmore.....	0 20 42 2-5	July 3	Hampden Park Track, Glasgow.
" 25 miles Tricycle	R. J. McCreedy.....	Dublin U.C.C.....	1 55 49 4-5	July 17	Alexandra Park Track, London.
1887—1 mile Bicycle ..	W. A. Illston	Speedwell	0 2 45 4-5	May 30	Aston Lower Grounds, Birmingham.
" 5 miles Bicycle...	"	"	0 16 49 1-5	July 30	" "
" 25 miles Bicycle...	"	"	1 19 2 3-5	July 4	" "
" 50 miles Bicycle...	J. H. Adams	Lewisham	2 45 45	Aug. 1	" "
" 1 mile Tricycle...	E. Kiderlen	Delft Stud.....	0 2 54 2-5	July 2	" "
" 5 miles Tricycle	R. J. McCreedy	Dublin U.C.C.....	0 17 22 3-5	July 2	" "
" 25 miles Tricycle	F. J. Osmond	Norwood S.	1 23 21 1-5	May 30	" "
1888—1 mile Bicycle ..	H. Synyer	Notts Boulevard..	0 2 32 2-5	May 21	Coventry Cricket Grounds, Coventry.
" 5 miles Bicycle	"	"	0 15 4 3-5	July 14	N. Shields Track, Newcastle-on-Tyne.
" 25 miles Bicycle...	J. H. Adams	Speedwell	1 22 34	Aug. 18	Worsley Track, Grimsby.
" 50 miles Bicycle...	F. P. Wood	Brixton	2 55 12 3-5	Sept. 1	Jarrow Track, Newcastle-on-Tyne.
" 1 mile Tricycle...	S. F. Edge	Anerley	0 3 14	June 30	Hanson Lane Grounds, Halifax.
" 5 miles Tricycle	F. J. Osmond	Norwood S.	0 16 40 3-5	July 21	Paddington Recreation Ground, London.
" 25 miles Tricycle	F. P. Wood.....	Brixton	1 19 17 3-5	May 21	Coventry Cricket Grounds, Coventry.

WINNERS OF THE AMATEUR CHAMPIONSHIPS PROMOTED BY THE NATIONAL CYCLISTS' UNION—continued.

	NAME	CLUB	TIME		DATE	PLACE		
			h. m. s.					
1889—	1 mile Bicycle ..	August Lehr.....	0	3	9	4-5	Paddington Recreation Ground, London.	
"	5 miles Bicycle ..	H. Synner.....	0	18	24	1-5		
"	25 miles Bicycle ..	F. J. Osmond.....	1	18	27	2-5		
"	50 miles Bicycle ..	J. H. Adams.....	2	42	14	4-5		
"	1 mile Safety ..	F. T. Fletcher.....	0	3	16	3-5		
"	25 miles Safety ..	".....	1	16	34	2-5		
"	50 miles Safety ..	J. H. Adams.....	2	44	4	3-5		
"	1 mile Tricycle ..	H. H. Sansom.....	0	3	12	"		
"	5 miles Tricycle ..	Nottingham.....	0	17	15	3-5		
"	25 miles Tricycle ..	Speedwell	1	20	27	1-5		
1890—	1 mile Bicycle ..	Brixton Ramblers ..	0	3	21	2-5		Paddington Recreation Ground, London.
"	5 miles Bicycle ..	"	0	14	34	4-5		
"	25 miles Bicycle ..	"	1	14	47	"		
"	50 miles Bicycle ..	"	2	44	12	3-5		
"	1 mile Safety ..	Dublin U. Bi. C... ..	0	2	48	3-5		
"	5 miles Safety ..	"	0	17	47	"		
"	25 miles Safety ..	"	1	16	59	3-5		
"	50 miles Safety ..	"	2	29	55	1-5		
"	1 mile Tricycle ..	Irish Champion C.C. .	0	3	52	3-5		
"	5 miles Tricycle ..	Nottingham.....	0	18	6	4-5		
"	25 miles Tricycle ..	Oxford U. Bi. C... ..	1	25	21	4-5		
1891—	1 mile Bicycle ..	Speedwell	0	2	54	2-5	County Grounds, Bristol.	
"	5 miles Bicycle ..	Armoory	0	15	13	3-5		
"	25 miles Bicycle ..	Speedwell	1	16	24	3-5		
"	50 miles Bicycle ..	"	2	28	14	4-5		
"	1 mile Safety ..	Trekvogels	0	3	0	1-5		
"	5 miles Safety ..	Leicester	0	18	24	4-5		
"	25 miles Safety ..	Speedwell	1	14	2	"		
"	50 miles Safety ..	"	2	28	16	4-5		
1891—	1 mile Bicycle ..	Frankfort-am-M... ..	0	3	9	4-5		County Grounds, Bristol.
"	5 miles Bicycle ..	Notts Boulevard.. ..	0	18	24	1-5		
"	25 miles Bicycle ..	Brixton K.	1	18	27	2-5		
"	50 miles Bicycle ..	Speedwell	2	42	14	4-5		
"	1 mile Safety ..	Ilkeston	0	3	16	3-5		
"	25 miles Safety ..	"	1	16	34	2-5		
"	50 miles Safety ..	Speedwell	2	44	4	3-5		
"	1 mile Tricycle ..	Nottingham.....	0	3	12	"		
"	5 miles Tricycle ..	"	0	17	15	3-5		
"	25 miles Tricycle ..	Speedwell	1	20	27	1-5		
1891—	1 mile Bicycle ..	Speedwell	0	2	54	2-5	County Grounds, Bristol.	
"	5 miles Bicycle ..	Armoory	0	15	13	3-5		
"	25 miles Bicycle ..	Speedwell	1	16	24	3-5		
"	50 miles Bicycle ..	"	2	28	14	4-5		
"	1 mile Safety ..	Trekvogels	0	3	0	1-5		
"	5 miles Safety ..	Leicester	0	18	24	4-5		
"	25 miles Safety ..	Speedwell	1	14	2	"		
"	50 miles Safety ..	"	2	28	16	4-5		
1891—	1 mile Bicycle ..	Frankfort-am-M... ..	0	3	9	4-5		County Grounds, Bristol.
"	5 miles Bicycle ..	Notts Boulevard.. ..	0	18	24	1-5		
"	25 miles Bicycle ..	Brixton K.	1	18	27	2-5		
"	50 miles Bicycle ..	Speedwell	2	42	14	4-5		
"	1 mile Safety ..	Ilkeston	0	3	16	3-5		
"	25 miles Safety ..	"	1	16	34	2-5		
"	50 miles Safety ..	Speedwell	2	44	4	3-5		
"	1 mile Tricycle ..	Nottingham.....	0	3	12	"		
"	5 miles Tricycle ..	"	0	17	15	3-5		
"	25 miles Tricycle ..	Speedwell	1	20	27	1-5		
1891—	1 mile Bicycle ..	Speedwell	0	2	54	2-5	County Grounds, Bristol.	
"	5 miles Bicycle ..	Armoory	0	15	13	3-5		
"	25 miles Bicycle ..	Speedwell	1	16	24	3-5		
"	50 miles Bicycle ..	"	2	28	14	4-5		
"	1 mile Safety ..	Trekvogels	0	3	0	1-5		
"	5 miles Safety ..	Leicester	0	18	24	4-5		
"	25 miles Safety ..	Speedwell	1	14	2	"		
"	50 miles Safety ..	"	2	28	16	4-5		
1891—	1 mile Bicycle ..	Frankfort-am-M... ..	0	3	9	4-5		County Grounds, Bristol.
"	5 miles Bicycle ..	Notts Boulevard.. ..	0	18	24	1-5		
"	25 miles Bicycle ..	Brixton K.	1	18	27	2-5		
"	50 miles Bicycle ..	Speedwell	2	42	14	4-5		
"	1 mile Safety ..	Ilkeston	0	3	16	3-5		
"	25 miles Safety ..	"	1	16	34	2-5		
"	50 miles Safety ..	Speedwell	2	44	4	3-5		
"	1 mile Tricycle ..	Nottingham.....	0	3	12	"		
"	5 miles Tricycle ..	"	0	17	15	3-5		
"	25 miles Tricycle ..	Speedwell	1	20	27	1-5		
1891—	1 mile Bicycle ..	Speedwell	0	2	54	2-5	County Grounds, Bristol.	
"	5 miles Bicycle ..	Armoory	0	15	13	3-5		
"	25 miles Bicycle ..	Speedwell	1	16	24	3-5		
"	50 miles Bicycle ..	"	2	28	14	4-5		
"	1 mile Safety ..	Trekvogels	0	3	0	1-5		
"	5 miles Safety ..	Leicester	0	18	24	4-5		
"	25 miles Safety ..	Speedwell	1	14	2	"		
"	50 miles Safety ..	"	2	28	16	4-5		

"	1 mile Tricycle	{ P. W. Scheltema Beduin	0 3 20 2-5	July 18	County Grounds, Bristol.
"	5 miles Tricycle	W. G. H. Bramson	0 15 47 1-5	July 4	" "
"	25 miles Tricycle	Lewis Stroud	1 25 34 2-5	June 14	" "
1892	—1 mile Safety ..	A. A. Zimmerman ..	0 3 57 4-5	June 25	Leeds.
"	5 miles Safety ..	R. L. Ede	0 20 9 1-5	June 25	"
"	25 miles Safety ..	A. A. Zimmerman ..	1 9 46 4-5	June 18	Herne Hill.
"	50 miles Safety ..	J. H. Adams	2 37 23 3-5	July 7	Paddington Recreation Ground, London.
"	1 mile Bicycle ..	"	0 2 57 3-5	June 18	Herne Hill.
"	25 miles Bicycle..	"	1 19 0 2-5	June 25	Leeds.
"	50 miles Bicycle..	W. Tischbein	2 44 53 1-5	July 20	Herne Hill.
"	1 mile Tricycle.	F. Bramson	0 3 19	June 18	"
"	10 miles Tricycle	"	0 32 0 3-5	June 18	"
1893	—1 mile Safety ..	W. C. Sanger	0 3 49 2-5	June 17	Herne Hill.
"	5 miles Safety ..	A. J. Watson	0 13 2 3-5	June 17	"
"	25 miles Safety ..	J. W. Stocks	1 11 34 4-5	June 24	Newcastle.
"	50 miles Safety ..	L. Stroud	2 35 8 1-5	July 12	Paddington.
"	1 mile Tricycle..	Fred Bramson	0 2 54 2-5	June 17	Herne Hill.
"	10 miles Tricycle	"	0 31 44 2-5	June 17	"
1894	—1 mile Safety ..	C. Ingeman Petersen	0 3 0	June 9	Birmingham.
"	5 miles Safety ..	J. Green	0 11 40	June 9	"
"	25 miles Safety ..	"	1 2 14 2-5	June 23	Herne Hill.
"	50 miles Safety ..	"	1 56 45 3-5	Sept. 15	"
"	1 mile Tricycle..	J. Kowley	0 3 59 2-5	June 23	"
"	10 miles Tricycle	"	0 27 44 2-5	June 23	"
		Trekvogels	0 3 20 2-5	July 18	County Grounds, Bristol.
		London County ..	0 15 47 1-5	July 4	" "
		Speedwell	1 25 34 2-5	June 14	" "
		N. Y. A. C. and L. C.	0 3 57 4-5	June 25	Leeds.
		"	0 20 9 1-5	June 25	"
		Stoke Newington	1 9 46 4-5	June 18	Herne Hill.
		N. Y. A. C. and L. C.	2 37 23 3-5	July 7	Paddington Recreation Ground, London.
		Speedwell	0 2 57 3-5	June 18	Herne Hill.
		"	1 19 0 2-5	June 25	Leeds.
		"	2 44 53 1-5	July 20	Herne Hill.
		Hallescher	0 3 19	June 18	"
		London County ..	0 32 0 3-5	June 18	"
		{ Telegram, C. C. }	0 3 49 2-5	June 17	Herne Hill.
		{ and L. C. }	0 13 2 3-5	June 17	"
		{ Polytechnic and }	1 11 34 4-5	June 24	Newcastle.
		{ L. C. }	2 35 8 1-5	July 12	Paddington.
		Hull Grosvenor ..	0 2 54 2-5	June 17	Herne Hill.
		Speedwell B. C. ..	0 31 44 2-5	June 17	"
		London County ..	0 3 0	June 9	Birmingham.
		"	0 11 40	June 9	"
		{ Danish B. C. }	1 2 14 2-5	June 23	Herne Hill.
		{ Northumberland }	1 56 45 3-5	Sept. 15	"
		{ C. C. & A. C. }	0 3 59 2-5	June 23	"
		"	0 27 44 2-5	June 23	"
		Stanley C. C.			
		"			
		"			

CHALLENGE CUPS FINALLY WON AND RACES LAPSED.

THE ASHBURY CHALLENGE CUP.

Presented in 1875 by James Ashbury, Esq., to the Brighton Athletic Club. A Silver Cup, value 25 guineas, engraved with the B.A.C. Monogram, &c.

1875. B. J. Saunders.	1878. F. M. Cox.
1876. G. F. Duddridge.	1879. A. E. Saunders.
1877. R. R. Mackinnon.	1880. A. E. Saunders.
1881. A. E. Saunders.	

The Cup being won three times in succession, became the property of Mr. A. E. Saunders, of the Brighton Athletic Club.

THE CHELSEA CUP.

Presented by the Chelsea Bicycle Club. Value 50 guineas. Distance 5 miles. Usually run for at Stamford Bridge.

		m.	s.
1887, July 16.	E. M. Mayes, A. E. Langley, J. G. Paterson	14	59
1888, June 30.	E. M. Mayes, W. G. H. Bramson, E. W. Brewerton	15	18 $\frac{1}{5}$
1889, July 13.	E. M. Mayes, F. P. Wood, W. G. H. Bramson	15	4 $\frac{2}{3}$

E. M. Mayes having won the Cup three times, it became his property.

THE COWEN CHALLENGE CUP.

Presented in 1882 by Mr. Joseph Cowen, M.P. Competed for in August. Distance 2 miles. To be won three times.

		m.	s.
1882, Aug. 26.	T. D. Oliver, G. H. Illston	6	57 $\frac{1}{5}$
1883, Aug. 25.	G. H. Illston, T. D. Oliver	6	22 $\frac{2}{5}$
1884, Aug. 23.	D. H. Huie, R. H. English	5	47 $\frac{3}{5}$
1885, Aug. 22.	C. E. Harling, T. D. Oliver	7	41 $\frac{1}{5}$
1886, Aug. 7.	W. A. Illston, W. McAllister	6	59 $\frac{2}{5}$
1887, Aug. 6.	W. A. Illston, T. H. English	6	4 $\frac{4}{5}$
1888, July 16.	Herbert Synyer, J. J. Carruthers	5	42 $\frac{2}{5}$
1889, Aug. 5.	W. A. Illston, W. C. Thompson	6	6 $\frac{3}{5}$

The Cup became the property of W. A. Illston, and the competition lapsed.

THE 'CROSS' CUP.

*Presented by W. Cross, Esq., of the Newcastle C.C. Run on the road—
Gosforth Waggonway, Newcastle, to Alnwick. Distance about 60 miles.*

	m.	s.		m.	s.
1882. P. Thompson	6	22	1886. R. Milthorpe	4	29½
1883. H. Rowell	5	2	1887. „	4	49½
1884. A. O. Challoner	5	15	1888. „	4	49½
1885. H. Rowell	5	59½	Milthorpe retained the Cup.		

THE CRYSTAL PALACE CHALLENGE CUP.

10 miles. Run twice as a club team race, first two in to win.

		m.	s.
1880.	{ G. Lacy Hillier 1st } { J. R. Hamilton 2nd }	Druids B.C.	42 14½
1881.	{ C. Crute 1st } { F. Allport 4th }	Sutton B.C.	32 35½

Altered to a 15 miles scratch race.

1882, Aug. 17.	C. D. Vesey, H. R. Reynolds, J. D. Butler	46	22 ³ / ₅
1883, July 26.	C. E. Liles, F. L. Adam, W. Brown	45	47 ² / ₅
1884, Sept. 11.	R. H. English, R. Cripps, H. F. Wilson	44	29 ³ / ₅
1885, Sept. 10.	J. H. Adams, W. Terry, A. R. Macbeth	46	32 ¹ / ₅
1886, July 17.	J. H. Adams, F. J. Osmond, E. W. Brewerton	47	37 ¹ / ₅
1887, July 16.	J. H. Adams, F. J. Osmond, J. E. Fenlon	45	35 ¹ / ₅

Joseph H. Adams having won the Cup three times, it became his property, and the competition lapsed.

THE HARROGATE CHALLENGE CUP

Value 50 guineas. Distance 5 miles. Run for at Harrogate in Yorkshire, in connection with the North of England Cyclists' Meet and Camp on the first Monday in August each year, on a grass course.

Contests at this distance were promoted from 1881, and the results are added to keep the record complete. The course having been altered and improved each year, no times are given.

1881.	Charles Crute.	Sutton B.C.
1882.	J. W. Greenwood.	Leeds Crescent.
1883.	J. W. Greenwood.	Leeds Crescent.

1884.	D. H. Huie.	Edinburgh.
1885.	P. Furnivall.	Berretta B.C.
A Cup offered.		
1886.	F. Robinson.	Coventry.
1887.	W. Dobson.	Seacroft.
1888.	Sydney E. Williams.	West Kent B.C.
1889.	J. W. Stocks.	Hull Grosvenor B.C.
1890.	F. J. Osmond.	Brixton Ramblers B.C.
1891.	Sydney E. Williams.	London County.
1892.	Sydney E. Williams.	London County.

Sydney E. Williams having won the Cup three times, it became his property, and the race lapsed.

THE INTERNATIONAL CHALLENGE SHIELD.

Value 50 guineas. Distance 5 miles.

		m.	s.
1886, May 22. ¹	P. Furnivall	16	1 $\frac{2}{5}$
1887.	No competition.		
1888, Aug. 25. ²	F. P. Wood	17	18 $\frac{4}{5}$
1889, Aug. 17. ²	F. P. Wood	16	31 $\frac{3}{5}$
1890, May 26. ³	F. P. Wood	No time taken	

The Shield became the property of Frank Peters Wood.

THE KENT HOUSE CHALLENGE CUP.

Distance 3 miles. Usually run for on the North Durham Track, Gateshead-on-Tyne.

1886, June 29.	W. A. Illston.	1888, July 18.	J. J. Carruthers.
1887, Aug. 8.	W. A. Illston.	1889, July 22.	J. J. Carruthers.
	1890, July 14.	J. J. Carruthers.	

The Cup became the property of J. J. Carruthers.

THE KILDARE CUP.

Given by the Kildare Bicycle and Tricycle Club. Run for annually. To be won twice in succession, or three times in all. Distance 5 miles. Run for at Lillie Bridge until the path was closed; then at Stamford Bridge and Kensal Rise. Value 50 guineas.

		m.	s.
1880, Sept. 25.	H. L. Cortis, A. P. Shaw, C. E. Liles	15	58 $\frac{2}{3}$
1881, Sept. 17.	C. E. Liles, J. D. Butler, W. J. Reilly	15	35 $\frac{1}{5}$

¹ Run for at Alexandra Palace. ² Run for at Bath. ³ Run for at Kensal Rise.

1882, Sept. 16.	H. W. Gaskell, C. E. Liles, J. D. Butler	m.	s.
		15	54 $\frac{4}{5}$
1883, Sept. 22.	C. E. Liles, H. W. Gaskell, H. A. Speechley	16	4 $\frac{4}{5}$
1884, Sept. 13.	R. H. English, H. A. Speechley, E. M. Mayes	14	51 $\frac{2}{5}$
1885, Sept. 19.	W. F. Ball, A. R. Macbeth, W. Terry	15	37 $\frac{2}{5}$
1886, Sept. 11.	P. Furnivall, E. Mayes, J. E. Fenlon	16	3 $\frac{2}{5}$
1887, Sept. 17.	F. J. Osmond, P. Furnivall, W. A. Illston	15	26 $\frac{3}{5}$
1888, Sept. 15.	F. J. Osmond, D. McRae, W. G. H. Bramson	14	45 $\frac{1}{5}$

The first Cup thus became Osmond's property,
and a second was offered by the Club.

1889, Sept. 7.	E. M. Mayes, D. McRae, F. P. Wood	15	22 $\frac{1}{2}$
1890, May 31.	F. J. Osmond, L. Stroud, G. R. Adcock	16	55 $\frac{4}{5}$

The Club dissolved and the contest lapsed.

LONG EATON CHALLENGE CUP.

Value 50 guineas. Offered by the proprietors of the Long Eaton Track, near Trent Bridge, Nottingham, to be run for on that path. Distance 5 miles.

NOTE.—The Cup having been won in 1887 and 1888 by Herbert Synyer, was not put up in 1889, and the date chosen in 1890 was that fixed for the N.C.U. 5 miles Championship, of which Herbert Synyer was the holder. He, however, stayed at Nottingham, and finally won the Cup.

1887, July 16.	Herbert Synyer	m.	s.
		16	34
1888, June 2.	Herbert Synyer	15	14 $\frac{4}{5}$
1889.	Not put up for competition.		
1890, July 19.	Herbert Synyer	16	50 $\frac{1}{5}$

Herbert Synyer became absolute possessor of the trophy.

THE QUEEN OF THE WEST CHALLENGE VASE.

Value 30 guineas. Distance 5 miles.

1886, Aug. 21.	W. F. Ball	m.	s.
		17	2
1887, Aug. 27.	W. F. Ball	18	37
1888, Aug. 25.	W. F. Ball	17	25

W. F. Ball became absolute possessor of the trophy.

'THE SPORTING LIFE' CHALLENGE CUP.

*Sometimes called the Fifty Miles Championship. Value 50 guineas.**Run for at Lillie Bridge.*

		h.	m.	s.
1877, Oct. 27.	Harry Osborne	3	18	55
1878, Oct. 26.	A. E. Derkinderin	3	9	56
1879, Nov. 8.	Harry Osborne	3	4	6 $\frac{2}{5}$
1880, Oct. 30.	C. E. Liles	3	11	47
1881, Oct. 22.	C. E. Liles was stopped at 43 miles, when riding alone in wretched weather.			
1882, Oct. 21.	C. D. Vesey	3	10	0
1883, Oct. 13.	F. Sutton	3	6	41

Since this date nothing has been heard either of the contest or the Cup.

THE TORQUAY CUPS.

*An Ordinary and a Safety Cup. Each valued at 50 guineas.**Run for on the Torquay Track. Distance 5 miles.*

	ORDINARY.		SAFETY.			
	m.	s.	m.	s.		
1889, Aug. 27.	A. Milsom	14	45 $\frac{4}{5}$	F. T. Fletcher	14	58 $\frac{4}{5}$
1890, May 27.	F. W. Weatherley	15	49 $\frac{2}{5}$	S. F. Edge	15	5 $\frac{2}{5}$
1890, Aug. 26.	F. W. Weatherley	16	4	R. J. Mecredy	14	56
1891, May 19.	A. Duquemin	16	10 $\frac{3}{5}$	A. du Cros	15	1
1891, Aug. 25.	J. H. Adams	15	10	A. du Cros	15	3
1892, June 14.	J. H. Adams	14	46 $\frac{3}{5}$	L. Stroud	13	46 $\frac{3}{5}$
1892, Aug. 23.	J. H. Adams	15	0 $\frac{3}{5}$	A. Duquemin	13	50 $\frac{4}{5}$

Cup became Adams' property.

1893, May 30.	L. Stroud	13	27 $\frac{3}{5}$
1893, Aug. 22.	L. Stroud	13	14 $\frac{4}{5}$

Cup became Stroud's property.

THE WALLER CUP.

*1 mile. To be run for on Waller's Ground, Byker, near Newcastle-on-Tyne.**To be won three times in succession.*

1882, April.	T. D. Oliver.	
„ May 29.	{ T. D. Oliver E. J. Wilkinson }	dead heat.

- 1882, May 30. { T. D. Oliver } dead heat.
 { E. J. Wilkinson }
 ,, July 17. T. D. Oliver at length won.
 ,, Sept. T. D. Oliver.

Oliver having won the Cup three times in succession, retained it.

THE NEW WALLER CUP.

- 1883, June 2. T. D. Oliver. 1884, Aug. 30. R. H. English.
 , Sept. 1. F. Sutton. 1885, June 6. R. H. English.
 1885. R. H. English.

English retained possession of the new Cup. The Byker Grounds having been built over before this date, no more cups were offered, and the competition lapsed.

THE WEST LANCASHIRE CHALLENGE CUP.

Value 50 guineas. Distance 2 miles.

- | | |
|-----------------------|------------------------|
| 1876. W. O. Milner. | 1881. C. A. Palmer. |
| 1877. R. Hassard. | 1882. C. A. Palmer. |
| 1878. A. Spring. | 1883. G. H. Illston. |
| 1879. F. T. East. | 1884. Sanders Sellers. |
| 1880. J. R. Hamilton. | 1885. H. H. Smith. |

CHALLENGE CUP RACES STILL IN EXISTENCE.

THE ANCHOR SHIELD.

Originally presented by the late Mrs. Dibble of Ripley to the Southern Cyclists' Camp in 1886; returned to the Misses Dibble in 1893, and presented by them to the London County Club as a Challenge Trophy for the 12 Hours Path Race at Herne Hill. To be won three times. Put up for competition annually at the end of September. Value 30 guineas.

1893. C. G. Wridgway, 1st, 240 miles 690 yds. *Record.*
 A. W. Horton, 2nd, 238 ,, 620 ,,
 A. V. Linton, 3rd, 234 ,, 1,420 ,,
 1894. A. E. Walters, 1st, 258 miles 120 yds. *Record.*
 A. A. Chase, 2nd, 257 ,, 880 ,,
 K. Schwemmer, 3rd, 255 ,, 370 ,,

THE 'CUCA' CHALLENGE CUP.

Presented to the London County C. and A.C., Ltd., by Messrs. Root & Co., to be competed for in the Club's Amateur 24 Hours Path Race at Herne Hill. To be won three times. Put up for competition once each year, at the end of July. Value 100 guineas

1892.	Frank W. Shorland, 1st, 413 miles	1,615 yds.	<i>Record.</i>
	J. Melville James, 2nd, 407 "	285 "	
	J. F. Walsh, 3rd, 384 "	874 "	
1893.	Frank W. Shorland, 1st, 426 miles	440 yds.	<i>Record.</i>
	F. T. Bidlake, 2nd, 410 "	1,110 "	<i>Tricycle record.</i>
	H. Hammond, 3rd, 393 "	310 "	
1894.	Frank W. Shorland, 1st, 460 miles	1,296 yds.	<i>Record.</i>
	J. H. Petersen, 2nd, 431 "	993 "	
	C. Chapple, 3rd, 427 "	504 "	

The first Cup having been won by F. W. Shorland,
a second Cup is offered.

THE SURREY CUP.

Presented by the Surrey Bicycle Club. [A Cup was first offered on September 6, 1879. The other returns are added to keep the record complete. The Club held sports first in 1876.] Distance 10 miles. To be won three times. Usually competed for twice each year, in April and September, on grass, at Kennington Oval. Value 50 guineas.

1877, Sept. 29.	Harry Osborne, W. Wyndham, F. T. East	^{m.} 36	^{s.} 10
1878, April 27.	W. Wyndham, E. J. Hall [distance 5 miles]	18	43 ¹ / ₅
1878, Sept. 28.	F. T. East, A. E. Derkinderin, W. Wyndham	35	34 ⁴ / ₅ ¹
1879, April 26.	H. L. Cortis, A. E. Derkinderin	40	12 ²

First Cup offered.

1879, Sept. 6.	H. L. Cortis, W. Popplewell, A. S. Brown	34	31 ¹ / ₂
1880, April 24.	H. L. Cortis, W. T. Thorn, W. Popplewell	38	58
1880, Sept. 18.	H. L. Cortis, G. Lacy Hillier, C. E. Liles	39	28

The first Cup having been won by Herbert Liddell Cortis,
a second Cup was offered.

1881, April 30.	G. Lacy Hillier, J. F. Griffith, J. R. Hamilton	35	33 ¹ / ₅
1881, Sept. 10.	J. F. Griffith, C. E. Liles, E. Hassell	37	55

¹ Grass Records.

² Only two finished.

			m	s.
1882, April 22.	{ C. A. Palmer } dead heat ; M. J. R.			
	{ J. F. Griffith } Dundas	38	52	$\frac{4}{5}$
1882, June 3.	Dead heat run off on Crystal Palace Track.			
	C. A. Palmer, 1st ; J. F. Griffith, 2nd	31	17	$\frac{3}{5}$
1882, Sept. 9.	H. W. Gaskell, W. Popplewell, C. D. Vesey	38	26	
1883, April 28.	H. W. Gaskell, F. Prentice, E. Moore	42	9	$\frac{4}{5}$
1883, Sept. 15.	C. E. Liles, W. Brown, H. W. Gaskell	33	59	$\frac{3}{5}$
1884, April 26.	H. F. Wilson, F. Prentice, H. H. Smith	36	37	$\frac{3}{5}$
1884, Sept. 20.	H. A. Speechley, H. F. Wilson, R. Cripps	34	12	$\frac{2}{5}$
1885, April 25.	R. Cripps, F. Prentice, C. L. Wadey	37	4	$\frac{4}{5}$
1885, Sept. 12.	H. A. Speechley, W. Terry, A. R. Macbeth	37	39	$\frac{1}{5}$
1886, April 17.	H. A. Speechley, P. Furnivall, A. P.			
	Engleheart	41	44	$\frac{1}{5}$

The second Cup having been won by Herbert A. Speechley,
a third Cup was offered.

1886, Sept. 18.	P. Furnivall, W. F. Ball, J. H. Adams	33	40	$\frac{2}{5}$
1887, May 14.	P. Furnivall, H. Synyer, F. J. Osmond	32	42	$\frac{2}{5}$ ¹
1887, Sept. 10.	P. Furnivall, W. F. Ball, F. J. Osmond	32	36	$\frac{4}{5}$ ²

The third Cup having been won by Percy Furnivall,
a fourth Cup was offered.

1888, April 7.	F. P. Wood, H. Synyer, E. M. Mayes	41	50	$\frac{1}{5}$
1888, Sept. 8.	F. J. Osmond, W. F. Ball, F. P. Wood	32	35	$\frac{4}{5}$ ³
1889, April 27.	F. P. Wood, F. J. Osmond, T. Thitchener	41	17	
1889, Sept. 14.	J. H. Adams, F. P. Wood, E. M. Mayes	31	10	²
1890, April 19.	F. J. Osmond, F. P. Wood, H. J. Howard	36	38	
1890, Sept. 13.	F. J. Osmond, F. P. Wood, L. Stroud	30	39	$\frac{3}{5}$ ²

The fourth Cup having been won by F. J. Osmond,
a fifth Cup was offered.

1891, April 18.	H. H. Sansom, A. du Cros, A. G. Fentiman	31	9	$\frac{3}{5}$
1891, Sept. 12.	H. J. Howard, A. E. Good, A. W. Harris	28	9	$\frac{4}{5}$
1892, April 23.	U. L. Lambley, A. E. Good, A. du Cros	29	41	$\frac{3}{5}$
1892, Sept. 10.	A. W. Harris, A. E. Good, C. G. Thiselton	29	8	$\frac{2}{5}$
1893, April 22.	A. W. Harris, M. B. Fowler, U. L. Lambley	29	3	$\frac{2}{5}$
1893, Sept. 9.	A. W. Harris, T. W. Good, F. Pope	27	23	$\frac{4}{5}$

The fifth Cup having been won by A. W. Harris,
a sixth Cup was offered.

1894, April 21.	L. Stroud, T. Osborn, Ben Fisher	25	22	$\frac{3}{5}$ ⁴
1894, Sept. 8.	J. Platt-Betts, J. A. Robertson, E. H.			
	Ainsworth	31	27	$\frac{4}{5}$

¹ Run for at Lillie Bridge.

² Course short.

³ Grass Records.

⁴ Run at Herne Hill.

THE SYDNEY CHALLENGE TROPHY.

*Presented by the Sydney B.C. of New South Wales, as a perpetual Challenge Trophy, to the Surrey B.C. ; distance usually one mile
Usually run for at Kennington Oval in April and September.*

			m.	s.
1885, April 25.	R. Cripps, W. Brown, F. Prentice	.	3	39 $\frac{2}{5}$
1885, Sept. 12.	H. A. Speechley, W. Terry, J. H. Adams	.	3	17 $\frac{4}{5}$
1886, April 17.	E. M. Mayes, H. F. Wilson ¹	.	3	48 $\frac{2}{5}$
1886, Sept. 18.	P. Furnivall, H. A. Speechley, J. H. Adams	.	3	2
1887, May 14.	H. Synyer, F. J. Osmond, E. W. Brewerton	.	2	52 $\frac{4}{5}$

(Run at Lillie Bridge.)

1887, Sept. 10.	W. F. Ball, H. A. Speechley, A. E. Langley	.	3	12 $\frac{1}{5}$
1888, April 7.	E. M. Mayes, H. Synyer, F. Robinson	.	3	34 $\frac{2}{5}$
1888, Sept. 8.	F. J. Osmond, W. F. Ball, S. E. Williams	.	3	52 $\frac{1}{5}$

(Distance short.)

1889, April 27.	F. P. Wood, F. J. Osmond	.	3	14 $\frac{2}{5}$
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Distance altered to $\frac{1}{4}$ mile.

1889, Sept. 14.	E. M. Mayes, J. H. Adams, W. G. H. Bramson	o	39 $\frac{2}{5}$
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Distance half a mile.

1890, April 19.	F. J. Osmond, L. Stroud	.	1	33 $\frac{3}{5}$
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Altered to a 5 miles Race.

1890, Sept. 13.	W. C. Jones, R. A. Lloyd, C. Friswell	.	15	5 $\frac{4}{5}$
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Altered to 1 mile.

1891, April 18.	A. du Cros, J. E. L. Bates, R. L. Ede	.	2	50 $\frac{1}{5}$
1891, Sept. 12.	A. W. Harris, P. W. Scheltema, A. G. Fentiman	.	3	5
1892, April 23.	A. du Cros, U. L. Lambley, A. W. Harris	.	2	51 $\frac{1}{5}$
1892, Sept. 10.	A. W. Harris, A. E. Good, C. G. Thiselton	.	3	1 $\frac{3}{5}$
1893, April 22.	A. W. Harris, U. L. Lambley, F. G. Bradbury	.	3	4 $\frac{3}{5}$
1893, Sept. 9.	F. Pope, W. G. Chilvers, P. W. Scheltema- Beduin	.	3	4 $\frac{3}{5}$
1894, April 21.	T. Osborn, T. E. Newman, T. Cibbons- Brooks	.	3	3 $\frac{4}{5}$ ²

Altered to $\frac{1}{2}$ mile.

1894, Sept. 8.	U. L. Lambley, T. Osborn, P. W. Brown	.	1	51 $\frac{1}{5}$
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¹ Only two rode.

² Run at Herne Hill.

'THE SINGER CUP.'

<i>Value 50 guineas. Run for on the Paignton Track.</i>		<i>Distance 5 miles.</i>
		m. s.
1888, May 21.	W. F. Ball	—
1888, Aug. 6.	G. R. Adcock	16 39 ³ / ₅
1889, June 10.	J. B. Trenchard	17 49 ⁴ / ₅
1889, Aug. 5.	E. M. Mayes	15 7
1890, May 26.	A. Milsom	15 43 ³ / ₅
1890, Aug. 4.	A. Milsom	—
1891, May 18.	R. J. Ilsley	16 19 ⁴ / ₅
1891, Aug. 3.	A. Milsom	No time recorded

The Cup finally became the property of A. Milsom.

Distance 2 miles.

1892, June 13.	E. Leitch	5 28 ² / ₅
1892, Aug. 1.	J. W. Schofield	—
1893, May 27.	F. Pope	—
1893, Aug. 7.	F. Pope	—
1894, May 14.	E. Leitch	—
1894, Aug. 6.	E. Leitch	5 37

THE PAIGNTON CUP.

<i>Value 50 guineas. Run for on the Paignton Track.</i>		<i>Distance 5 miles.</i>
		m. s.
1890, —	A. G. Fentiman	—
1890, Aug. 4.	A. G. Fentiman	—
1891, May 18.	E. Leitch	16 11 ⁴ / ₅
1891, Aug. 3.	A. G. Fentiman	15 10 ⁴ / ₅
1892, June 4.	E. Leitch	13 38

The Cup became the property of A. G. Fentiman.

THE CITY OF BRISTOL CHALLENGE VASE.

(Ordinaries.)

Value 50 guineas. Distance 5 miles.

		m. s.
1890, July 5.	A. Milsom, J. Chamberlain, C. C. Bardsley	14 55
1891, Aug. 29.	F. W. Weatherley, J. Chamberlain, T. Colbourne	15 48 ¹ / ₅
1892,	A. Duquemin	—
1893,	A. Duquemin	—
1894,	A. Milsom	—

THE BROOKES CUP.

(Safeties.)

Presented by Messrs. J. and H. Brookes, of Birmingham, and run for at the 'Sport and Play' Tournament, Aston Lower Grounds, Birmingham. Value 25 guineas. Distance 1 mile.

			m.	s.
1890, Aug. 5.	H. H. Sansom, W. C. Jones, H. Parsons	..	2	48 $\frac{2}{5}$
1891, May 18.	P. W. S. Beduin, W. C. Jones, A. G. Fentiman	.	2	34 $\frac{4}{5}$
1891, Aug. 4.	A. G. Fentiman, T. Relph, A. T. Mole	.	3	3
1892, June 7.	A. C. Edwards, E. Leitch, U. L. Lambley	.	2	54 $\frac{3}{5}$
1892, Aug. 2.	A. W. Harris, E. Leitch, J. H. Adams	.	3	19 $\frac{1}{5}$
1893, April 4.	A. W. Harris, H. J. Williams, U. L. Lambley	.	2	47 $\frac{3}{5}$

THE CAMBRIDGE UNIVERSITY ROAD CHALLENGE CUP.

Distance about 50 miles.

1878.	A. A. Honey, Sidney.	1887.	G. Gatehouse, Christ's.
1879.	H. S. Clarke, Trinity.	1888.	W. L. Raynes, Pembroke.
1880.	A. J. Crichton, Trinity.	1889.	B. W. Attlee, St. John's.
1881.	E. H. Brown, St. John's.	1890.	S. E. Williams, Jesus.
1882.	J. S. Whatton, Trinity.	1891.	F. R. Sharpe, Christ's.
1883.	" "	1892.	Hon. R. H. Scott, Trinity.
1884.	G. Gatehouse, Christ's.	1893.	G. T. Bennett, Emmanuel.
1885.	G. Gatehouse, Christ's.	1894.	No race.
1886.	G. F. C. Searle, St. Peter's.		

OPEN 100 MILES SCRATCH RACE.

Promoted by the Surrey B. C. in 1892-3-4 at Herne Hill, usually run at the end of June.

			h.	m.	s.
1892, Aug. 13.	J. H. Adams, J. E. L. Bates	.	5	4	18
1893, July 1.	E. Dance, E. V. Soanes, R. J. Ilsley	.	4	43	58 $\frac{1}{5}$
1894, June 30.	J. Michael, H. B. Hoch, R. W. Horton	.	4	19	39 $\frac{1}{5}$

10 MILES ROAD CHAMPIONSHIP OF SCOTLAND.

	m.	s.		m.	s.
1876.	D. McGregor	. 33 22	1881.	D. D. Bryson	. 31 29
1877.	R. S. Bryson	. 33 25	1882.	D. H. Huie .	. 32 14
1878.	J. S. Purdie	. 32 58	1883.	" "	. 37 50
1879.	D. D. Bryson	. 34 24	1884.	" "	. 30 0
1880.	J. McGregor	. 33 30	1885.	J. Lamb .	. 33 40

Distance altered to 50 miles.

(See 50 miles Road Championship of Scotland, below.)

THE 50 MILES BICYCLE ROAD CHAMPIONSHIP
OF SCOTLAND.

Originally the 10 Miles Road Championship of Scotland. (See above.)

Course—Coltbridge to the 26th milestone on Airdrie Road, and back.

		h.	m.	s.
1886, June 18.	J. H. A. Laing	. . .	3	19 30
1887, July 25.	D. Cleland	. . .	3	23 39
1888, June 18.	M. Bruce	. . .	3	14 54
1889, June 17.	P. F. C. Willcox	. . .	3	25 25
1890, June 16.	J. Steel	. . .	3	54 52 $\frac{3}{4}$
1891,	J. Blair	. . .	2	51 32
1892,	W. Duncan	. . .	2	59 50 $\frac{1}{2}$
1893,	J. M. Duncan	. . .	2	49 3
1894,	M. Bruce	. . .	2	37 5

CYCLING ON THE GOODWIN SANDS.

It was in the spring of 1883 that a cyclist first rode upon the Goodwin Sands, upon which several cricket matches have been played. This fact escaped the notice of Mr. George Byng Gattie, the author of 'Memorials of the Goodwin Sands.' To Mr. Palmer Dalton, of the London Bicycle Club, belongs the unique honour of being the *first* to perform this feat.

On August 31, 1887, Messrs. F. Wimbush and A. E. Walker, of the Finchley Tricycle Club, and C. W. Brown, North Road Club,

took ship from Deal beach, and landed on the sands, something of a race to be first taking place. In riding it was found necessary to keep very close to the water, the sand there, owing probably to the pressure of the water, being hard, whilst twenty yards away it was quite soft. The trio returned in safety to Deal. So at present the record of the Goodwin Sands stands thus :

1883.	Palmer Dalton, London B.C.	. . .	Ordinary bicycle.
1887.	F. Wimbush, Finchley T.C.	. . .	Safety ,,
1887.	C. W. Brown, North Road Club	. . .	Ordinary ,,
1887.	A. E. Walker, Finchley T.C.	. . .	Safety ,,

RECORDS ON THE ROAD.

LAND'S END TO JOHN O' GROATS.

The route, which has not always been closely adhered to, is as follows :

Land's End Hotel.	Wellington (Salop).
Penzance.	Hodnet.
Camborne.	Market Drayton.
Redruth.	Nantwich.
Bodmin, 60 miles.	Northwich.
Launceston, 82 miles.	Warrington, 353 miles.
Okehampton, 100 miles.	Wigan.
Exeter, 121 miles.	Preston, 382 miles.
Collumpton.	Garstang, 395 miles.
Wellington.	Kendal, 430 miles.
Taunton, 154 miles.	Shap, 445 miles.
Bridgwater, 163 miles.	Penrith.
Cross, 179 miles.	Carlisle, 480 miles.
Bristol, 195 miles.	Ecclefechan.
Gloucester, 230 miles.	Lockerbie, 500 miles.
Tewkesbury.	Beattock Bridge.
Worcester, 254 miles.	Biggar, 545 miles.
Kidderminster.	Carlops.
Bridgnorth, 282 miles.	Edinburgh.

Granton Ferry, 580 miles.	Dingwall, 733 miles.
Perth, 607 miles.	Tain.
Pitlochrie.	Meikle Ferry.
Blair Athole, 642 miles.	Golspie, 785 miles.
Kingussie, 680 miles.	Helmsdale, 800 miles.
Carrbridge, 701 miles.	Wick, 842 miles.
Inverness.	John o' Groat's House,
Kessock Ferry.	861 miles.

In 1880 Messrs. H. Blackwell, jun., and C. A. Harman, of the Canonbury B.C., made a run from 'end to end' on bicycles. Their estimate of the distance was nearly 900 miles, and they covered it in 13 days. The Hon. Ion Keith-Falconer created a great sensation in 1882 by riding over the same route in 12 days 23 hrs. 15 secs. James Lennox, A. Nixon, E. Oxborrow, T. R. Marriott, J. H. Adams, and many more have held the record, which at present stands to the credit of G. P. Mills, who in 1893 went over the route on a tricycle in 3 days 16 hrs. 47 mins., finishing on June 8, 1893, and in 1894 rode the distance on a Safety bicycle in 3 days 5 hrs. 49 secs.

LIVERPOOL TO EDINBURGH.

Route—Ormskirk (13 miles), Preston (32), Garstang (43), Lancaster (54), Burton (66), Kendal (76), Shap (92), Penrith (102), Plumpton (108), Carlisle (120), Ecclefechan (138), Lockerbie (145), Dinwoodie (153), Beattock Bridge (160), Crawford Inn (176), Biggar (192), Carlons (207), Edinburgh, Bank of Scotland (220).

This record route has not been much patronised, as the roads are, on the whole, very bad.

1894, Sept. 30, H. B. Saunders, 15 hrs. 3 mins.

THE LONDON BICYCLE CLUB'S 100 MILES ROAD RACE.

In 1877 the L.B.C. instituted a Road Race from Bath to within nearly 6 miles of London, for members only. The race is kept very quiet, but always excites interest. It has resulted as follows :

		h.	m.	s.
1877.	C. Walmesley; E. Tegetmeier; A. D. Butler	8	23	30
1878.	F. E. Appleyard; W. T. Thorn; G. P. Coleman	7	18	55 ¹

¹ Best on record. This record stood unbeaten in the books until 1884. (See 100 Miles Road Record.)

		h.	m.	s.
1879.	A. H. Koch ; A. Herbert ; P. Dalton	8	57	55
1880.	A. D. Butler only finished, owing to a violent N.E. gale	12	10	0
1881.	L. B. Reynolds ; A. W. Barrett ; H. R. Reynolds	7	55	0
1882.	H. R. Reynolds ; G. F. Beck ; C. Newman and A. Barker dead heat for third place	7	26	0
1883.	H. R. Reynolds ; L. B. Reynolds ; H. Smith	7	28	0
1884.	G. F. Beck ; H. Smith ; G. N. Stunt	8	26	40
1885.	P. H. Watson ; H. Smith ; A. R. Ricardo	7	33	43 ⁴ / ₅

[In 1886 the route was altered for the first time, the riders leaving the London road near Slough, and riding N.E., *viâ* Stoke Pogis and Fulmer, into the Oxford-Wickham road, and thence by Denham to Rickmansworth—decidedly a slower route than the old one.]

		h.	m.	s.
1886.	Douglas McRae ; A. C. Potter ; L. Hartridge	7	18	53

[In 1887 the route was again changed, starting from St. Albans *viâ* Hatfield, Welwyn, Biggleswade, Buckden, Alconbury Hill, Norman Cross, Wisbeach, to King's Lynn.]

		h.	m.	s.
1887.	Douglas McRae ; F. H. Williams [only two finished]	8	38	38
1888.	F. H. Williams ; F. C. Thorn ; E. E. Barron	7	6	18
1889.	O. V. Cooke ; A. W. Rumney ; S. S. Legg	7	52	0
1890.	H. R. Reynolds ; E. E. Barron ; O. V. Cooke	6	40	45
1891.	W. J. A. Butterfield ; E. C. Francis ; W. F. Crier	7	27	55
1892.	E. T. A. Wigram ; H. J. Philcox ; W. J. A. Butter- field	6	39	15
1893.	W. J. A. Butterfield ; C. T. Price ; L. O. Eagleton	6	44	25
1894.	A. S. Gordon ; Sharratt ; H. R. Killick	7	21	0

LONDON TO BATH AND BACK.

Route—Hyde Park Corner, Hounslow, Maidenhead, Theale, Newbury, Marlborough, Calne, Bath ; 106 miles and back. The record was originally created by some of the pioneer riders of bone-shakers, who thought London to Bath a big enough feat. Walter Britten's record over the distance stood for six years, when C. A. Smith made a new record of 20 hrs. 55 mins. This he beat on September 9, 1889, when he rode the 212 miles in

17 hrs. 53 mins. 3 secs. Smith varied the usual procedure by starting from Hounslow, riding to Hyde Park Corner, and thence to Bath, finishing at Hounslow. This gave him a distinct advantage, as he rode the worst of the roads at the start; the $9\frac{3}{4}$ miles over lumpy roads and through traffic at the end of his long task would have taken more time to cover. After being several times essayed, this record now stands to the credit of C. G. Wridgway, as under.

Safety.

1894, Oct. 4. C. G. Wridgway, 12 hrs. 55 mins. 14 secs.

LONDON TO BRIGHTON AND BACK.
'THE COACH RECORD.'

In July 1888 the late James Selby drove the Brighton Coach from the 'White Horse Cellars,' Piccadilly, *viâ* Croydon, Merstham, Red Hill, Horley, Crawley, Hand Cross, Cuckfield, and Clayton, to Brighton and back. He had sixteen changes of horses. The dis-

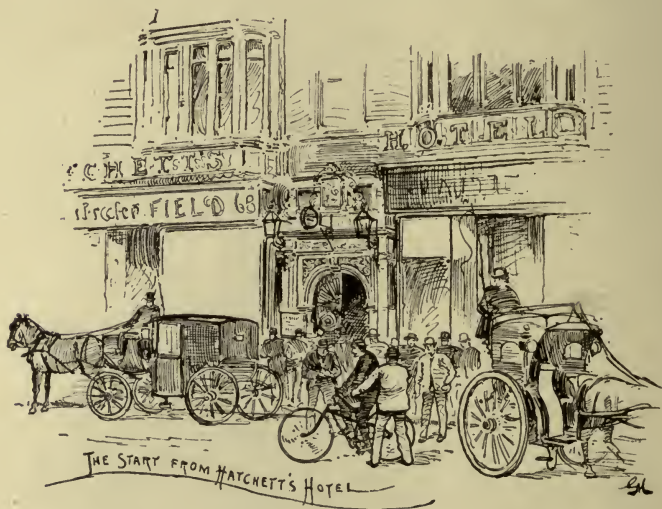


THE BRIGHTON COACH.

tance is about 108 miles, and his times were—London to Brighton, 3 hrs. 36 mins.; London to Brighton and back, 7 hrs. 50 mins.

The performance attracted a good deal of attention, especially amongst cyclists, and it was confidently anticipated that the time accomplished would be beaten, but it remained longer 'on record' than was expected. The time was first beaten by a quartette

of riders, using the same machine, and dividing the journey, Willis, Morris, Schafer, and Walker doing the journey in 7 hrs. 36 mins. 19 $\frac{2}{5}$ secs. P. C. Wilson made an unsuccessful single-handed onslaught, as also did M. A. Holbein later on; and then another quartette, Shute, Girling, R. Wilson, and A. E. Griffin, did 7 hrs. 32 mins.; their record being shortly afterwards reduced to 7 hrs. 25 mins. 15 secs. by E. and W. Scantlebury, Blair, and Arnott. P. C. Wilson again essayed the task, and failed; and then F. Shorland, a stripling, covered the 'Coach Course' in 7 hrs. 19 mins., his outward journey occupying



3 hrs. 45 mins., his mount being a Facile inflated-tired Safety bicycle. Shorland's performance created much enthusiasm, and it was regarded by many as almost an unbeatable record, whilst the advocates of the tire he used sought to secure for it all the credit of the performance.

On July 23, 1890, S. F. Edge, upon a Marriott & Cooper Safety, fitted with the firm's new cushion tires, not only for the first time beat the coach time for the outward journey, doing 3 hrs. 18 mins. 25 secs., but beat Shorland's time by 16 mins. 10 secs., his full time being 7 hrs. 2 mins. 50 secs. But for a bad attack

of cramp, which made it necessary for Edge to walk up Hand Cross Hill on the return journey, his time would have been inside 7 hours.



CRAWLEY : GOING DOWN.

On Sept. 3, 1890, C. A. Smith, mounted upon an inflated-tired Cumber Safety, succeeded in beating S. F. Edge's record. The



TURNING-POINT AT BRIGHTON.

down journey occupied 3 hrs. 26 mins. 3 secs., and the rider was delayed 10 mins. 30 secs. whilst procuring food. He reached



CLAYTON HILL: GOING HOME.

London again in 6 hrs. 52 mins. 10 secs. from the start, thus beating Edge's time by over 10 minutes.



THE 'BLACK SWAN': GOING HOME—'PACEMAKER COMING ON.'

Numerous fresh records have been made over this route, and at present the figures stand as under :

Safety.

1894, Sept. 12. C. G. Wridgway, 5 hrs. 35 mins. 32 secs

Tricycle.

1894, Oct. . W. R. Toft, 6 hrs. 21 mins. 30 secs.

Ordinary.

1892, — . R. C. Nesbitt, 7 hrs. 42 mins. 50 secs.

LONDON TO EDINBURGH.

Edinburgh Post Office to the G.P.O. London, or vice versa.

Distance nearly 400 miles.

Route—London, Barnet, Hatfield, Biggleswade, Buckden, Alconbury, Norman Cross (76 miles), Grantham (110), Retford (145), Wetherby (194), Leeming (222), Catterick (228), Durham (259), Newcastle (274), Belford (322), Berwick (338), Dunbar (367) Haddington (379), Edinburgh (395 $\frac{1}{4}$).

This route was popularised by some of the earlier road record-makers, Alfred Bird, Alfred Nixon, and W. F. Sutton creating records between the two cities on tricycles. A number of well-known men have held this record, which at present stands thus :

1894, July 5, 6. C. C. Fontaine, 28 hrs. 27 mins.

LONDON TO LIVERPOOL.

G. P. O. London to G. P. O. Liverpool.

Safety : 1892. C. Lucas, 13 hrs. 4 mins.

Tricycle : 1894. S. H. Keeling, 14 hrs. 57 mins.

LONDON TO YORK—'DICK TURPIN'S RIDE.'

Route—G.P.O. York, Selby (15 miles), Doncaster (35), Retford (52), Newark (73), Grantham (87), Stamford (108), Buckden (137), Biggleswade (152), Hitchin (163), Hatfield (177), Barnet (186), London, G.P.O. (197).

The route followed by Bonny Black Bess has always been attractive to cyclists, and many good men and true have essayed the record. Thorpe, Thorn, Reynolds, and others, have made records from London to York, or *vice versa*, and the honours may at present, be divided between the riders named below :

Safety Bicycle.

1894. C. C. Fontaine, 11 hrs. 51 mins. .

Tricycle.

1892. F. T. Bidlake, 13 hrs. 19 mins.

THE 12 HOURS ORDINARY ROAD RECORD.

This record at present stands as below :

1891. J. F. Walsh, 175½ miles.

THE 24 HOURS ORDINARY ROAD RECORD.

'All-day' rides have of late years become much more systemised than they were at first, and the vast assistance obtainable by securing the services of pacemakers has now been fully exploited. Still, the pioneers who rode long distances without such aids should not be forgotten. H. S. Thorp, a long way back in the Seventies, rode 195½ miles in 22½ hours, from London to York. In 1876 Frank Smythe and W. E. N. Coston rode 205 miles in 22 hours. T. H. Wilkinson rode 200 miles, on a picked bit of road between Horley and Crawley, in 23 hrs. 19 mins., and G. T. Clough covered the same distance in 18 hours riding-time in 1877. Frank Smythe had another try on a picked bit of road, covering 218 miles; and then W. T. ('Billy') Thorn rode 162 miles in 17 hrs. 10 mins. before his machine broke down in a spin from London to York. Arthur Gilliatt, H. R. Reynolds, W. F. Sutton, and G. P. Mills all in turn held the 24 hours Bicycle Record. The honour at present rests with J. F. Walsh, who, on August 22, 1891, rode 312 miles inside 24 hours upon an Ordinary bicycle.

THE 50 MILES ORDINARY ROAD RECORD.

This has been held by many men, but has not been attempted so much of late owing to the popularity of the Safety for road work. R. J. Ilsley and J. F. Walsh both reduced the figures in 1890, but their records were in turn wiped out by the following :

	h.	m.	s.
1891. S. C. Houghton	2	45	55

THE 100 MILES ORDINARY ROAD RECORD.

This is an ancient and honourable record, which was held for a long while by Mr. F. E. Appleyard, who accomplished his grand time of 7 hrs. 18 mins. 55 secs., *unaided by pacemakers*, in the London B.C. race (which see). This time stood for a long while, but was eventually beaten by several riders, including Douglas McRae, F. H. Williams, and Theo. Godlee, who have all done better time on Ordinaries in the same race, though not over the same course, upon which Appleyard's time is as yet unbeaten on an Ordinary. G. R. White, J. F. Walsh, and others have held the record, which now stands to the credit of J. F. Walsh, as below :

	h.	m.	s.
1891. J. F. Walsh	6	22	15

THE 12 HOURS SAFETY ROAD RECORD.

This record has also been much sought after, and has been notably improved year by year. It at present stands to the credit of A. A. Chase, as below :

1894, Aug. 28. A. A. Chase, 212½ miles.

THE 24 HOURS SAFETY ROAD RECORD.

The long-distance road record is one which it has always been the ambition of real stayers over a road course to hold, and it has been held by many a good man and true. The first regular Safety rides for twenty-four hours straight away were promoted by the makers of the 'Facile' bicycle, and it is with these contests that the first important Safety records at the distance are identified. W. Snook, J. H. Adams, E. Oxborrow, and many more, have held the record. After 300 miles had been compassed by M. A. Holbein the record rapidly improved, and was beaten both in 1892 and 1893, and now stands as under :

1894, Sept. 15. C. C. Fontaine, 376 miles.

THE 50 MILES ROAD SAFETY RECORD.

This record has been essayed and held by a vast number of men, amongst them being R. L. Ede and C. W. Schafer, who dead-headed by consent in 2 hrs. 38 mins. 3 secs., beating Holbein's record made on August 18, 1890. P. C. Wilson, and after him a long list of other well-known men, beat the record in various contests on the North Road, and in paced trials. The record now stands as under :

	h. m. s.
1894. A. A. Chase	2 7 15

THE 100 MILES SAFETY ROAD RECORD.

The 100 miles Safety road record, like the others, was earliest made in races promoted by makers to boom certain types of machines, and E. Hale covered 100 miles in 6 hrs. 39 mins. 5 secs. in 1885. This record was beaten in 1888 by Holbein, who again beat his own time in 1890 by doing 5 hrs. 54 mins. 2 secs. in a North Road race on a cushion-tired machine. This record was, in due course, beaten by a user of an inflated tire, who had the additional good fortune to have a wind behind him throughout the whole of his straightaway run, in which he accompanied Edge and Bates when they made the 100 miles tandem tricycle road record (which see). The record at present stands thus :

	h. m. s.
1894. A. A. Chase	4 39 28

THE TANDEM TRICYCLE ROAD RECORDS.

These records are less often attempted than others on single machines, owing to the difficulty of getting two men who suit one another, and, as it is, the couples who have accomplished records have in many cases done but little work together, comparatively speaking ; in fact, the tandem tricycle records have, for the most part of late, only served to introduce new machines to notice, and there is no doubt that if any two riders of average merit were to go thoroughly into the matter, and train and ride together for some time, better performances could be accomplished. The 100

miles tandem record was made when T. A. Edge accomplished his 100 miles Safety record (which see), and the riders had the assistance of a very strong wind from start to finish.

THE 12 HOURS TANDEM TRICYCLE ROAD RECORD.

1893. M. A. Holbein and F. T. Bidlake, 180½ miles.

THE 24 HOURS TANDEM TRICYCLE ROAD RECORD.

1893. M. A. Holbein and F. T. Bidlake, 333 miles.

THE 50 MILES TANDEM TRICYCLE ROAD RECORD.

1894. S. D. Begbie and T. G. King, jun. h. m. s.
2 16 50

THE 100 MILES TANDEM TRICYCLE ROAD RECORD.

1890, Oct. 18. S. F. Edge and J. E. L. Bates h. m. s.
5 30 31

THE 12 HOURS TRICYCLE ROAD RECORD.

This record is held as under :

1894, Sept. 15. F. T. Bidlake, 194½ miles.

THE 24 HOURS TRICYCLE ROAD RECORD.

Thomas R. Marriott, of the well-known firm of Marriott & Cooper, was one of the earliest exploiters of the possibilities of the tricycle, as, early in 1882, he rode 180 miles inside 24 hours on the Derby-Holyhead road. C. H. R. Gosset (the first man to ride 200 miles in 24 hours), W. F. Sutton, J. H. Adams, A. H. Fletcher, George P. Mills, W. C. Goulding, and M. A. Holbein have all, at one time or another, held the record, which at present stands as under :

1894, Sept. 15. F. T. Bidlake, 356½ miles.

THE 50 MILES TRICYCLE ROAD RECORD.

This record is held as under :

		h.	m.	s.
1894.	F. T. Bidlake	2	22	5

THE 100 MILES TRICYCLE ROAD RECORD.

This record has been held by many good men.

		h.	m.	s.
1892.	M. A. Holbein	5	54	44

100 MILES TANDEM SAFETY ROAD RECORD.

		h.	m.	s.
1894, Aug. 15.	F. R. Cook and A. E. Marsh	4	54	13

12 HOURS TANDEM SAFETY ROAD RECORD.

1894. E. Busvine and A. Smythe, 204½ miles.

50 MILES TANDEM SAFETY ROAD RECORD.

		h.	m.	s.
1894, Aug. 1.	H. Smyth and Hock	2	7	15

24 HOURS TANDEM SAFETY ROAD RECORD.

1894, Sept. 15. J. van Hooydonk and P. Highatt, 317 miles.

RECORDS ON THE PATH.

BICYCLE RECORDS.

Date	Miles	Time		Name	Place
		h.	m. s.		
June 25, 1892 ¹	$\frac{1}{4}$		32	J. H. Adams	Herne Hill.
June 7, 1890 ²	$\frac{1}{4}$		35	F. J. B. Archer	Paddington Track.
July 11, 1891	$\frac{1}{2}$	1	12	U. L. Lambley	Herne Hill.
July 15, 1890	$\frac{3}{4}$	1	51	F. J. Osmond	Paddington Track.
" "	1	2	28	" "	" "
May 23, 1888	2	5	12	W. A. Illston	Coventry Track.
Sept. 8, 1887	3	8	14	F. J. Osmond	Crystal Palace Track.
Sept. 10, 1891	4	10	51	U. L. Lambley	Herne Hill.
" "	5	13	44	" "	" "
Sept. 2, 1891	6	16	36	B. W. Atlee	" "
" "	7	19	26	" "	" "
" "	8	22	14	" "	" "
" "	9	25	1	" "	" "
" "	10	27	55	" "	" "
" "	11	30	46	" "	" "
" "	12	33	36	" "	" "
" "	13	36	28	" "	" "
" "	14	39	20	" "	" "
" "	15	42	13	" "	" "
" "	16	45	5	" "	" "
" "	17	48	1	" "	" "
" "	18	50	58	" "	" "
" "	19	53	53	" "	" "
" "	20	56	51	" "	" "
" "	21	59	43	" "	" "
" "	22	1	2 52	" "	" "
" "	23	1	6 51	" "	" "
" "	24	1	9 23	" "	" "
" "	25	1	12 48	" "	" "
Sept. 8, 1891	26	1	16 26	F. J. B. Archer	" "
" "	27	1	19 41	" "	" "
" "	28	1	23 7	" "	" "
" "	29	1	26 39	" "	" "
" "	30	1	30 12	" "	" "
" "	31	1	33 49	" "	" "
" "	32	1	37 32	" "	" "
July 25, 1889	33	1	41 55	J. H. Adams	Coventry Track.
" "	34	1	44 57	" "	" "
" "	35	1	48 6	" "	" "
" "	36	1	51 16	" "	" "

¹ Flying start.² Standing start.

BICYCLE RECORDS—*continued.*

Date.	Miles	Time			Name	Place
		h.	m.	s.		
July 25, 1889	37	1	54	19 ^{1/2}	J. H. Adams	Coventry Track.
" "	38	1	57	24	"	" "
" "	39	2	0	24 ^{1/2}	"	" "
" "	40	2	3	21 ^{1/2}	"	" "
" "	41	2	6	21 ^{1/2}	"	" "
" "	42	2	9	21 ^{1/2}	"	" "
" "	43	2	12	23 ^{1/2}	"	" "
" "	44	2	15	24	"	" "
" "	45	2	18	23 ^{1/2}	"	" "
" "	46	2	21	24 ^{1/2}	"	" "
" "	47	2	24	36	"	" "
" "	48	2	27	41	"	" "
" "	49	2	30	45	"	" "
" "	50	2	33	57	"	" "
Aug. 22, 1888	51	2	47	21 ^{1/2}	"	Crystal Palace Track.
" "	55	3	2	33 ^{1/2}	"	" "
July 27, 1883	56	3	14	30	F. R. Fry	" "
" "	60	3	28	30	"	" "
" "	70	4	3	17	"	" "
" "	80	4	38	32	"	" "
" "	90	5	15	2	"	" "
" "	100	5	50	5 ^{1/2}	"	" "
Sept. 29, 1884	101	6	43	27	G. Lacy Hillier	" "
" "	110	7	28	30	"	" "
" "	120	8	7	26	"	" "
" "	130	8	49	28	"	" "
" "	140	9	33	54	"	" "
" "	146	9	59	34	"	" "

HOUR RECORDS.

Hours	Date	mi.	yds.	Name	Place
1	Sept. 2, 1891	21	180	B. W. Attlee	Herne Hill Track.
2	July 25, 1889	38	1520	J. H. Adams	Coventry Track.
3	Aug. 22, 1888	54	578	"	Crystal Palace Track.
4	July 27, 1883	69	90	F. R. Fry	" "
5	"	85	1400	"	" "
10	Sept. 29, 1884	146	250	G. L. Hillie	" "

SAFETY BICYCLE RECORDS.

Date	Miles	Time	Name	Place
		h. m. s.		
Sept. 22, 1893 ¹	$\frac{1}{4}$	27 $\frac{1}{2}$	A. W. Harris	Herne Hill Track.
Sept. 20, 1894 ²	$\frac{1}{4}$	31	T. Osborn	" "
Sept. 20, 1894	$\frac{1}{2}$	1 0	J. Platt-Betts	" "
" "	$\frac{3}{4}$	1 29	"	" "
" "	1	2 1	"	" "
Oct. 3, 1894	2	4 19	"	" "
Sept. 27, 1894	3	6 37	J. A. Robertson	" "
" "	4	8 44	"	" "
" "	5	10 57	"	" "
Aug. 29, 1894	6	13 12	G. R. Martin	" "
" "	7	15 30	"	" "
Sept. 27, 1894	8	17 40	J. A. Robertson	" "
" "	9	19 59	"	" "
" "	10	22 10	W. Henie	" "
Sept. 27, 1894	11	24 25	J. A. Robertson	" "
" "	12	26 36	"	" "
" "	13	28 53	"	" "
" "	14	31 14	"	" "
" "	15	33 26	"	" "
" "	16	35 42	"	" "
" "	17	37 50	"	" "
" "	18	40 7	"	" "
" "	19	42 20	"	" "
" "	20	44 36	"	" "
" "	21	46 51	"	" "
" "	22	49 3	"	" "
" "	23	51 21	"	" "
" "	24	53 36	"	" "
" "	25	55 49	"	" "
" "	26	57 57	"	" "
Sept. 15, 1894	27	1 2 51	J. Green	" "
" "	28	1 5 13	"	" "
" "	29	1 7 21	"	" "
" "	30	1 9 50	"	" "
" "	31	1 12 9 $\frac{1}{2}$	"	" "
" "	32	1 14 30	"	" "
" "	33	1 16 49	"	" "
" "	34	1 19 7 $\frac{1}{2}$	"	" "
" "	35	1 21 20	"	" "
" "	36	1 23 43 $\frac{1}{2}$	"	" "
" "	37	1 26 1	"	" "
" "	38	1 28 20 $\frac{1}{2}$	"	" "

¹ Flying start.² Standing start.

SAFETY BICYCLE RECORDS—*continued.*

Date.	Miles	Time			Name	Place
		h.	m.	s.		
Sept. 15, 1894	39	1	30	40	J. Green	Herne Hill Track.
" "	40	1	33	2 $\frac{1}{2}$	"	" "
" "	41	1	35	26 $\frac{1}{2}$	"	" "
" "	42	1	37	49 $\frac{1}{2}$	"	" "
" "	43	1	40	13 $\frac{1}{2}$	"	" "
" "	44	1	42	36 $\frac{1}{2}$	"	" "
" "	45	1	45	3	"	" "
" "	46	1	47	25 $\frac{1}{2}$	"	" "
" "	47	1	49	46 $\frac{1}{2}$	"	" "
" "	48	1	52	7	"	" "
" "	49	1	54	28	"	" "
" "	50	1	56	45	"	" "
Sept. 22, 1894	51	2	5	50	A. A. Chase	" "
" "	60	2	28	27	"	" "
" "	70	2	53	45	"	" "
" "	80	3	20	32	"	" "
" "	90	3	47	53	"	" "
" "	100	4	15	29	"	" "
" "	110	4	45	37	"	" "
" "	120	5	15	30	"	" "
" "	130	5	45	38	"	" "
Oct. 13, 1894	140	6	15	57	G. Hunt	Putney Track.
" "	150	6	43	45 $\frac{1}{2}$	"	" "
" "	200	9	8	4	"	" "
" "	250	11	32	26	"	" "
July 26-7, 1894	300	14	48	3	F. W. Shorland	Herne Hill Track.
" "	350	17	43	11	"	" "
" "	400	20	42	55	"	" "
" "	450	23	29	54 $\frac{1}{2}$	"	" "
" "	460	23	58	14 $\frac{1}{2}$	"	" "

HOUR RECORDS.

Hours	Date	mi.	yds.	Name	Place
1	Sept. 27, 1894	26	1670	J. A. Robertson	Herne Hill Track
2	Sept. 15, 1894	50	0	J. Green	" "
3	Sept. 22, 1894	72	750	A. A. Chase	" "
4	" "	94	580	"	" "
5	" "	114	900	"	" "
6	" "	134	780	"	" "
7	Oct. 13, 1894	155	1600	G. Hunt	Putney Track.
8	" "	176	80	"	" "
9	" "	197	445	"	" "
10	" "	217	1700	"	" "
11	" "	238	1110	"	" "
12	" "	260	175	"	" "
13	July 27-8, 1894	267	1700	F. W. Shorland	Herne Hill Track.
14	" "	286	743	"	" "
15	" "	303	675	"	" "
16	" "	321	261	"	" "
17	" "	338	560	"	" "
18	" "	355	0	"	" "
19	" "	370	1630	"	" "
20	" "	388	200	"	" "
21	" "	405	500	"	" "
22	" "	423	1540	"	" "
23	" "	440	666	"	" "
24	" "	460	1296	"	" "

TANDEM SAFETY BICYCLE RECORDS.

Date	Miles	Time			Name	Place
		h.	m.	s.		
Sept. 21, 1893 ¹	$\frac{1}{4}$	26	$\frac{4}{5}$		{ A. W. Harris } { J. Aram }	Herne Hill Track.
Sept. 12, 1893 ²	$\frac{1}{4}$	31	$\frac{4}{5}$		{ G. E. Osmond } { T. W. Good }	" "
July 19, 1894	$\frac{1}{2}$	1	0	$\frac{3}{5}$	{ A. J. Watson } { C. G. Thiselton }	" "
July 5, 1894	$\frac{3}{4}$	1	31	$\frac{3}{5}$	{ A. J. Watson } { C. G. Thiselton }	" "
" "	1	2	2		" "	" "
July 27, 1894	2	4	22	$\frac{1}{5}$	{ J. E. Ridout } { W. J. Jones }	" "
July 18, 1894	3	6	42		" "	" "
" "	4	8	54	$\frac{0}{5}$	" "	" "
" "	5	11	9	$\frac{1}{5}$	" "	" "
" "	6	13	18	$\frac{1}{5}$	" "	" "
" "	7	15	34	$\frac{1}{5}$	" "	" "
" "	8	17	51	$\frac{1}{5}$	" "	" "
" "	9	19	59	$\frac{1}{5}$	" "	" "
" "	10	22	10	$\frac{1}{5}$	" "	" "
Sept. 27, 1894	12	27	21	$\frac{1}{5}$	{ E. Scott } { G. McNish }	" "
" "	15	34	0	$\frac{4}{5}$	" "	" "
" "	20	45	16	$\frac{1}{5}$	" "	" "
" "	25	56	25	$\frac{1}{5}$	" "	" "
" "	30	1	7	37	$\frac{1}{5}$	" "
" "	35	1	19	0		" "
" "	40	1	31	1	$\frac{1}{5}$	" "
" "	45	1	42	33	$\frac{1}{5}$	" "
" "	50	1	53	20	$\frac{1}{5}$	" "

¹ Flying start.² Standing start.

HOUR RECORDS.

Hours	Date	mi. yds	Name	Place
1	Sept. 27, 1894	26 1025	{ E. Scott } { G. McNish }	Herne Hill Track.

TRICYCLE RECORDS.

Date	Miles	Time	Name	Place
		h m. s		
Sept. 23, 1893	1	33	L. Stroud	Herne Hill Track.
Sept. 13, 1894	1	10	W. Ellis	" "
" "	1	45	"	" "
" "	1	21	"	" "
Oct. 18, 1894	2	4 56	"	" "
" "	3	7 28	"	" "
" "	4	10 3	"	" "
" "	5	12 35	"	" "
" "	6	15 6	"	" "
" "	7	17 39	"	" "
" "	8	20 12	"	" "
" "	9	22 44	"	" "
" "	10	25 16	"	" "
" "	11	27 44	"	" "
" "	12	30 21	"	" "
" "	13	32 54	"	" "
" "	14	35 31	"	" "
" "	15	38 3	"	" "
" "	16	40 34	"	" "
" "	17	43 14	"	" "
" "	18	45 53	"	" "
" "	19	48 29	"	" "
" "	20	51 4	"	" "
" "	21	53 37	"	" "
" "	22	56 11	"	" "
" "	23	58 42	"	" "
" "	24	1 1 17	"	" "
" "	25	1 3 45	"	" "
Oct. 1, 1894	30	1 20 38	"	" "
" "	35	1 33 40	"	" "
" "	40	1 47 25	"	" "
" "	45	2 1 0	"	" "
" "	50	2 14 29	"	" "
" "	100	4 38 58 ¹ / ₅	"	" "
Sept. 20, 1894	150	7 53 41	E. Steel	Putney Track.
" "	200	10 42 42 ¹ / ₅	"	" "
July 21-2, 1893	300	17 13 44	F. T. Bidlake	Herne Hill Track
" "	400	23 27 28 ³ / ₅	"	" "
" "	410	23 58 19 ⁵ / ₅	"	" "

TANDEM TRICYCLE RECORDS.

Date	Miles	Time			Name	Place
		h.	m.	s.		
Sept. 13, 1894	1		37	00	{ H. B. Hock } { H. Smyth }	Herne Hill Track.
" "	1	1	20	00	"	" "
" "	1	1	45	00	"	" "
" "	1	2	21	00	"	" "
May 2, 1894	2	5	12	04	{ L. Stroud } { J. E. L. Bates }	" "
" "	3	7	42	10	"	" "
" "	4	10	15	00	"	" "
" "	5	12	55	00	"	" "
" "	6	15	31	00	"	" "
" "	7	18	5	00	"	" "
" "	8	20	41	00	"	" "
" "	9	23	20	00	"	" "
" "	10	26	2	00	"	" "
" "	11	28	42	00	"	" "
" "	12	31	25	00	"	" "
" "	13	33	59	00	"	" "
" "	14	36	32	00	"	" "
" "	15	39	5	00	"	" "
" "	16	41	41	00	"	" "
" "	17	44	14	00	"	" "
" "	18	46	50	00	"	" "
" "	19	49	26	00	"	" "
" "	20	51	58	00	"	" "
" "	21	54	31	00	"	" "
" "	22	57	3	00	"	" "
" "	23	59	36	00	"	" "
" "	24	1	4	38	"	" "
" "	25	1	7	26	"	" "
" "	26	1	10	21	"	" "
" "	27	1	13	13	"	" "
" "	28	1	16	3	"	" "
" "	29	1	18	46	"	" "
" "	30	1	21	47	"	" "
Oct. 1, 1894	40	1	57	15	{ J. A. Poole } { A. Hoffman }	" "
" "	50	2	28	43	"	" "

One hour. 23 miles 310 yds. L. Stroud and J. E. L. Bates,
Herne Hill.

Two hours. 40 miles 1510 yds. J. A. Paole and A. Hoffman,
Herne Hill.

HOUR RECORDS.

Hours	Date	mi. yds.	Name	Place
1	Oct. 18, 1894	23 920	W. Ellis	Herne Hill Track.
2	Oct. 1, 1894	44 1100	"	" "
3	" "	66 480	"	" "
4	" "	86 1370	"	" "
5	Sept. 20, 1894	100 850	E. Steel	Putney Track.
6	" "	116 1680	"	" "
7	" "	133 65	"	" "
8	" "	151 1690	"	" "
9	" "	170 180	"	" "
10	" "	187 170	"	" "
11	" "	205 840	"	" "
12	" "	223 1085	"	" "
13	July 22, 1893	233 320	F. T. Bidlake	Herne Hill Track.
14	" "	250 0	"	" "
15	" "	265 1550	"	" "
16	" "	280 0	"	" "
17	" "	296 500	"	" "
18	" "	312 1135	"	" "
19	" "	327 340	"	" "
20	" "	343 380	"	" "
21	" "	357 1680	"	" "
22	" "	375 316	"	" "
23	" "	392 20	"	" "
24	" "	410 1110	"	" "

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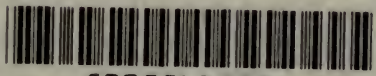
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