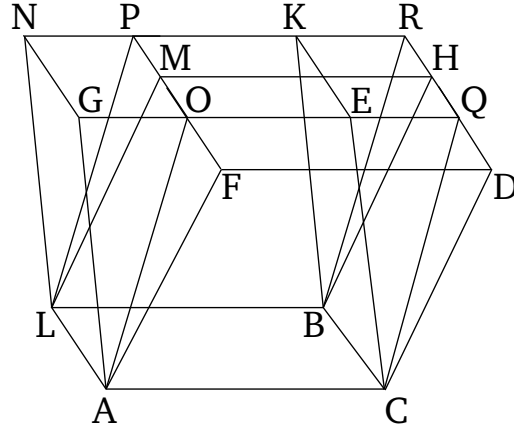


Book 11

Proposition 30

Parallelepiped solids which are on the same base, and (have) the same height, and in which the (ends of the straight-lines) standing up are not on the same straight-lines, are equal to one another.



Let the parallelepiped solids CM and CN be on the same base, AB , and (have) the same height, and let the (ends of the straight-lines) standing up in them, AF , AG , LM , LN , CD , CE , BH , and BK , not be on the same straight-lines. I say that the solid CM is equal to the solid CN .

For let NK and DH have been produced, and let them have joined one another at R . And, further, let FM and GE have been produced to P and Q (respectively). And let AO , LP , CQ , and BR have been joined. So, solid CM , whose base (is) parallelogram $ACBL$, and opposite (face) $FDMH$, is equal to solid CP , whose base (is) parallelogram $ACBL$, and opposite (face) $OQRP$. For they are on the same base, $ACBL$, and (have) the same height, and the (ends of the straight-lines) stand-

ing up in them, AF , AO , LM , LP , CD , CQ , BH , and BR , are on the same straight-lines, FP and DR [Prop. 11.29]. But, solid CP , whose base is parallelogram $ACBL$, and opposite (face) $OQRP$, is equal to solid CN , whose base (is) parallelogram $ACBL$, and opposite (face) $GEKN$. For, again, they are on the same base, $ACBL$, and (have) the same height, and the (ends of the straight-lines) standing up in them, AG , AO , CE , CQ , LN , LP , BK , and BR , are on the same straight-lines, GQ and NR [Prop. 11.29]. Hence, solid CM is also equal to solid CN .

Thus, parallelepiped solids (which are) on the same base, and (have) the same height, and in which the (ends of the straight-lines) standing up are not on the same straight-lines, are equal to one another. (Which is) the very thing it was required to show.