part of the lowest pedal can be just touched by the upper surface of the foot, the pedals being vertical.

The pedals themselves should be "rubber" pedals and not "rat-trap" as it is termed, and it is important that they should have a reliable fastening to the cranks.

The tyres must, of course, be pneumatic; in a really good bicycle the tyres are always of a standard make and quality; but especially for girls it is important to have tyres that are little liable to puncture, or those which, in the event of injury are repaired easily and without the use of any great force. Mud-guards are a necessity, as is a dress-guard and gear-case in a woman's machine; these three important adjuncts should be perfectly satisfactory in size and adjustment; the mud-guard should be sufficiently large to keep all mud off, and the dress-guard should efficiently protect the dress from the hind wheel; the gear-case which covers the chain and chain-wheels should allow of free movement of those parts, and be, as nearly as possible, dust and water-tight. In many machines, more especially the American varieties, absurd little useless mud-guards are fitted, and in lieu of a gear-case an open string-work is stretched over the chain and chain-wheels. As the splashing of a modern bicycle chain with mud tightens it, such machines are only of use in fine weather, and our English girls will very likely not be satisfied with that. Avoid such machines.

Now I come to speak of the most important piece of mechanism in the bicycle, and that, curiously enough, is the one which prevents it from running. I mean the anchor of your ship, the brake. No girl should ever, in any conceivable state of things, ride a machine unless it is fitted with a powerful and efficient brake in perfect working order and requiring but little force to apply it effectually. This important piece of machinery will be your mainstay in crowded thoroughfares, your salvation down steep hills, it is the only part of the machine that permits of your "altering your mind" in a moment, and it greatly helps you should you wish to dismount suddenly and safely. Very many indeed of the dreadful accidents of which we read are due either to the absence of a brake on a machine or temporary oblivion of its existence on the part of the rider.

The next point which will demand careful attention is the "gear" of the machine. It may be as well, perhaps, to have a clear understanding as to what is meant by a high or low gear. In the old days of high bicycles the front wheel of course made one revolution with each corresponding revolution of the pedals, and as the rider desired to obtain as much speed as possible in his machine, he invariably rode as high a bicycle as he could in comfort bestride, for it is evident that a wheel of a diameter of 63 inches would cover more ground in one revolution than one say of 56 inches diameter.

When the safety bicycle was invented, with its small (26 to 30-inch) wheels, it was of course necessary to attain a reasonable speed with the small wheels, and to do this the driving-wheel was made to revolve more than once to one stroke of the pedals. If, then, in pedalling once, the driving-wheel is forced round sufficiently frequently to cover the same ground as say a 56-inch wheel, that wheel is said to be "geared to 56." Nowadays 54 would be regarded as a low gear, and anything over 63 as a high one.

For girls, and particularly for those who are bicycling to regain health, the gear should never be high, because a high gear, though implying greater speed, involves much harder work; for in gearing, what you gain in speed you lose in power. Many considerations have to be taken into account: the strength and physique of the rider, and the character of the roads which she will for the most part ride. A low-gear machine will mount hills more easily than a high one should the rider not be very strong. I do not think that a woman's machine should ever be geared above 56—this is a good average gear for a country with steam-rolled roads and moderate hills. Much pitiable nonsense is written about the graceful appearance of a girl on a high-geared machine, with the slow revolutions of the feet and the resulting high speed. People say that it looks so easy. It is not easy unless you are very strong, and the girl who rides a machine geared too high for her merely does herself a little harm every day, until at last there is a final collapse. Those who cycle to regain or maintain health will choose a low gear. These then are the main matters of importance which you should attend to in the purchase of your machine. All your wants can be satisfied, and you should not bring away from the shop any machine which does not absolutely fulfil all your requirements.

Having purchased your machine, the next thing is to learn to ride it, on another. Never mount your own new machine until you are proficient in riding, mounting and dismounting. It is idle to theorise about learning to ride a bicycle. I never met any one yet who, having tried, could not learn, and I have met very few indeed but those who, as the result of their first day's experience, thought it impossible ever to learn. It seems so hopeless and it comes so suddenly. Do not let your instructor tire you by taking you for too long a time; one hour's lesson a day is quite enough, and each lesson will involve frequent rests. When you have learnt all he can tell you, you will come home and ride your own machine. Now the good to be got out of bicycle-riding depends, as many other things do, on attention to what seem trivial details. How these "trivial details" affect our lives. What a dreadful thing a slight friction is anywhere in our bicycles; the whole harmony of the running is disturbed, and slight lack of attention to little details may mar the whole experience of cycling, and the incessant little annoyances do much more harm than the mere physical exercise does good.

Some people seem to take a sort of insane pride in loudly attesting the fact that they know nothing of the structure of their machines; this is a difficult mental attitude to appreciate, and the attainment of such profound ignorance is attended with undeniable experiences on the occurrence of accidents to the machine. Look well after your machine; attend to its wants and it will serve you faithfully, and by its beautiful smooth running will give you health and strength instead of incessantly annoying and irritating you. Let us now consider a few of the very easily understood things which make all the difference.

This steed of yours is not a very exacting creature, but certain things constitute your duty towards him, and if you fail in it you will suffer. All delicate machinery requires lubricating with oil to insure its smooth working, and the bicycle, as an excellent example of delicate mechanism, exhibits this same want. At various parts of the machine there are oil-holes or lubricators. When the machine is ridden regularly every day it will require oiling once in every hundred miles traversed. It is almost as harmful to use too much oil as to use none, so only give each hole a few drops at a time. Always oil the machine when it is clean, and not during a dusty ride, or you will perhaps enable dust to work into the bearings with your oil. I don't think that anyone can thoroughly clean her bicycle in less than an hour; if you have been out in the mud it is best to clean the machine before the splashes are dry. If by any chance the cleaning has been put off until the mud is dry, you should wash it off by means of a sponge frequently dipped into warm water. If you do not thoroughly soften the mud before removing it you will injure the enamel. Remember that the source of that wonderful spontaneity of movement in a bicycle is the perfect state of its bearings; the bearings are the things which above all you must jealously guard from all enemies—more particularly web and dust. You will always know where bearings are in a good bicycle, for at each "bearing" there is an oiling-place. Be very careful, then, in cleaning the bicycle with a sponge and warm water that none of the water trickles over the bearings, and in cleaning the edge of any part containing bearings, be particularly careful not to wipe dust or damp into the bearing. I have known of an instance of a groom, who, regarding the cleaning of a bicycle as comparable with that of a carriage, turned on a hose over the machine, with the result that it was almost completely ruined.

In cleaning the spokes of the wheels, then, wipe from the hub to the rim always from above downwards, that is to say, always keeping the spokes you are cleaning with its distal end towards the ground. Carefully dry the enamelled parts with a soft dry cloth or wash-leather. The plated parts are best cleaned with whiting or any good plate-polish. Having cleaned the whole machine, see that it is stood in a dry place.

Whenever you oil your machine, if any drops remain outside the bearing wipe them carefully away, for they have a great affinity for dust and may take it into the bearings. If the machine is only ridden infrequently, it should be oiled on each occasion before starting out.

Though oil is a very good thing for the bearings, it is an uncommonly bad thing for the tyres of a modern bicycle. Oil acts harmfully on rubber, so you must be especially careful not to let any get on your tyres. Before riding, it will always be necessary to see that your pneumatic tyres are properly pumped up; they should be pumped so hard that, in the case of the back wheel, you can just dimple them with your thumbs, and in front a trifle less hard. If the tyres are pumped too hard you get no advantage as compared with a solid tyre; if they are pumped too soft they are much more liable to injury from stones or glass in the road or street, and the machine is more prone to slip sideways or "skid," as it is termed. For girls a very useful form of pump is the "stirrup" pump, as it entails very much less work on the user than the ordinary form of pump. The main points in the care of the machine are these: 1. Keep all parts clean. 2. Oil regularly all bearings. 3. Keep dust and water out of the bearings. 4. Keep oil away from the tyres. 5. Keep the tyres blown up. 6. Store the machine in a dry place.

Do all these things, and never lose sight of your bicycle for any lengthened period, and your steel steed will serve you swiftly and silently. Having thus run over the main points in the choice and care of the machine, it remains for us to speak in the future of the rider who would bicycle to health and fortune.

(*To be continued.*)