

BICYCLING.

AMONGST all manly and athletic pursuits bicycling holds a most prominent place, not only as a sport, but also as a really useful accomplishment. Though it is only within the last few years that it has attained the position it now holds, that pre-eminence is not of mushroom growth, but rests upon a firm basis. The practice of bicycling is distinguished over all other sports by its independence. The adept, rising early in the morning, can compass eighty or one hundred miles with ease in the course of a holiday, visiting his friends, or exploring, with some chosen companions, some new district far removed from his usual haunts. The toil-worn clerk can, by getting up an hour earlier than usual, take a quiet run amongst the green fields, and fill his lungs with fresh air before entering upon the labours of the day. In short, such a hold has the sport taken upon youths everywhere that hundreds of manufacturers and thousands of workmen are hourly engaged in the production of machines and their various parts.



Fig. 1. — POSITION OF HAND.

BICYCLING FROM A MEDICAL POINT OF VIEW.

Parents with experiences of the old hobby horse, or who want experience altogether, often raise objections to their children learning to ride. The old hobby horse, with its heavy construction and awkward action, was frequently productive of serious injury, and the earlier bicycles were little better; and a stigma still clings to the machine, although it is now so utterly different. A doctor's opinion should always be taken in doubtful cases, and some watch should be kept to see that the youthful novice does not over-exert himself. With such care, and a properly-constructed machine, bicycle riding will be found most beneficial and health-giving. A large number of children from eight years old and upwards now ride, and parents need to be careful only that the machine used is a suitable one.

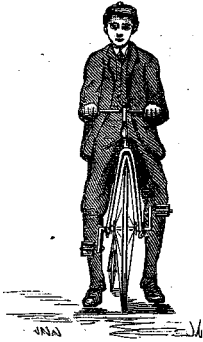


Fig. 2.—A LEARNER'S MOUNT.

A *Suitable Bicycle* for a child should be as light as is compatible with strength to carry him; he should be able to touch the pedal with his instep when on the machine, which precludes the possibility of his over-reaching and straining himself. The handle bars should be very wide, and the child should be encouraged to hold them with the palm underneath, and the fingers uppermost (Fig. 1). This position will be found to throw the shoulders well back, and to expand the chest. The machine should be fitted with a powerful brake and a wide step, and the youngster should be taught to mount and dismount with care and deliberation, all praise for dashing or quick actions being withheld, as the tender muscles and bones are peculiarly liable to injury from sudden and violent jerks.



Fig. 3.—POSITION OF FOOT FOR TESTING REACH.



Fig. 4.— POSITION OF FOOT WHEN DRIVING.

LEARNING TO RIDE.

The safest and best way of learning to ride, both for young and old, is to attend one or other of the schools, or "bicycling academies,"

where the art is taught at a very cheap rate (usually 10s. 6d. for a complete course), until the tyro can ride, mount, and dismount; or free if a new machine be purchased. In some

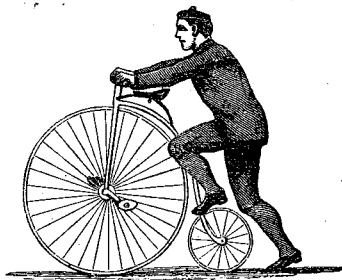


Fig. 5.—MOUNTING.

having been obtained, the learner should retire to some secluded spot, where the path or road has a smooth surface and a gentle slope. At the top of the slope the tyro should get across his steed, and, holding to the handles firmly, should start it gently down the hill, and without attempting to put his feet on the pedals, try and guide the machine straight down the incline. The difficulty in maintaining the balance will be immediately apparent. The rider should sit straight, and turn the wheel in the same direction as that towards which it shows a tendency to fall. Thus, if the rider finds himself falling to the right, he pulls the right handle, and the machine recovers itself. This is the whole secret, but it presents the greatest difficulty to the learner, as his natural tendency is to turn the wheel in the opposite direction. This balancing should be practised steadily for an hour or so, taking care to leave off directly any fatigue is felt, and by the end of this period the learner will probably be able to steer fairly as far as the machine will go. As soon as this point has been attained, the tyro may attempt to put his feet on the pedals (Fig. 4). This requires great care. The handles should be held very firmly, and the feet simply moved round, taking precaution only to put on a most gentle pressure at first. When the right foot is descending, the right-hand handle should be gently pulled, to resist its tendency to turn the wheel. During all these operations, care should be taken to move with deliberation, and jerky or rapid action should be avoided. Having now learnt to balance the machine with some certainty, the beginner's next step is to learn to dismount. The machine running at a gentle pace, the rider takes both feet off the pedals, and looking back under his left arm, reaches his leg cautiously towards the step, taking care to avoid putting it into the wheel. Having got safely on the step,

cases, however, there may be no school sufficiently near, and the would-be rider must teach himself. If two novices can arrange to assist each other, they will probably succeed sooner. The first necessity is a machine to learn on. Any machine that is low enough will serve this purpose. It must be strong, and the saddle should be set as far back as will allow the rider to reach the pedals easily, and he should also be able just to touch the ground on each side with his feet (Fig. 2). The handle bars should be high up, and before attempting anything, the learner should see that when his foot is on the pedal at its highest point his knees clear the bar. The requisite machine

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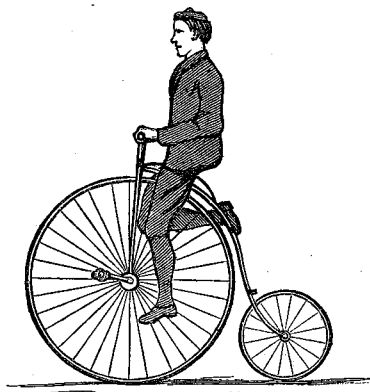


Fig. 6.—DISMOUNTING BY THE BACKBONE.

the learner should see that when his foot is on the pedal at its highest point his knees clear the bar. The requisite machine

he should rise on it, and lower himself until his other foot just touches the ground, when he may drop with the hind wheel between his legs, having taken the precaution of seeing that it is not high enough to hurt him. Having accomplished this feat half-a-dozen times, and practised guiding the machine whilst standing on the step, mounting may be essayed. Proceeding as if he were dismounting, the learner touches the ground with his foot, and then regains the saddle. After doing this once or twice, he goes to the top of the slope, and placing his foot on the step, gives a few hops with his other leg, and pulling himself up by the handles, gains the saddle (Fig. 5). By this time the novice will have become pretty proficient, but he is strongly advised to continue to use the machine he learnt on for a fortnight or so, carefully practising all his acquirements, and also not attempting too much—a great fault with young riders. After this noviciate is passed, the bicyclist will look out for a more modern machine, and begin to really appreciate the result of all his labours and struggles. There are several methods of dismounting more usually adopted than by the step, which is used only by novices.

Dismounting by the Backbone.—This is accomplished by hooking the foot over the backbone, and then straightening the leg with a lifting action, which brings the rider out of the saddle (Fig. 6). The disadvantages are the tendency on the part of the novice to put his toes in the spokes, and the ringing of the backbone and hind wheel.

Dismounting by the Pedal.—To perform this successfully, the rider slackens his speed, and just as the pedal reaches its lowest point, he throws the opposite leg backwards over the backbone, putting most of his weight on the pedal and handles (Fig. 7). It is a very neat and expeditious method when once learnt. The danger to the novice lies in the fact that the machine may “kick” and send him over the handles.



Fig. 8.—DISMOUNTING OVER THE HANDLES.

To effect this, sit well back, and throw one leg up over one handle, removing the hand momentarily, and catching the handle directly the leg has passed; carry the leg right over the further handle in the same way, and drop to the ground (Fig. 8). This is also a neat dismount. The novice in attempting it should make a slight curve towards the opposite side from the leg he throws over, thus getting the machine on a slant so as to prevent his going backwards.

Dismounting by a Vault.—This, when properly learnt, is the best of all dismounts, as it is of service in any emergency. It consists simply in vaulting from the saddle by throwing one leg sharply backwards over the backbone, as in dismounting by the pedal. The rider should keep upright, and throw only a

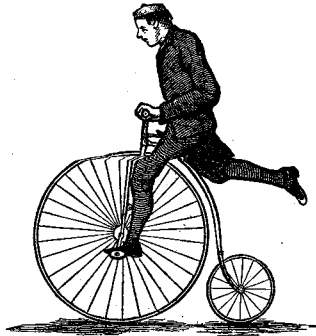


Fig. 7.—DISMOUNTING BY THE PEDAL.

little weight on the handles. You will get an idea of the proper position if you suppose that some one has grasped the backbone, and you wish to *hack* his hand with your heel. Carefully practised it is the best of all methods (Fig. 9).

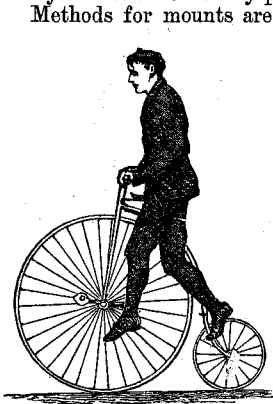


Fig. 9.—DISMOUNTING BY A VAULT.

he were riding down hill in the ordinary way. Having got thus far, our novice will now think about procuring a good mount, and to assist him in his choice we will add a few remarks upon

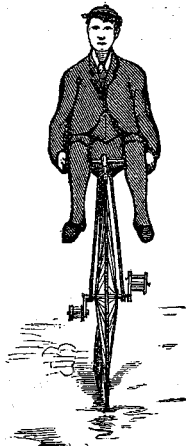


Fig. 11.—GOING DOWN HILL (LEGS PLACED OVER HANDLE).

THE MODERN BICYCLE.

A bicycle consists of two parts—the frame or body, and the wheels. The frame-work consists of the head, handle - bars, and handles, forks, brake, backbone, and backbone head, spring and hind forks, and step. The wheels consist of axles, cranks, pedals, hubs, spokes, bearings, and rims. The head is a most important point, as all strains culminate in it; it is evident, therefore, that it must be strong enough to withstand them. There are many types, with their concurrent modifications. The original pattern was the socket head, but it is now seldom or never used. We now have the Ariel head, with many

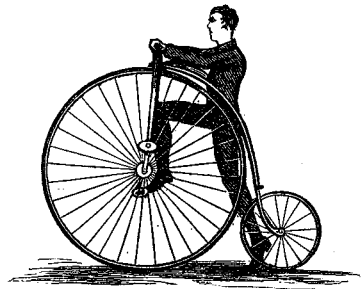


Fig. 10.—MOUNTING BY THE PEDAL.

modifications (Fig. 12); the Stanley head (Fig. 13), in all varieties of form, and several improved styles of steering (Fig. 14). The most popular is undoubtedly the Stanley head, as it is strong in the right places, yet very neat. Many makers

close in the opening with a neatly-fitted dust-cap. The forks, on which depend the rigidity and stability of the machine, are now mostly hollow. They are constructed of steel, and are very broad at the top, gradually tapering to about one-half their original width. They are of many varying shapes—oval, angular, grooved, and fluted, double tubes, &c. The Humber machine is fitted with very rigid forks (Fig. 15), as also are Carver's. The Surrey

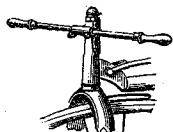


Fig. 13. — STANLEY HEAD.

Invincible has a peculiar section of great strength; the Stanley a completely round tube. Messrs. Hillman and Herbert adopt double hollow forks, twin hollow tubes side by side. The Arab has twin tubes, joined by a thin steel plate, the tubes being rolled on the edge; whilst every machine with any claim to popularity has hollow forks of one section or another. Handle-bars are made much longer than they used to be, giving great power up-hill. They are fitted hollow

by a good many firms, especially those who make racers a speciality. The Invincible, however, having crooked or "cowhorn" handles, is never fitted with hollow bars.

The handles themselves are made of varying materials. Rosewood, box, and ebony were very fashionable, but ivory and buffalo-horn are popular now, being smoother and cooler, without any tendency to produce blisters; indiarubber has also been used, either for a complete handle, or to slip over an ordinary one, and is greatly in favour with some riders. The backbone is constructed of hollow steel tubes, either round, oval, or fluted (Fig. 16). They are also made of larger dimensions than formerly, and taper neatly to the hind forks. Heads to backbones are of varying patterns, but in general makers pay great attention to strength in this important point. Springs are also very diverse in shape. The old-fashioned bowspring which went

Fig. 15.—FORKS AND SECTIONS.

out in front of the head has almost entirely disappeared. Most springs are now fixed with a hinge or shackle-joint on to the backbone head, and finish in a clip-slotted tail or carefully fitted slide. Amongst exceptions to this is the Arab spring, constructed of stout steel wire, twisted into a sort of compressed Z shape (Fig. 17). It has no wearing points, and is a capital improvement. Steps are of all sizes and shapes, from the plain projecting iron bracket to adjustable and spring steps. Hind-wheel forks are frequently made solid, some makers fitting hollow ones, however. They are best made straight in the direction of the backbone, with a sharp angular curve an inch above the attachments to the hind wheel. The Invincible hind forks are distinguished from all others, being constructed by splitting the end of the backbone, and fastening an inner plate over the inside. They are very rigid and light.

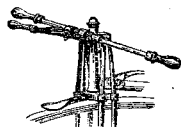


Fig. 12. — DEVELOPMENT OF THE ARIEL HEAD (THE D. H. F. HEAD).

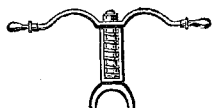


Fig. 14. — INVINCIBLE HEAD.

The backbone is constructed of hollow steel tubes, either round, oval, or fluted (Fig. 16). They are also made of larger dimensions than formerly, and taper neatly to the hind forks. Heads to backbones are of varying patterns, but in general makers pay great attention to strength in this important point. Springs are also very diverse in shape. The old-fashioned bowspring which went

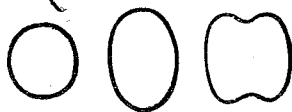


Fig. 16.—ROUND, OVAL, AND FLUTED BACKBONE SECTIONS.

Of wheels there are many varieties. They consist of axle, cranks, hubs, spokes, rim or felloe, and tyre. Axles are usually solid steel, on to which are fastened the hubs, constructed of gun-metal or steel; on to these are fastened the spokes of steel wire, either directly screwed into the hub (known as *direct action* spokes), or drawn through a screw nipple, with a locknut to fix it (known as *lock-nutted spokes*, Fig. 18).

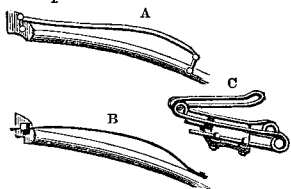


Fig. 17.—A, SHACKLE SPRING; B, HUMBER'S SLIDE; C, ARAB CRADLE SPRING.

One maker fits *hollow spokes*. They are rolled out of sheet steel, and are very rigid; solid ends are brazed in, and they are fixed by "direct action." Some few makers place the tension nuts or nipples in the rim, and simply draw the headed spoke through the hub; this plan gives easier access to the nut for adjusting purposes. The rims are either hollow, "V," "U," or crescent section (Fig. 19). The hollow rim consists of two sections of steel plate, one rolled into a deep V and the other a shallow U, the shallow section being firmly brazed into the deep one (Fig. 20). The result is an extraordinarily rigid felloe, which, without the spokes, will bear an immense weight. The "V" and "U" sections explain themselves; they are now mostly discarded for the crescent section, which is a U, thickest at the base, and gradually fining off to a thin edge. This gives a maximum of strength with a minimum of weight. The tyres are of indiarubber, the fashionable colour being red, although grey is the purest rubber. There are some very good and some inferior, but all good makers adopt the best. There are specialities in indestructible tyres, and one maker has an improvement which consists in affixing a strip of leather to the tyre, which prevents it slipping on "greasy" roads.



Fig. 19.—V FELLOE, U FELLOE, CRESCENT FELLOE.

Of bearings there are many varieties—plain, parallel, coned, rollers, and one maker has an improvement which consists in affixing a strip of leather to the tyre, which prevents it slipping on "greasy" roads. Of bearings there are many varieties—plain, parallel, coned, rollers, and one maker has an improvement which consists in affixing a strip of leather to the tyre, which prevents it slipping on "greasy" roads. Of bearings there are many varieties—plain, parallel, coned, rollers, and one maker has an improvement which consists in affixing a strip of leather to the tyre, which prevents it slipping on "greasy" roads. Of bearings there are many varieties—plain, parallel, coned, rollers, and one maker has an improvement which consists in affixing a strip of leather to the tyre, which prevents it slipping on "greasy" roads.

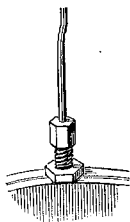


Fig. 18.—LOCK-NUTTED SPOKES.

Ball Bearings.—There is an immense variety of methods by which balls are adapted to the bicycle, prominent amongst which stands the "Æolus Bearing," better known as "Bown's Bearing."

They are very simple: twelve steel balls running in a grooved adjustable box, and in a groove on the axle itself. They will run without oiling for

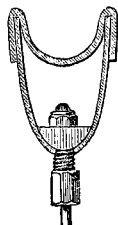


Fig. 20.—INVINCIBLE RIM (SECTION).

long distances, and are easily adjustable. A large number of our best makers fit them to their machines. There is a *specialité* in double balls, so called because in place of a single row and groove there is a double row and double grooves in each bearing, the balls also running in a revolving cap, which prevents contact.

Cranks are usually made detachable, and are pretty much of the same pattern throughout.

Pedals are various, one maker having adopted a ball-bearing to his, which is a splendid addition; plain and coned pins are most common.

Machines range in price from £10 to £20, and in purchasing a machine it is well to obtain the practical assistance of a friend, or else to go to some well-established firm, and leave the matter in their hands. The fancies and predilections of the rider himself will soon enable him to make his choice of a mount. Certain additional appliances are necessary. Spanner, oil-can, and wrench are usually supplied with the machines.

Bells and lamps are required by law in many districts, and the rider should provide himself with them. There are several styles of bells, from the plain dog-bell to the complicated alarm. Some are provided with means for stopping the sound when not required, whilst one special alarm, the "Arab," is actuated by the spokes, giving some 1,500 strokes per minute.

Of lamps there is also a long list. The two forms of lamps are the "head lamp" (Fig. 21), fixed on a bracket at the handles; and the "hub lamp" (Fig. 22) hung on the axle inside the wheel.

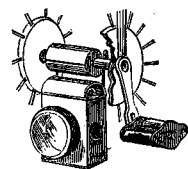


Fig. 22.—HUB LAMP.

This latter is most fashionable now, as it is nearer the ground, and thus shows up stones and similar obstacles at once. Cooper's "hub lamp" gives a good light, and is hung on a very ingenious arrangement of springs, and will not go out over the roughest road. Another lamp, called the "King of the Road," is a very large double-wicked lamp, and gives a very powerful light; it is so constructed that, in spite of its size, it will pass easily through the spokes of an ordinary wheel, and it will burn for four hours. Many other head and hub lamps are made, but it is necessary to be well assured of the quality of construction, more especially in the hub lamp, as, should it be jarred or broken from its fastenings, it may cause irreparable injury by blocking the wheel, and thus causing an accident. Next to a cheap and nasty machine, nothing is so dangerous as a cheap and badly-constructed hub lamp.

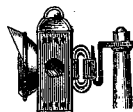


Fig. 21.—HEAD LAMP.

THE NATIONAL CYCLISTS' UNION.

The growth of our sport has been very rapid, and of course, as with every new departure, since George Stephenson's day, a great deal of opposition has been encountered. To meet this, a combination of all prominent clubs was formed, under the title of the "National Cyclists' Union."

This body is organised by each subscribing club sending delegates in proportion to its number of members, who attend all general meetings. From these delegates an executive is chosen, which manages the affairs of the Union. The Union was formed in 1878, and all important metropolitan and many provincial clubs belong to it, besides a large number of unattached members. The objects of the Union may be summed up as the general conservation of the interests of wheel-men, both bicyclists and tricyclists. The executive is in direct communication with the Home Office, and uses its influence to modify the stringency of

the bye-laws which some local boards would pass but for its intervention. The fixing of notice-boards to warn touring bicyclists of the dangerous hills is also energetically carried out. Action is also taken by this body in aggravated cases of obstruction or assault on the roads. The racing world is indebted to the Union for the framing of the definition now accepted by the Amateur Athletic Association. Under the special sanction of the Union Executive, the amateur championships of bicycle racing are run; and the Union also permits, once or twice a year, the ablest exponents of amateur and professional form to meet in honourable contest. The rules admitting these mixed contests are very strict, and the races always offer a most interesting feature. The Union definition of an amateur, which has aroused much discussion *pro* and *con*, is now accepted in effect, if not in so many words, by all bicyclists. The subscription fee to the Union is 1s. per annum, payable to the Hon. Sec., Robert Todd, 57, Basinghall St., London, E.C.

THE CYCLISTS' TOURING CLUB.

Secretary—E. R. Shipton, 139, Fleet St., London. This club has been formed for the benefit of touring bicyclists. The subscription is 2s. 6d. per annum, but a minimum of one month, or a maximum of two months, must elapse before the ticket is sent. A tariff has been submitted to and accepted by hotel proprietors, so that in nearly every town there is a Cyclists' Touring Club-house or head-quarters, where the touring wheel-man can stop at the accepted tariff rates. Consuls of the Cyclists' Touring Club are appointed, and through them information as to best routes, nature of roads, and other particulars, may be obtained. The club now numbers over 20,000 members. The uniform (not compulsory) is grey; the badge, a shield bearing the letters C. T. C. Communications should be addressed to the Secretary at the Head-quarters.

Of other clubs there are some 600 or more, subscriptions varying from 2s. 6d. to £2 2s. All classes are represented. The advantages of joining a club may be briefly stated as follows:—Companionship on runs; emulation amongst the members; club races, private and open; and in many cases concerts, theatricals, and social evenings during the winter months. In joining a club, it is best to know some few of its members, as you can thus judge of its *status*.

TOURING.

The rider who starts for a tour should take care to have everything prepared beforehand. He should carefully clean all his bearings; should they be a little stiff through being clogged with oil, a few drops of paraffin should be put in, and the wheel spun round, when the clogged oil will work out, and should be wiped off, a few drops of clean sperm-oil being put in afterwards. *All nuts should be screwed up carefully, the head centres cleaned with a rag dipped in paraffin, and well oiled and adjusted; hind wheel oiled, and, if coned, carefully cleaned and adjusted.* At starting, especially if the tour is to be of several days' duration, no rapid time should be ventured upon; in fact, the cyclist should proceed leisurely on his way for the first few miles. It is the worst policy to try and do a long journey in a hurry. On the road it is well to feed pretty regularly, as nothing is so injurious as hard work on an empty stomach. Steak, chop, or mutton are the best viands, as they are most easily digested. Soda and milk or egg and milk are very good quenchers of thirst between meals; a biscuit should be eaten with the liquid. The things carried should consist of a dry pair of stockings and a clean flannel shirt, with perhaps a muffler; a brush and comb, the comb half of an ordinary one, the brush a small-sized one with the handle sawn off; a razor, if necessary; a sponge-bag, with

small sponge; shaving and tooth-brushes; a few clean handkerchiefs; map and guide-book. Immediately on arriving at the end of a day's journey, a wash and change should be obtained, the things taken off being sent to be dried, whilst, should the tour be a long one, a change may be sent by train to some distant point. There is a very good saddle specially made for touring purposes, and with it soreness is seldom felt, if care be taken to accustom oneself to the work. The feet should be washed each night and carefully dried, the stockings being rubbed inside with a dry piece of soap, more especially along the seams and in rough places. It is a good plan to carry a little bit of "plain yellow" in the bag, and at any time if any friction is found to be painful, the boot and stocking can be removed, and the place rubbed over; this will generally give immediate relief. To sum up all we have said above—Ride steadily; eat often, but not much; rest for an hour after dinner; never race along the road; do not overdo it in any respect. A riding costume should consist of a flannel shirt, ribbed stockings, shoes or boots to fancy; breeches fairly but not too tight, buttoning below the knee, just enough to retain the stocking in position; a waistcoat, if liked, and a close-fitting jacket, buttoning close up to the throat.

All linings to be of thin flannel; no linen to be worn or used, as it strikes very cold and chilly when wet with perspiration. For head-gear, a well-ventilated helmet, with plenty of brim back and front, is undoubtedly the best, though not so natty-looking as a polo cap. Care should be taken to unbutton the top of the jacket and leave the neck free when riding in hot weather, as heat at the nape of the neck is very injurious, and productive of sunstroke. If you tour at all, take early steps to become a member of the Touring Club, and also provide yourself with the *Hotel charges' book* and a map. The

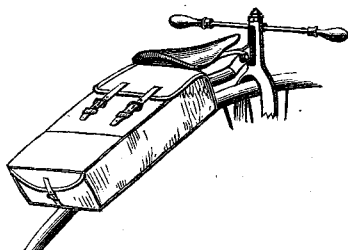


Fig. 23.—M. I. P. BAG.

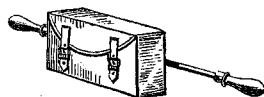


Fig. 24.—HEAD BAG.

latter can be obtained at all shades of price specially designed for cyclists. Map your run out pretty clearly before starting; do not try and do 100 miles per day, but be content with fifty. For carrying luggage many methods are in vogue. But the most popular are the "M. I. P." bag (Fig. 23), in various improved forms, which is fixed on the backbone just behind the saddle, and the "Head" bag, (Fig. 24), which is fixed on a carrier over the front handles (Fig. 25). If seriously fatigued, stop at once. Do not drink any spirits, and only a small quantity of malt liquor; though pure water (of course cautiously drunk when heated) cannot be excelled as a thirst-quencher. Ride with extreme care at hills, and never let go the pedals until you can see the bottom.

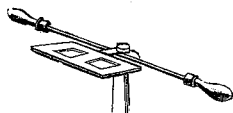


Fig. 25.—CARRIER.

RACING.

Before our novice thinks of this, he will probably know as much as we can tell him, so we shall not offer very lengthy remarks. In training, strict rules as to practice and dietary have to be observed, and it is necessary to join some club or racing track. The novice should obtain the assistance of some experienced

friend to help him at first, and should enter and run in two or three good handicaps, to see if it is worth while training. Racing is now brought to such a pitch of excellence, that not only is a competitor required to be speedy to succeed, but he must also have that clear head and freedom from nervousness which are obtained only by experience. It is well, therefore, to take every opportunity of running in as good company as possible, as by that means a great deal may be picked up. But the tyro should never ape or imitate the style of another rider, as often by doing so he may spoil his chance. Let him ride in whatever position suits him best, without any reference to whether it is "good form" or not.

Monster meets are very popular. The great meet at Hampton Court was the progenitor of many others all over the country. The meet was originated by Mr. Honeywell, of the Surrey Bicycle Club. At the meet held in May, 1880, when nearly 2,000 men were present, the clubs were massed on the green at Hampton Court, from which they rode in regular order some three or four miles round, through Staines and Teddington, and finishing up through the avenue in Bushey Park, where they surrounded the Diana Fountain. The crowds of pleased spectators who lined the route were a proof of the popularity of the sport.

Inter-club races are not so frequent as they might well be; for they are capital incentives to hard training. Contiguous districts engage in hearty rivalry in football, cricket, &c., and it is desirable that they should do so in bicycling.

TRICYCLING.

Besides bicycling pure and simple, we have other forms of wheeling, such as Tricycling, which is a very popular form of the sport amongst elderly riders. All who rode or saw ridden the old velocipedes well know the weight, clumsiness, and awkward action of those venerable machines. But as soon as our mechanics arrived at the fact of the immense strength, combined with lightness, which is obtainable by the use of tubular iron-work, as in the bicycle, they commenced to turn their attention to tricycles. Of these there are many forms. They may be divided into two classes, according to the principle by which they are worked. The first principle adopted was the lever. This consists of long levers carrying the pedals, which are connected by chains to a cranked axle. The action obtained is powerful, but the up and down direct action is very tiring to the knees. The other class is the rotary action. This consists of a cranked axle, the pedals being fastened on it; at the end of this axle is a toothed wheel, which, in some, catches in each link of a chain which runs over a corresponding toothed wheel, fixed on the axle of the driving wheel; in others a wheel which catches the teeth of the two wheels is inserted between them. Of course, the tricycle cannot compare with the bicycle in point of speed, but many a timid rider who dares not venture upon a two-wheeler may learn to ride a tricycle, which is not an arduous undertaking, and *when the knees are accustomed to the work* he will be able to compass from six to eight miles an hour. For the botanist or artist the tricycle is very useful, as he can wander from place to place with ease and rapidity compared with walking. Any rider, however, who is active enough to tricycle may well try to ride one of the dwarf bicycles.

The Pony Bicycle is simply a bicycle in miniature. From the end of the crank where the pedal is usually placed hangs a bar about one foot in length; this is firmly pivoted, so as to swing easily, but without side-shake. At the end of this bar the pedal is placed, the result being that the pedal always hangs one foot below the end of the crank, thus enabling a long-limbed man to ride with a straight leg, and yet to have his feet close to the ground. Another dwarf bicycle has a lever action similarly adjusted, which is equally easy and acces-

sible. With both these actions a speed of eight miles an hour is obtainable, and as the machines are small, their weight is light, and the labour of propulsion is thus lessened. To all who would ride, but will not venture on a bicycle *pur et simple*, these dwarf cycles are recommended.

Touring in the United Kingdom is a most enjoyable way of spending a holiday. In our directions to novices we have expatiated upon the outfit necessary, and we need only point out the fact of there being a large number of excellent roads and districts in which touring will be found most pleasant. Favourite trips are from London to Brighton—a most enjoyable run, though somewhat hilly, with a splendid finish in Brighton. The run to Bath is another frequented line, though the road is not so good as it might be, patches of macadam and sand being found. The road to Coventry through Dunstable is good, and at the finish a visit to the bicycle and lace works of the City of Spire is most enjoyable. With the aid of a Bicycle Annual and a map, a capital tour can be mapped out, and, if properly arranged, will be thoroughly enjoyed. Foreign tours are not very popular. The French roads are fairly good, but cyclists do not compare them favourably with the home ways. Holland and Belgium are not much visited, though the roads are good in surface in general, and level. Some fair though hilly riding is to be found around Geneva. Our English novice is not likely to export himself to America for the purpose of pursuing our sport, for although many miles of excellent riding are obtainable in the States, still it is generally acknowledged that Great Britain holds the palm as a perfect paradise for cyclists.

THE FORMATION OF A BICYCLE CLUB.

A demand insures a supply, and when the number of bicyclists in any place seems to warrant it, an attempt should be made to form a club. If it is intended to embrace all local amateur riders, they should be personally canvassed, and then a general meeting should be called, at which, after the election of a chairman, a proposition for the formation of a club should be brought forward, discussed, and carried. The rules should be similar to those of any other amateur bicycle club.

The Captain is usually elected, though some few clubs still race for the distinction—a very faulty plan, as the fastest man is not always competent for the post, which requires a man who can be friendly yet firm, and who retains the friendship of his men whilst keeping a tight hand of discipline on them. The captain should be jealous of the club's honour, and curb at once any conduct likely to disgrace or degrade it. This is a difficult task, and not one to be trusted to the chances of a race. The captain's duties are simply to lead, choosing the route, and give orders to his men. On the road he usually rides at the head of the club, on the left hand, either alone, or with the bugler beside him. He regulates the pace, and allows no one to pass him from the ranks unless he gives permission.

The Sub-Captain's duties are most arduous. He rides last, and looks after stragglers and novices. Should the pace be too great, he signals to that effect to the captain by means of a whistle or bugle, and an agreed code. He also informs him in case of accident or mishap.

The Bugler transmits the orders of either officer to the men.

The Vice-Captain's duties are to take charge in case of the captain's absence.

The District Captain has a captain's command over men in a given district, meeting them at the rendezvous, and acting in all respects as their captain until they join the main body, when his command ceases.

The Clubman's duties are to ride with decorum, and obey the orders of his officers. Should any of those orders not meet with acceptance, the proper step

for the aggrieved clubman to take is to obey them, and then bring the case before the committees or a general meeting of the club.

Of non-active officers—that is, officers not necessarily bicyclists—we have

The Patrons, generally chosen from amongst the important local or district gentry; the Mayor of the town or the Member for the borough should be obtained, if possible. The patron's duties are light, generally culminating in a prize or donation towards the race meeting or the funds of the club.

The President is supposed to preside at meetings, but it is usually an honorary office. A club lucky enough to secure an amiable president with plenty of influence will be sure to benefit by its good fortune.

Vice-Presidents, are also most frequently honorary. Clubs pay a special compliment to well-known or prominent men by asking them to accept the title.

In cases where no president or vice-president is present, the captain usually takes the chair.

The Committee-men are elected at the general meeting from the body of the club, and transact all the business. The captain is *ex-officio* a committee-man.

The Treasurer receives all subscriptions, and disburses for expenses. By virtue of his office he is on the committee. He is elected by the members, as is also

The Secretary. The man of pen and ink undertakes all the writing in connection with the club, receives letters, and calls meetings.

CONCLUDING REMARKS.

In its social aspect bicycling is, to a great extent, affected by local circumstances, but a neat and well-behaved rider always eventually gains the respect of all. Every wheelman should bear in mind that the public are tacitly hostile to the silent steed, and should invariably bear himself in an orderly and gentlemanly manner. When riding, should he unfortunately meet a restive horse, and should the animal show signs of fright when far away, the cyclist should immediately dismount, and, having put the machine out of sight, should offer to lead the animal by. If, on the other hand, the horse should shy when close to the rider, the latter should spurt rapidly by, as, if he dismounts, the sudden motion and noise would frighten the animal still more.

A frequent cause of accident is what is known as "slipping the pedal," that is, when the foot is descending and power is being put into the stroke, the foot slips off the pedal and the jerk fetches the hind wheel up, the whole weight being thrown suddenly forward. Rat-trap and spiked pedals are used to obviate this danger, rubber pedals being especially slippery in wet weather. Most riders—amongst whom we may enumerate Sidney Kemp, Lacy Hillier, George Beeson, J. R. Hamilton, and W. T. Thorn, junior—besides using rat-traps, have the boots also made to fit, the most complete being those worn by Mr. Hillier. They are shoes, cut very high over the instep, with a moderate sole and low heel. On the first sole is placed a second, a good quarter of an inch thick, and then two slits, a quarter of an inch wide, are cut right through this added sole, corresponding with the side bars of the pedal. This obviates all possibility of a slip even in the wettest weather. The shoe is fitted with *hooks* throughout, instead of eyelets, thus preventing the laces from pressing on the foot. This plan can be adapted to any shoe or boot. All that is necessary is to ride in the boots for a day or so, and when the iron rat-trap has thoroughly marked the sole, to have patches put on in the proper places. It is of importance that the front slit should be the most accurately filled, as, should the slit at the back "bite" before the other, there is danger that the pedal may turn over.

To all who practise our sport we say in conclusion AUDACES FORTUNA JUVAT.