which is flowing, provided it be smooth, as well as on a standing canal.

Not only are such undulations propagated almost undisturbed by any local motion of the fluid in which they take place, but also, many may be propagated in the same fluid at the same time, without disturbing each other. We may see this effect on water. When several drops fall near each other, the circles which they produce cross each other, without either of them being lost, and the separate courses of the rings may still be traced.

All these consequences, both in water, in air, and in any other fluid, can be very exactly investigated upon mechanical principles, and the greater part of the phenomena can thus be shown to result from the properties of the fluids.

There are several remarkable circumstances in the way in which air answers its purpose as the vehicle of sound, of which we will now point out a few.

2. The *loudness* of sound is such as is convenient for common purposes. The organs of speech can, in the present constitution of the air, produce, without fatigue, such a tone of voice as can be heard with distinctness and with comfort. That any great alteration in this element might be incommodious, we may judge from the difficulties to which persons are subject who are dull of hearing, and from the disagreeable effects of a voice much louder than usual, or so low as to be indistinct. Sounds produced by the human organs, with other kinds of air, are very different from those in our common air. If a man inhale a quantity of hydrogen gas, and then speak, his voice is scarcely audible.

The loudness of sounds become smaller in proportion as they come from a greater distance. This enables us to judge of the distance of objects, in some degree at least, by the sounds which proceed from them. Moreover, it is found that we can judge of the position of objects by the ear: and this judgment seems to be formed by comparing the loudness