rogatory title has led people to distrust them. Of course, it is the interpretation that may be spurious. The correlations are on the same footing as any others.

A little further analysis of the data employed by both Vining and me reveals, for the aggregate, that the variance is .62 for $\log A$ and $\log D$ and .41 for $\log P$, with a covariance of .21 between $\log A$ and $\log P$. Consider Vining's interpretations above in the light of these results.

As Vining suggests, the observed clustering of slopes around $-2/3$ could simply mean that the variance of $\log A$ is generally twice that of $\log P$ and nothing more; empirically, however, the ratio is 3 to 2, not 2 to 1. The expression for the expected slope between $\log A$ and $\log D$ would be that given by Vining if the covariance between $\log A$ and $\log P$ were zero; empirically, however, it is not zero. The slope relating $\log A$ and $\log P$ would be -2 if the $-2/3$ slope between $\log A$ and $\log D$ represented a case of perfect correlation; empirically, however, the correlation between $\log A$ and $\log D$ is far from perfect ($r^2 = .42$), and it is thus not surprising that the slope between $\log A$ and $\log P$ is in fact .5, not -2 as "expected" according to Vining's argument.

A mathematical relation is not the logical equivalent of a statistical relation, since the latter anticipates the possibility of error in either or both of the related variables. For this reason the regression coefficient b_{xy} does not even imply its own inverse coefficient b_{yx} except under perfect correlation. Simple regression analysis assumes some error in the dependent variable, none in the independent variable. If we assume error in both $\log A$ and $\log P$, my test was appropriate since the error term would be minimized or nonexistent in my independent variable ($\log D = \log P - \log A$). Vining's analysis is not appropriate by this argument.

Vining says that adequate tests of the theory will require measurement of density independent of area. In previously published work (*2*) I report such tests relating unit areas to regional densities measured independent of unit areas. In work currently under review (*3*) relations between unit areas and regional densities are reported with results virtually identical to those published earlier (*4*) using unit densities (conclusion: unit densities provide reasonably good estimates of regional densities). And in another work under review (*5*) area is related to population potential, a variable measured independently of unit or regional density, with results mathematically and statistically consistent with the earlier findings.

Vining says that the process of territorial division is more random than purposive. I have never argued that it was purposive, only that it results in time minimization. This is not surprising; most random processes in nature have least-energy outcomes. I have not yet developed an adequate model of the random process. I was working on one which contained assumptions very much like some of those mentioned by Vining (I described it to him in a letter in September of 1977), but I later abandoned it because of the problems noted in my second paragraph above. For what it is worth, I believe a proper theory could be developed from the theory of breakage (*6*) with increasing settlement intensity and improved transportation acting as positive and negative forces.

For the record, I want to note two earlier derivations (*7*) which can easily be shown to be similar to my own derivation. They were brought to my attention by Jay Callan of Rutgers University.

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Crystal Structure of [Leu^5]Enkephalin

[Leu^5]Enkephalin has been reported to grow as thin, small crystals from aqueous methanol solution in space group *C2*, cell constants a = 31.871 Å, b = 8.535 Å, c = 12.467 Å, β = 96.53°, Z = 4 (*1*). We (T.L.B., L.H., I.J.T., R.A.P., and B.A.M.) have now grown large crystals whose diffraction patterns show clearly extra rows of weak spots which cannot be indexed on this cell. The new photographs indicate a cell with constants (at 4°C) a = 31.937 Å, b = 17.084 Å, c = 24.861 Å, β = 95.54°, and Z = 16. These new indices, $h'k'\ell'$ are related to the indices of the smaller cell $hk\ell$ by $h' = h$; $k' = 2k$; $\ell' = 2\ell$; and show systematic absences $k' + \ell' = 2n$, indicating space group *A2*. Strong reflections have indices $h' + k'/2 = 2n$, and these correspond to the reflections indexed on the smaller *C2* cell. Other reflections are considerably weaker but in retrospect can be observed after long exposure in the diffraction pattern of the small crystals used in the earlier analysis.

The backbone conformation and intramolecular hydrogen bonding scheme of the previous structural analysis, interpreted in the light of these new findings, can therefore be described as an average of four nearly identical molecules. These new results also make it possible to explain the disorder of the tyrosine side chain as two crystallographically independent conformations. The details of the intermolecular hydrogen bonding and of the side-chain orientations await a full refinement using the complete set of x-ray data.

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