

application of the prismoidal formula for solid contents to every imaginable elementary solid as illustrated on a board of some two hundred models, of which the writer, had the honor of entertaining the Literary and Historical Society Quebec in 1872 or some 25 years ago, under the heading "Geometry and the Stereometrical."

The solid figures now used everywhere and considered essential to a prompt understanding of how to measure their areas and solidities, and though they may themselves be looked upon in the abstract as similar figures of any other size, have their concretions or embodiments: the one, the middle frustum of a spindle, as a cask of any size or curvature—the frustum of a cone on its larger base, a salting tub or when reversed a butter firkin, a waste paper basket, a tumbler or drinking goblet, a brewery vat, a bucket—its prisms, the forms of solids of construction—its prisnoids, roofs of every kind, bins and other vessels of capacity, railway embankments and excavations,—cones, pyramids and their frusta, the sphere and spheroids and their sections; illustrative for instance of the facility, with the one quarter of the hemisphere at hand and its tri rectangular triangle, of how one can see the way in which a spherical triangle may become so small as to be equivalent in area to a plane triangle, and so great as to equal in its surface one half of that of the sphere itself, with the sum of its angles formed by the three pairs of component planes, each pair spreading or opening till the contained angle reaches the limit of two right angles, finally becomes equal to six right angles, and illustrative of what in spherics is termed spherical excess and of its use in working out the true area of any extent of country on the surface of the earth.

One cannot too strongly insist on the fact that nothing to the young pupil is so instructive because so amusing, as any solid form he can lay his hands on and turn over on all sides and manipulate, and asked or told what it is representative of, according as it stands or its broader or its lesser base or on its apex; as when a hemi-sphere suggests a dome when lying on its base, while if reversed it instantly becomes a cauldron; a right angled prism, not only the image of a block of buildings but of each and every of its component stones or bricks, or other parts; an elongated prisnoid, a stick of square or wancy timber, a vessel of capacity—turned upside down, a roof, a railway cutting—an embankment when reversed; an elongated frustum of a cone or may be I should rather say the frustum of an elongated cone, the plug of a stop cock, the shaft of the Grecian Doric column; the prolate or elongated spindle, the weaver's shuttle,—its half, cut lengthwise, a boat, a skiff or canoe—and with bottom cut away and ends cut short, a scow or flat;—or, the half spindle when cut the other way or across its longer axis, a filtering bag if held as such, a minaret if turned point upwards; the same spindle with both its ends cut short, the windlass of a ship or the shaft of the connecting rod of a steam engine, or when unequally cut, the shaft of a greeian