

Let us then turn to another order of animals of strongly contrasted habits—for example, the ruminating. We find the lower jaw armed with incisor teeth, working against a hard callous pad, placed upon the upper. This prevents the animal from inflicting a severe bite, but enables it readily to crop grass and to tear off the stalks of vegetables. The sharp fangs are wanting; but, were this the place for the observation, we might shew how it is protected from the fiercer beasts by the instinct of fear combined with acute senses and great fleetness—by gregarious habits—and by formidable weapons of defence placed on its brow, and given, be it observed, to none of the carnivorous tribes. Its flat-topped molar teeth are not formed for cutting, but for grinding; and its jaws are loosely fitted together, so as to allow of a grinding movement. With a change of form in one part, is a change of adjustment in another, and the parts continue to work well together. Had the articulation of the carnivorous jaw remained unchanged, the herbivorous tooth could not have performed its office. But we have not yet done with the adjustments. In the ruminating animal, the enamel is not all placed on the top of the tooth, as in the carnivorous; but is arranged in deep vertical layers, alternating with bony matter; and this arrangement, in all states of the tooth, secures a rough grinding surface. These layers are arranged in irregular curves running lengthwise in the jaw, and their convex and concave portions are so delicately opposed in the upper and lower jaw, as to produce, during a lateral movement (like that of a cow chewing the cud), the greatest possible quantity of friction. Again, we might go on to shew the adaptation of