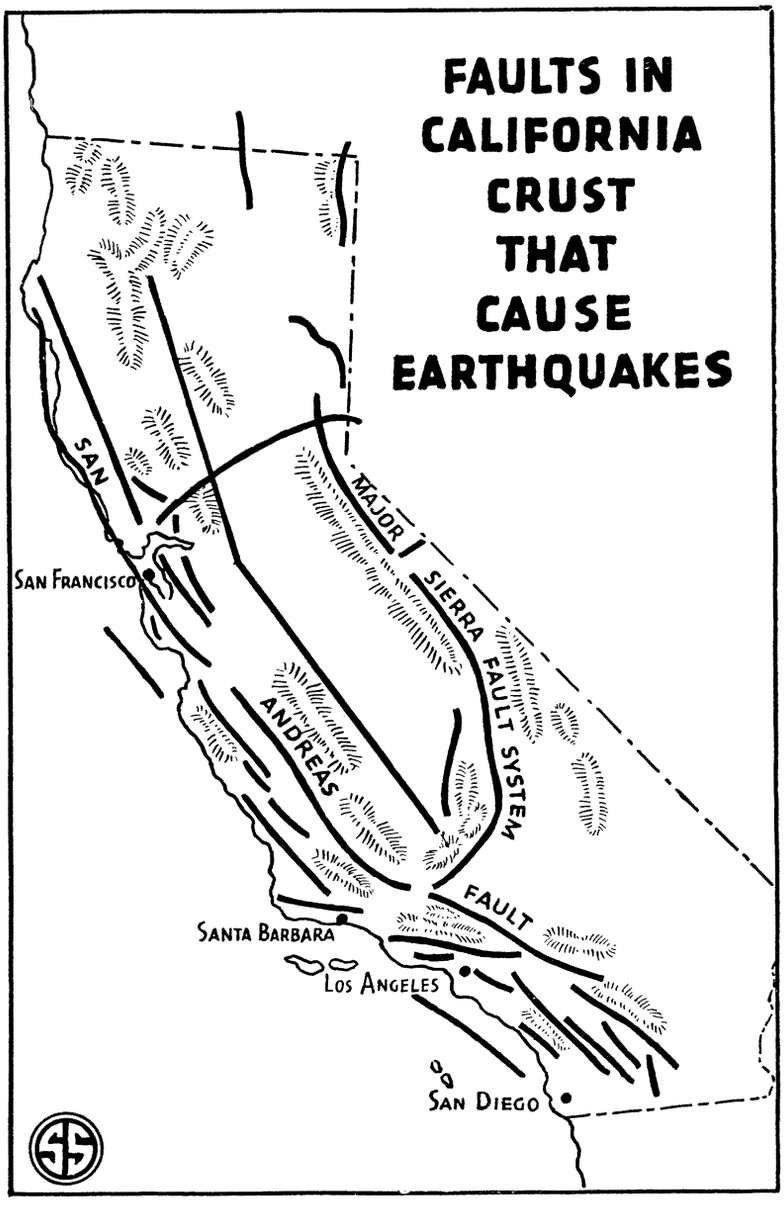
This idea in most detailed form is well treated by Hofmeister, but he would not in the least wish to advance a claim to being its originator, for all synthetic researches on the linkage of amino acids, among others the discovery of glycyl-glycin which occurred shortly before his publication, are based upon the same hypothesis.

In the great similarity of artificial polypeptides to peptones, especially with respect to their behavior toward pancreas-extract, also in the preparation of glycyl-*d*-alanin-anhydride from silk, one may find a new, strong support for this idea. The possibility that from the already known natural amino-acids one may by this sort of linkage alone build up, theoretically, quite a splendid number of proteins is at hand and is fully explained in popular form by Hofmeister. The structure naturally becomes even more complex through the participation of amino-dicarbon acids (asparagin- and glutamin-acids), as well as diamino acids (eysin, arginin, etc.).

But here I might call to attention that the simple amide formation is not the only possibility of linkage in the protein molecule. On the contrary, I consider it even quite probable that sometimes piperazin rings occur there, whose easy disruption by alkali and reformation as dipeptides or their esters I have so frequently found in artificial products, and that at other times the many hydroxyls of the oxyamino acids are by no means indifferent groups in the protein molecule. The last can by intramolecular anhydride formation go over into ester- or ether-groups, and the multiplicity would still be increased if we consider poly-amino acids as true components of albumins. There is no reason to spin out these considerations, but still it seems to me important to refer to the various possibilities, to prevent the all too one-sided views which the experimental investigation might leave behind.



EARTHQUAKE MAP

The Long Beach earthquake of March 10 had its center along the fault, shown by black line, in the ocean floor that lies offshore from Los Angeles. Other black lines on the map show slipping planes or faults in California's earth crust that have caused earthquakes in the past or are likely to cause them in the future. The famous 1906 San Francisco earthquake was along the San Andreas fault. This map is based on data collected by H. O. Wood, Carnegie Institution of Washington seismologist.

In the formation of protein and its various complex derivatives, nature has, so far as we know, reached her highest chemical performance, and it would contradict all experience of organic chemistry and biology if she had here limited herself to only a few types.

As the great number of amino acids and their constantly changing composition already shows, there occurs in the composition of protein a disproportionately greater complexity than in the carbohydrates and the fats. If to that is yet added the various possibilities of linkage, which I have indicated above, the proteins have a chemical character which is equal to the extremely complex purpose for which they are used by nature, for the structure and the functions of the organs. . . .

The methods of building the polypeptides depicted above are so manifold that they will permit synthesis of numerous and quite complex combinations of the natural amino acids, if we do not count the work and expense.

But the indiscriminate increase of forms would perhaps not be worth the trouble. More important seems to me the need, which practice in experimental treatment of the synthetic products supplies, of discovering newer methods of separation of their natural relatives from the peptones. The synthesis of glycin-*d*-alanin-anhydride from silk serves as the first example of this. Hope