

same plant acquires an altogether different appearance, according as it is placed in a dry and warm place, exposed to the sunlight or placed in a cool damp spot in the shade. Many plants, if transferred to the sea-shore, get, in a short space of time, thick, fleshy leaves, and the same plants placed in a particularly dry and hot locality get thin hairy leaves. All these variations arise directly from the cumulative influence of changed nutrition.

But it is not only the quantity and quality of the means of nutrition which affect and powerfully change and transform the organism, but it is affected also by all the other external conditions of existence, above all by its nearest organic surroundings, the society of friendly or hostile organisms. One and the same kind of tree develops quite differently in an open locality, where it is free on all sides, to what it does in a forest, where it must adapt itself to its surroundings, where it is pressed on all sides by its nearest neighbours, and is forced to shoot upwards. In the former case, the branches of the tree spread widely out; in the latter, the trunk extends upwards, and the top of the tree remains small and contracted. How powerfully all these circumstances, and how powerfully the hostile or friendly influence of surrounding organisms, of parasites, etc., affect every animal and every plant, is so well known, that it appears superfluous to quote further examples. The change of form, or transformation which is thereby effected, is never solely the direct result of the external influence, but must always be traced to the corresponding reaction, and to the activity of the organism itself, which consists in contracting a habit, or practice, and in the use or non-use of organs. The fact that these latter phenomena, as a rule,