Bits and Bridles exert pressure on a horse’s mouth bars, lips, tongue, hard palate, chin, nose, and poll. Of these, the most sensitive are the tongue and the hard palate, so it is through these areas that most of the communication between horse and rider occurs. The tongue is also the structure most likely to be injured by a severe bit or by rough hands on the reins.

All of the many different kinds of bits come under two basic headings: snaffle bits and leverage bits. We shall not cover hackamores and other bitless bridles in this discussion.

1. Mouthpieces

The mouthpiece of a bit may be solid or have one or more joints. The two halves of a simple jointed mouthpiece are called the cannons. A solid mouthpiece may be straight, curved, or ported.

One of the most common misconceptions in bitting is that a low port makes a mouthpiece mild and that a high port makes it severe. The error in such a concept becomes evident when we consider that the tongue is the most sensitive and most easily injured part of the horse’s mouth and that the purpose of the port is to prevent the bit from applying the majority of its force directly to the tongue. A high port is severe only when it comes into contact with the horse’s palate. In most horses the port must be at least 2- to 2.5-in. high to contact the palate.

A mouthpiece’s severity is inversely related to its diameter. Mouthpiece diameter is measured 1 in. in from the attachment of the bit rings or shanks, because this is the portion of the mouthpiece that ordinarily comes into contact with the bars of a horse’s mouth. A standard mouthpiece is ⅜-in. in diameter. Most horse show associations prohibit a ¼-in. (or smaller) mouthpiece because it is considered too severe. A ½-in. mouthpiece is generally mild, but one must look into a horse’s mouth to be certain the mouthpiece will fit comfortably.

As a general rule, the more joints in a mouthpiece, the more severe it is. Smooth mouthpieces are gentler than those with edges, ridges, teeth, or chains.

2. Snaffle Bits

A snaffle bit is any bit, whether it has a jointed or solid mouthpiece, that provides a direct signal from the rider’s hands to the horse’s mouth with no mechanical advantage. The cheeks of the bridle and the reins attach to the same or adjacent rings on the bit. Regardless of the bit they will ultimately wear, the great majority of today’s horses are started in snaffle bits.

3. Leverage Bits

Leverage, or curb, bits provide a mechanical advantage to the rider. There are two sets of bit rings, the upper rings attach to the bridle and the lower rings attach to the reins. It is the ratio of the
length of the shanks of the bit (the portion below the mouthpiece) to the cheeks of the bit that determines the amount of leverage. For example, in a standard curb bit with 4½-in. shanks and 1½-in. cheeks (a 3:1 ratio), 1 lb of pressure on the reins translates into 3 lb of pressure in the horse’s mouth.

4. Proper Use of Bits and Bridles

Bits and bridles are for communication. They are not handles to stabilize the rider in the saddle or instruments for punishing the horse. Accomplished riders use their seat and legs before the bit to communicate their wishes to their mount. Indeed, the most important factor in having soft, sensitive hands on the reins is developing a good seat.

As with all methods of training and communicating with the horse, the key to the proper use of bits and bridles is the principle of pressure and release. A horse does not intuitively move away from pressure. Rather, it learns to seek a position of comfort to relieve the pressure applied by the bit in its mouth. Consequently, the rein pressure must be released the instant that the horse complies (or even tries to comply) with the request sent to it via the bit. If the pressure is not released, the horse has no way of knowing that the response was correct and becomes confused. When you apply rein pressure you are asking the horse for a response, when you release the pressure you are thanking it for complying.

An extremely important concept in bitting is **signal**, which is defined as the time between when the rider begins to pull on the reins and the bit begins to exert pressure in the horse’s mouth. As a horse becomes schooled, it learns to interpret signal and respond before significant pressure is applied.

The larger the diameter of the rings on a snaffle bit, or the greater the length of the shanks on a curb bit, the more signal that the bit provides. So while long shanks give greater leverage than short shanks, they also give greater advanced warning to the horse. The more the shanks sweep back from the mouthpiece, the more signal the bit will provide.

In addition to providing more signal, a bit with swept back shanks will release more rapidly than a bit with vertical shanks, thus hastening the reward to the horse when it responds.

References

There is a common misconception with leverage bits that “the higher the port in the mouthpiece the more severe the bit.” However, a bit with a high port is less likely to damage a horse’s tongue than one with a low port or no port. A high port will not damage a horse’s mouth unless it is high enough to contact the hard palate (2–2½ inches in most horses).

The diameter of a mouthpiece is measured 1 in. in from the cheeks of the bit, because this is the area that comes into contact with the bars of the mouth. The smaller the diameter of the mouthpiece, the more severe the bit.

One cannot decide which bit is best without looking at the horse’s mouth. The shape of a horse’s mouth changes as it ages.
An extra link in the center of a jointed mouthpiece reduces the pressure exerted on the bars.

Twisted wire and bicycle chain mouthpieces as well as mouthpieces that have been “doctored” to make them more severe don’t always have the intended effect of increasing a horse’s responsiveness. Just as a baby with sore gums wants to bite down on something hard, a horse with sore gums may push into the bit.

Dorsoventral radiographs of snaffle bits with (right) and without an extra center link fitted to horses’ mouths. A standard mouthpiece is 4½ to 5 in. long. It is approximately 2½ to 3 in. between the bars. The remainder of the length is to accommodate the horse’s lips and cheeks.
Lateral radiographs of snaffle bits under rein tension in horses' mouths. (Top left) A simple jointed mouthpiece with the horse's poll flexed. (Right) An extra link in the center transfers pressure from the bars to the tongue. (Note that when the poll is flexed there is little chance that the horse's lips will be pinched against his teeth.) (Bottom left) The more a horse's nose is extended, the more likely its lips will be pinched against its teeth and that its tongue will be punished by the bit.

Snaffle bits come with a variety of ring sizes and methods of attachment of the rings to the can-nons. Loose rings give more signal while egg-butts and D-rings increase control.

The ratio of the length shanks below the mouthpiece to the length of the cheeks above the mouthpiece determines the mechanical advantage of a leverage bit. The greater the ratio, the more pressure the bit applies to the horse's mouth.

Loose cheeks and broken mouthpieces tend to increase the signal provided by leverage bits and allow independent control of the right and left sides of the horse.
In fitting a curb strap, it is commonly said that the strap should be loose enough to permit one or two fingers to slip between it and the horse’s chin groove. A better method is to decide how much you want the bit to rotate in the horse’s mouth when you pull on the reins and set the curb strap accordingly.

Dorsoventral and lateral radiographs of leverage bits in horses’ mouths. A jointed mouthpiece on a leverage bit (upper right) can come into contact with the hard palate under excessive rein pressure.

The adjustment of the curb strap is vital to the function of a leverage bit because a tight curb strap can cancel out a bit’s signal, balance, and points of contact in the horse’s mouth as illustrated by these lateral radiographs of a high port, palate bit under rein pressure in a horse’s mouth. On the left, with the curb strap adjusted properly, the port is in contact with the hard palate. With the curb strap too tight, as shown on the right, the port cannot contact the palate, no matter how much pressure is applied to the reins.
A common rule-of-thumb is to adjust the bridle so that the bit contacts the corners of the lips so as to produce two wrinkles. However, this gives the horse no room to escape the pressure on his lips when he complies with the rider’s commands. (Center) A bit which has been fitted too low in the mouth. (Right) A bit which is fitted too high.

A leverage bit with vertical shanks encourages a horse towards a vertical head set which is desirable in a pleasure horse. A bit with swept-back shanks provides more signal than a bit with vertical shanks and allows a horse to extend his nose, both of which are necessary for the responsiveness and maneuverability required of the performance horse.

The balance of a leverage bit has an important effect on its function. The more the bit rocks back (lower shanks swing forward), the more signal it will provide to the horse and the quicker it will release when the horse complies with the rider’s commands.
In the simplest gag bit the reins are continuous with the headstall so that some of the rein pressure is transferred to the horse’s poll.

The proper head carriage when a horse is “on-the-bit” varies depending upon the function of the horse. (Left) The pleasure horse with a nearly vertical head set is collected, that is, its weight is shifted towards the rear. (Center) The performance horse needs to be able to extend its nose but still requires collection to maintain its maneuverability. (Right) The racehorse, in order to achieve maximum speed, must be able to fully extend its nose and shift its center of gravity onto its forehand.

The rider has lost contact when a horse’s nose is either extended completely or flexed far behind the vertical. The former (left) is referred to as being above the bit or “taking the bit in its teeth.” The latter (right) is referred to as being below the bit or “spitting out the bit.”