tion to population of one sort grown under different conditions.

The master law of the simple population has been discussed in full above. That of the second-order population, in addition to the gas laws' horologues. but the law of the logistic curve holds also in this population, in addition to the gas laws' homologues.

In conclusion we summarize the findings in this and preceding brief notes in SCIENCE a possible reader may perhaps, for obvious reasons, best take up in reversed chronological order.

The grouping of organisms in genera and species is justified by the order of nature. Taxonomy is a science, not an art. There is a definite mode of growth of knowledge of species in their genera and their ranges, from which it appears that evolution is a fact and its process Darwinian in principle. The differentiation of genera and species in a great natural group of organisms occurs according to a law affiliated with the gas laws and others, and is as capable as any of mathematical expression. These all are the laws of physical systems readily characterized, and associated naturally under the terms of an amplified kinetic theory.

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RATE OF SEA CLIFF RECESSION ON THE PROPERTY OF THE SCRIPPS INSTITUTION OF OCEANOGRAPHY AT LA JOLLA, CALIFORNIA

ABOUT two years ago measurements were made of the amount of recession of three cliffs on the property of the Scripps Institution between the years 1918 and 1930, that is, within twelve years. The results of the study were included in the report of the committee on features and changes of the shoreline of the Pacific Coast, Division of Geology and Geography, National Research Council, May 3, 1930, and they were distributed in mimeographed form, but there appears to be doubt as to whether the appearance of the results in the report mentioned constitutes publication. Since much interest has been manifested in the study it seems desirable to remove any doubt regarding publication. A summary of the results is as follows:

The first cliff is 21 feet high and it had receded 20 feet since 1918. The second cliff is 33 feet high and it had receded 15 feet since 1918, and was undercut at the time the measurement was made to a depth of 8 feet. The third cliff is 54 feet high and since 1918 it had receded between 10 and 12 feet. The heights of these cliffs were plotted as abscisses on coordinate paper and the amount of the recession as ordinates. The equation for rates of recession in terms of height was determined by Dr. G. F. McEwen, of the Scripps Institution. It is $y = 138\,x^{-.635}$

Dr. McEwen has prepared a table of cliff heights in feet and rates of recession in feet per year according to this formula. It is as follows:

Height = x	Recession rates = y	Observations	
		Height	Recession in 12 yrs.
5	4.100		
10	2.650		
15	2.080		
20	1.720	21	20
25	1.490		
30	1.330	33	15
40	1.100		
50	.960	54	11
75	.740		
100	.620		
150	.470		
200	.400		
250	.340		
300	.300		
400	.250		
500	.220		

The material, composing the cliffs studied, is a non-indurated clay loam, but the lowest bed in the highest cliff is fairly tough, argillaceous, sandy material with considerable calcium carbonate cement. It appears that the rate of erosion of the loam is not faster than that of the basal bed of the cliff.

It scarcely needs to be said that, although measurements such as are given above are of interest, before entirely satisfactory conclusions can be reached there should be a much larger body of data.

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