Theory of biological similarities, nondimensional parameters and invariant numbers

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In previous papers (1955-1957) a theory of biological similarity was established, assuming that the limits are the mechanical and the electrodynamical similarity criteria. The range of this theory lies between the coefficient of the time exponent (?) for mechanical (0.5?) and electrodynamical (1.0?) similarities, being the mode 0.93?. Moreover, for certain functions this restricted theoretical range should be extended to the hydrodynamical similarity criterion (2?), so that the dimensionless numbers commonly used in Physics (Reynolds, Froude, Weber, etc.) can be included within the total range (0.5-2?) of biological similarities. From dimensional analysis of physiological, functions it was possible to obtain, by means of dimensional and solution matrices, a group of "nondimensional numbers" by applying Buckingham's Pi-theorem. Nevertheless, only if a single similarity criterion was applied, the residual weight exponent was exactly zero; in all other instances the weight exponent was no