

## CAVES AND TOWERS

We have large and deep caves of several depths, . . . some of them are dug and made under great hills and mountains . . . over three miles deep. . . . we use them for all coagulations, hardenings, refrigerations, and conservations of bodies. We use them likewise for the . . . producing of new artificial metals. We use them also sometimes (which may seem strange) for the curing of some diseases and for prolongation of life in some hermits that choose to live there, who are well accommodated and outfitted with all things necessary.

We have high towers, the highest about half a mile in height, and some of them likewise set upon high mountains, . . . the highest of them three miles at least. . . . We use these towers, according to their several heights and situations, for exposure to the sun, refrigeration, conservation, and for the viewing of various meteorological phenomena, such as winds, rain, snow, hail, and some of the fiery meteors [comets] also.

Reprinted by permission of Macmillan Publishing Company from Francis Bacon, *Essays, Advancement of Learning, New Atlantis, and Other Pieces*, edited by Richard F. Jones (New York: Odyssey Press, 1937; copyright renewed ©1965).

## LAKES, WELLS, AND WEATHER

We have great lakes both salt and fresh, which we use for the fish and fowl. We use them also for burials of some natural bodies, for we find a difference in things buried in earth or in air below the earth and things buried in water. We have also pools, some of which strain fresh water out of salt, and other by art [artificially] turn fresh water into salt. . . . We have violent streams and cataracts, which serve us for many motions, and likewise engines for multiplying and intensifying winds . . .

We have also a number of artificial wells and fountains, made in imitation of the natural sources and baths, treated with copper sulfate, sulphur, steel, brass, lead, potassium nitrate, and other minerals. And again we have little wells in which many things may be dissolved. . . . and among them we have a water which we call Water of Paradise, made [for] health and the prolongation of life.

We have also great and spacious houses, where we imitate and exhibit meteorological phenomena, as snow, hail, rain . . .

We have also fair and large baths of several mixtures for the cure of diseases and the restoring of man's body . . .

Reprinted by permission of Macmillan Publishing Company from Francis Bacon, *Essays, Advancement of Learning, New Atlantis, and Other Pieces*, edited by Richard F. Jones (New York: Odyssey Press, 1937; copyright renewed ©1965). pp. 482–83. [Francis Bacon's *New Atlantis* (1627)]

## ORCHARDS, GARDENS, AND PARKS

We have also large and various orchards and gardens. . . . In these we practice all theories of grafting and inoculating. . . . And we make in the same orchards and gardens trees and flowers to come earlier or later than their seasons, and to come up and bear more speedily than by their natural course they do. We make them also larger than their nature; and their fruit larger and sweeter and of differing taste, smell, color, and shape, from their nature. And many of them we change so they can be of medicinal use.

We have also parks and inclosures of all sorts of beasts and birds, which we use not only for view or rareness but likewise for dissections and experiments, that thereby we may learn what may happen on the body of man. . . . We try also all poisons and other medicines upon them, as well as surgery. . . . By experimentation we make them bigger or taller than their kind is, or contrariwise dwarf them, and stunt their growth. . . . we make them differ in color, shape, activity. . . .

Reprinted by permission of Macmillan Publishing Company from Francis Bacon, *Essays, Advancement of Learning, New Atlantis, and Other Pieces*, edited by Richard F. Jones (New York: Odyssey Press, 1937; copyright renewed ©1965).

## FOOD AND MEDICINE

“I will not hold you long with telling of our brew-houses, bake-houses, and kitchens, where are made different drinks, breads, and meats, rare and with special effects. Wines we have of grapes, and drinks of other juice of fruits, or grains, and of roots, and of mixtures with honey, sugar, manna, and dried fruits . . . We have also waters which . . . are indeed excellent drink . . . Breads we have of several grains, roots, and kernels; and some of flesh and dried fish, with different kinds of seasonings, so that some stimulate appetites; some are so nourishing, that many live on them without any other meat. . . . We have some meats also and breads and drinks, which taken by men enable them to fast long after, and some other, that when used, make the flesh of men’s bodies more hard and tough, and their strength far greater than otherwise it would be.

“We have dispensaries, or shops of medicines wherein the herbs, drugs and ingredients of medicines [are] in great variety. . . . And for their preparations, we have not only all kinds of subtle distillations and chemical analysis, . . . but also exact forms of compounds, whereby they [are] almost like natural herbs.

Reprinted by permission of Macmillan Publishing Company from Francis Bacon, *Essays, Advancement of Learning, New Atlantis, and Other Pieces*, edited by Richard F. Jones (New York: Odyssey Press, 1937; copyright renewed ©1965).

## FURNACES AND LIGHT

We have also furnaces of many kinds, that keep a great assortment of heats: fierce and quick; strong and constant; soft and mild; blown, quiet; dry, moist; and the like. But above all, we have heats in imitation of the sun's and heavenly bodies' heats. . . . [we have] instruments also which generate heat only by motion. . . . and again, places under the earth, which by nature or our efforts, yield heat. These different heats we use, as [we require].

We have also perspective-houses, where we make exhibits of all lights and radiations, and of all colors; and out of things uncolored and transparent we can show you all several colors, not in rainbows, as it is in gems and prisms, but by themselves. We [make] also all multiplications of light, which we carry to great distance, and make so sharp as to see small points. . . . We find also different means, yet unknown to you, of producing light from different things. . . . We have also helps for the sight, far above the spectacles and [eye]glasses in use. We have also glasses and means to see small and minute bodies perfectly and distinctly, as the shapes and colors of small flies and worms, grains and flaws in gems, which cannot otherwise be seen. . . . We make artificial rain-bows, halos, and circles about light. We represent also all manner of reflections, refractions, and multiplication of visual beams of objects.

We have also precious stones of all kinds, many of them of great beauty and to you unknown; crystals likewise; and glasses of different kinds; and among them some of metals made into glass . . .

---

Reprinted by permission of Macmillan Publishing Company from Francis Bacon, *Essays, Advancement of Learning, New Atlantis, and Other Pieces*, edited by Richard F. Jones (New York: Odyssey Press, 1937; copyright renewed ©1965).

## SOUNDS AND SMELLS

We have also sound-houses, where we practice and exhibit all sounds and their generation. We have harmonies, which you have not, of quarter-tones. . . . Different musical instruments unknown to you, some sweeter than any you have. . . . We represent and imitate all sounds . . . and the voices . . . of beasts and birds. We have certain helps which . . . further the hearing greatly. We have also diverse strange and artificial echoes, reflecting the voice many times. . . . We have also means to convey sounds in tubes and pipes, in strange lines and distances.

We have also perfume-houses, where we . . . multiply smells . . . We imitate smells . . . We make different imitations of taste likewise, so that they will [fool] any man's taste. . . . And in this house we have also a candy-making house, where we make all sweets, dry and moist, and different pleasant wines, milks, soups and salads, far in greater variety than you have.

Reprinted by permission of Macmillan Publishing Company from Francis Bacon, *Essays, Advancement of Learning, New Atlantis, and Other Pieces*, edited by Richard F. Jones (New York: Odyssey Press, 1937; copyright renewed ©1965).

## ENGINES AND MACHINES

We have also engine-houses, where are prepared engines and instruments for all sorts of motions. There we imitate and practice to make swifter motions than any you have, . . . and to make them and multiply them more easily and with small force by wheels and other means, and to make them stronger and more violent than yours are, exceeding your greatest cannons. We [have] also arms and instruments of war, and engines of all kinds, . . . Also fire-works of all variety both for pleasure and use. We imitate also flights of birds; we have made some progress in flying in the air; we have ships and boats for going under water. We have different curious clocks and other [oscillators] and some perpetual motions.

We have also a mathematical house, where are exhibited all instruments of geometry and astronomy, [finely] made.

Reprinted by permission of Macmillan Publishing Company from Francis Bacon, *Essays, Advancement of Learning, New Atlantis, and Other Pieces*, edited by Richard F. Jones (New York: Odyssey Press, 1937; copyright renewed ©1965).