crests of the one series shall reach it at the same identical moment with the *crests* of the other; the two series of crests conspiring and being superposed on each other will produce crests of double the height of either singly: while, on the other hand, if the difference of channels be such that the crests of the first series shall reach it simultaneously with the troughs (or lowest depressions) of the second; the one will destroy the other, and there will be neither elevation nor depression at their joint point of arrival. In the former case, supposing the two channels thenceforward to unite into one (as in the annexed figures, which require no explanation further than that the series of cross lines represent the *crests* of the waves), the two series when they reunite in a channel C D, as in Fig. 8, the exact size of the initial one, A B, will form a joint series exactly similar to that in A B, which will run on in that channel thenceforward; but in the latter, as in Fig. 9, there will be produced no waves at all, and the water in C D will (except just close to the point of junction, where some kind of eddy will be formed) remain undisturbed.

(82.) Accepting the term "wave" in its most general sense, in whatever way we suppose it propagated, whether by alternate up-and-down movements of the successive particles, as in water-waves—by transverse lateral ones, as in a stretched cord *wagged* horizontally—or by direct to-and-fro vibration, as in the air-waves, in which sound consists—or in any more complex manner, the same considerations evidently apply. If two sets of exactly equal and similar waves can by any previous arrangement be made to arrive *simultaneously* at the "entrance"