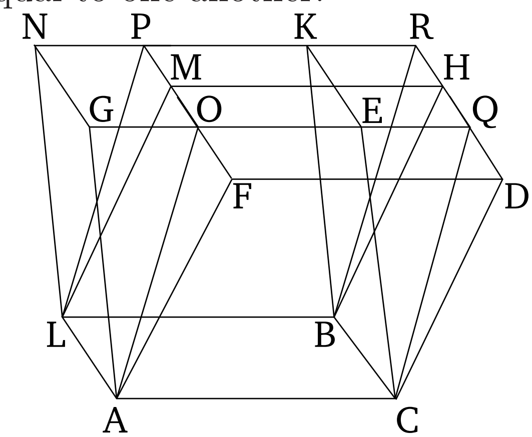
Book 11
Proposition 30

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) $FDHM$, 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) standing 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.