

garnered in. Men seemed to be continually working in a tread-mill, but making no advance, continually describing a circle, leaving a certain point and returning to the same point. The past appeared to stretch out far behind him, as a vast desert waste in which men had been diligently casting seed, and harrowing it in with assiduous care, but reaping no harvest, gathering no fruit for their toil. He set himself to inquire into the cause of the strange phenomenon, nor was inquiry vain. He saw that the Schoolmen, the philosophers who went before, had completely mistaken the *method* by which to arrive at truth as well as the *end* for which truth should be sought. Men were seeking to arrive at truth by speculating and theorizing. Nature was to them a sealed book which they were forbidden to open at the peril of their lives. Forbidden to observe and investigate, they began to indulge in airy speculations, to frame imposing theories, and to devote their energies to questions which led to no practical result. But they mistook, likewise, the aim or end for which truth should be sought. They held that the aim for which truth should be sought, was, not to benefit man or to mitigate human woe, but to sharpen the faculties, to exalt the mind, to attain a visionary and impossible perfection. They despised the pursuit of comfort as unworthy of a man; to employ philosophy or investigation for the purpose of contributing to human well-being and alleviating human sorrow, was to degrade it, to make it vulgar, to strip it of its dignity. Arithmetic, for instance, was to be studied, not for the purpose of teaching men how to buy or sell or be good merchants or traders, but to whet the faculties, and to enable them to grasp abstract truth. Geometry or mathematics was to be pursued for the same reason; to employ it for any other purpose, to ap-

ply it, for example, to navigate a ship, or compute the area of a field, or the height of a hill, would be to degrade and vulgarize it.

Now, Bacon taught, in the first place, the true *method* by which science was to be advanced and discovery made. He proclaimed with a clearness and force never before equalled, that experiment and observation were the means by which discovery was to be made, science advanced, and Nature's laws unfolded, that no theory however imposing, no speculation, however lofty, was to be accepted, unless based upon carefully observed facts, facts drawn from Nature, by keen observation and pains-taking experiment. That the scientist, with experiment and observation as his companions, might go forth to his noble work of life, confident of success, sure to discover truth, to move on the car of progress, and to unravel the mysteries of the universe. Let the facts, Bacon taught, upon which you build your theory be few, your foundation narrow, and you commit the same blunder which the Schoolmen committed; your theory, however plausible and imposing it may seem, like a house resting upon a flimsy foundation, cannot withstand the onslaught of investigation; but, on the other hand, build upon a broad foundation of carefully observed facts, and your theory shall be true and abiding; it will stand the test of time, it will survive the fierce gale of hostile criticism, and will find a fitting place in Truth's glorious temple.

But not only did Bacon proclaim the true method by which science was to be advanced and truth discovered but he taught as clearly the great end to be aimed at in the discovery of truth, viz., the benefiting of mankind, the amelioration of the condition of the human race, the increase of human happiness. *Utility* and *progress*, he asserted to be the grand object to be