



Fig 4.8 The stepping frequencies of wild African animals vary about with the $-1/2$ power of the shoulder height, when comparisons are made within any of the three gaits, walk, trot, and canter. This is the 'pendulum law' predicted by Alexander and Jayes (1983). A.V. Hill's 'strength limited' law, which requires the stepping frequency to vary inversely with the length, is not reconcilable with the data (dashed line). This ' -1 power' law is expected to apply to maximum sprint speed, rather than to cruising speed (from Pennycuick 1975). 1, Thomson's gazelle; 2, warthog; 3, wildebeest (adult); 4, spotted hyaena; 5, Grant's gazelle; 6, impala; 7, lion; 8, hartebeest; 9, topi; 10, zebra; 11, wildebeest (calf); 12, black rhinoceros; 13, giraffe; 14, elephant; 15, buffalo.