constant (about 340 meters a second), that of the shell, greater at
the beginning, diminishes at a uniform rate. Also, the sound is
propagated all around in a direction perpendicular to the point of
departure, while the path of the shell describes a parabola, that is, it
has a much longer path to travel. Thus, at long range, the noise of the
blast arrives before the shell itself.

At short range, however, by maintaining a velocity greater than
that of sound and traversing a much less curved path, the shell travels very low, grazing the ground, and no longer makes its
characteristic and musical whistling but rather a violent and vibrant
urrrrr that instantly ceases with the explosion.

Grenade explosions, considered by themselves (that is, indep-
dendent of the other noises that they produce: crashes of rocks,
fragments of shells rebounding all around), have a pitch that is lower
in proportion to the size of the grenade and the explosion. There is
even a kind of scale in the pitch of the explosions, which rises from
the lowest notes (represented by the explosion of the largest
grenades) to the highest notes (represented by the tek-teek of
certain matches or the paper-caps that children use for their
harmless pistols), ranging through all the intermediate explosions
represented by increasingly smaller grenades and bombs.

In order to explain these different pitches, we must consider the
mass of air displaced by the gas released from the shell as a vibrating
body. The greater this mass the longer and slower the vibration, so
that the pitch of the explosion is lower.

The machine gun has a characteristic wooden voice, with its
rapid tok-tok-tok-tok, followed by a shaaah, like waves against the
rocks, produced by its bullets in the air.

The Austrian rifle—heard from our trenches (I do not know how
it sounds to those who are shooting)—has a curious noise of two
beats: tek-poom. Ours has s single, dry report that becomes muffled
at a certain distance. The rifle bullets make a tseeoo in the air (like
birds that sing tsee instead of chee) and themselves have a short,
rapid, descending scale, beginning high with the timbre of ee, then
dying away with oo.

And if a grenade exploding in a high position hurls its fragments
onto a slope, they drift at length in oblique, descending trajectories,
with a long voooo, like large, insidious and invisible flies.

There are the explosions of the grenades, with their blasts and
lacerations, the crackling of rock fragments in a hundred-fold
multiplication of projectiles that pour down from everywhere, the
THE NOISES OF WAR

stormy smashing of bullets against the rock, with their furious rebound, as if they had not even struck, the continuous *tek-tak-trak* of rifle bolts, opening and closing, opening and closing in incessant motion, the blasts of rifles, recoiling against the shoulder . . . and over all this, the *tseeroo* of bullets that, like the sinister whining of grenades and shrapnels, always seem to be coming straight at you yourself! You expect them to come right there! Every soldier has the same feeling!

Meanwhile, up there high over your head, the long shots of the artillery pass, seeming to act on their own, far from the hell down here.

But when, rifle ready but momentarily still in expectant vigil, only the big guns speak in their long duels, the soul of the soldier is suspended, intent on the familiar noise of our own volley, or of the huge Italian shells!

With what hopes for success you have struggled on! How you have looked forward to smashing an Austrian trench, to hitting a gunpit or an emplacement, and especially to silencing the enemy artillery, the battery that always returns your fire, the accursed battery that flings up its grenades and its furious shrapnels!

It picks out and recognizes your noises. It knows that a noise that you make down there indicates a certain act of destruction. It knows that another of your noises will sweep the road clean in a flash for those who will complete the work of victory with a bayonet.