Thoughts from Rein.

Only that should be subject-matter of instruction which is able to awaken and chain the interest of the scholars. Only such material should be chosen as must necessarily awaken a spontaneous, permanent interest in every child of normal mental endowments. The interest only has a real value for education when it arises spontaneously in the pupil, accompanies him through his school life as a permanent mental activity, and still inspires him after his school year as a vital power that will always augment.

Plans of instruction are constantly being created by the mere artless collection of the series of materials; curricula are constantly being prepared in which the matter to be treated is considered, but not the question as to what material will be co-ordinated in the application of the plan, or how they may be connected. A sort of educational atomism is apparent here, which has taken hold of the work of instruction, and thinks it can produce an organic structure by the mere accumulation and piling up of material—a living being by the mere mechanical co-ordination of forces.

None of the branches of instruction can be regarded as a universal means, the intense pursuit of which could develop the formal power for mastering all other series of material. On the contrary, they should all be taken equally into consideration if the genuine many-sidedness of interest is to be obtained.

QUESTION DEPARTMENT.

(1) Miss F.—Two straight lines are drawn to the base of a triangle from the vertex, one bisecting the vertical angle and the other bisecting the base. Prove that the latter is the greater of the two lines.

Let ABC be the given triangle and BC be the base. If the side AB be equal to AC, then the line bisecting the base will coincide with the line bisecting the angle BAC.

Let AC be greater than AB. Then let E be the middle point of the base, and let the line AD bisect the angle BAC, then the point D on the line BC will be between B and E. Make AF equal AB; join the points D and F. Then the angle ADB equal angle ADF, and DF equal BD (I 4). But angle DFC is greater than angle ADF (I 16), and angle ADB is greater than angle DCF (I 16). Therefore angle ADF is greater than the angle DCF, therefore the angle DFC is still greater than the angle DCF, therefore the angle DFC is still greater than the angle DCF. Therefore DC is greater than DF (I 18), therefore DC is greater than BD, therefore the point D lies between the points B and E.

Now the angle ADB is greater than the angle AED, therefore ADF is greater than the angle AED, therefore the angle ADE is still greater than the angle AED, therefore AE is greater than AD.

(2) If two straight lines be perpendicular to two other straight lines, each to each, the first pair make the same angles with one another as the second.

Let AB and CB form a right angle at B, and DE and EF form a right angle at E, then the angle formed at H by AB and DE will be equal to the angle formed at G by BC and FE. Because the angles at B and E are right angles, therefore the angles BHE and BGE are together equal to two right angles, but the angles BGE and BGK are equal to two right angles, therefore the angle BHE is equal to the angle BGK.

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(3) If two exterior angles of a triangle be bisected by straight lines, which meet in O, prove that the perpendicular from O on the sides, or the sides produced, of the triangle are equal.

Let ABC be a triangle, of which the sides BA and BC are produced, and let OA, OC, the bisectors of the exterior angles, meet in O. Draw OD, OE, OF perpendiculars to BA, BC, CA, or to these produced. Then because the angle DAO equal the angle FAO, and the angle ADO is equal to the angle AFO, and AO is common, therefore OD equal OF; and because the angle OCE equal the angle OCF, and the angle OEC equal the angle OFC, and OC is common; therefore OF equal OE.

L. J. N.—(1) Hamblin Smith, page 101. Ex. VI, 3.

If the \$1·15 had been spent there would have remained $\$(2\cdot\dot{6}0\dot{9}-1\cdot15)=\$\left(\frac{2583}{990}-\frac{114}{99}\right)=\$\frac{1443}{990}=$ the first remainder $-\frac{960}{1441}$ of the first remainder $=\frac{481}{1441}$ of the first remainder.

Therefore the first remainder $=\$\frac{1441\times1443}{481\times990}$

If he had not spent the \$2½ the first remainder would have been $\$\frac{1441\times1443}{481\times990}+\$\frac{5}{2}=$ the whole of his money $-\cdot\dot{7}9$ of this money = the whole $-\frac{72}{90}$ of his money = the whole $-\frac{4}{5}$ of money $=\frac{1}{5}$ of his money.

$\therefore$ the whole $=\$\frac{5\times1441\times1483}{481\times990}+\$\frac{5\times5}{2}=34\frac{1}{3}$.

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(2) For Ex VI, 4, on same page, see Review for May, 1894.

For Miss F. M. R., Church St.—(1) One hundred pounds of pork is divided betweed two men, each paying \$4.00. The man who has the hind quarter pays one cent per pound