be determined from the velocity of sound present there, according to the law $\sin \alpha/2 = c/v$, where α is the angle of the Mach wave, c the velocity of sound, and v the velocity of the gas particles. The origin of the Mach wave is explained by means of Figs. 4 and 5. The bullet point is able to run through the series of points 1, 2, and 3, with a velocity v. From each of these points, and hence from all intermediate ones, sound waves go out with the velocity c, which, if the bullet has arrived at point 3, have reached the positions shown in Fig. 4. The envelope of these individual elementary waves is the Mach wave, by which means there results the above relation for the ratio of c and v. This origin of the wave from the individual elementary waves is especially well shown in Fig. 5 (Plate XI). It is now completely immaterial for the behavior of a wave whether it is assumed that the bullet point is moving in stationary air, of whether the moving air flows against a point. The greater is the flow velocity, the smaller is the angle. If the velocity decreases to the velocity of sound, then α attains a value of 180°. In this experiment, of course, only those velocities were measured which were greater than the velocity of sound, which was the case, for example, within our flow pattern nearly out to the compression lines. The method gives, in addition to the velocity, the inclination of the flow lines which at the time go through the point of the probe about the bore-axis, so that it was possible to establish not only the velocity distribution within the flow pattern, but also the character of the flow lines themselves. The accuracy with which the various flow lines converge toward the muzzle is quite good (see Fig. 8), so that we may consider our method of measurement perhaps as quite accurate. Also other velocity measures, which will be further explained below, likewise show a high degree of accuracy. For the practical application of the method it is of great importance to give to the point quite a definite thickness. If the point is too fine, only very faint waves are obtained, or none at all in the case of low velocities, while with too broad a point, the formation of the waves likewise may be affected too much, so that in this latter case it must be considered that disturbances