

of the materials increases more rapidly than the strength. How often has it been found that a machine which works admirably in a small model, will totally fail in its performance when constructed on a larger scale? Any lever, of whatever form, may be increased in its dimensions until the force of gravity becomes superior to the cohesion of its own particles; and consequently any structure, like a vegetable, or animal body, composed of a combination of levers, would, if its size were to exceed a certain limit, fall to pieces merely by its own weight. This can be prevented either by employing materials of greater cohesive strength, or by increasing, at the points where the strains are greatest, the thickness of the parts compared with their length: but the choice of materials is necessarily restricted within narrow limits, and the latter expedient would entirely alter the relative proportions of the parts, and would require a complete change in the plan of their construction. In passing from the smaller to the larger animals, we find, accordingly, that new models are adopted, a new order of architecture introduced, and new laws of development observed. We have next, then, to direct our attention to the procedure of nature in the execution of this more enlarged and comprehensive scheme of animal organization.