work" for the definite quantity which had before him been variously designated as power, effect, action, &c., and he distinctly states that the inertia of matter transforms work into *vis viva* and *vis viva* into work. He also measures this quantity "work" quite in the modern fashion—by the "kilogrammetre," which gives the same conception as the foot-pound, only in a different measure.

6. Poncelet introduces the term "mechanical work."

Long before the terminology thus invented and fixed by Watt, Young, and Poncelet had been accepted by scientific writers, a change in the current notions on the forces of nature had been gradually brought about from quite a different quarter. Uninfluenced by the theoretical views which were developed and firmly held

mathematics was not merely the science of magnitude, but quite as much that of position, of design and perspective, of mechanical work and effect. They introduced a whole series of new and practical ideas, drawn from their own applications, and created a new vocabulary. They worked hand in hand with physicists and chemists, some of whom had little taste for the extremely abstract and analytical methods of the school of Laplace and Cauchy. Poncelet's original geometrical work, which will occupy us in a later chapter, led him into many controversies. It was, however, greatly appreciated in Germany and later in England. His influence on German applied mechanics has been quite as great as that on geometry; and the great text-books of mechanics by Weissbach, Redtenbacher, Rühlmann, and others, are as much indebted to Poncelet and other French models as the German text-books on mathematics, physics, and chemistry were for a long time to the well-known works of Biot, Pouillet, Cauchy, Francœur, Lamé, Regnault, and others. The influence of Poncelet on practical mechanics, and especially in the fixing of an adequate terminology, can therefore be studied equally well in French and in German historical writings. Among the former I may mention especially the 'Exposé de la Situation de la Mécanique appliquée par Combes, Phillips et Collignon,' Paris, 1867, and among the latter, notably the above-mentioned writings of Helm, who traces the growth of the conception of mechanical work in French writings, and its influence on German thought ('Energetik,' p. 12, &c.) See also Dühring, *loc. cit.*, p. 471, &c. I may also refer to Heun's Report ('Jahresbericht der deutschen Mathematiker-Vereinigung,' vol. ix. part 2, 1901), where the sciences comprised in "Mechanics" are distinguished according as they are astronomical (Laplace, Poincaré), physical (English mathematical physics, Kirchhoff, Helmholtz, Hertz), geometrical (Poinsot, Chasles, Ball), or technical (Watt, Poncelet, Rankine).