WITTGENSTEIN

REMARKS on the FOUNDATIONS of MATHEMATICS, I

143. We teach someone a method of sharing out nuts among people; a part of this method is multiplying two numbers in the decimal system.

We teach someone to build a house; and at the same time how he is to obtain a sufficient quantity of material, boards, say; and for this purpose a technique of calculation. The technique of calculation is part of the technique of house-building.

People pile up logs and sell them, the piles are measured with a ruler, the measurements of length, breadth and height multiplied together, and what comes out is the number of pence which have to be asked and given. They do not know 'why' it happens like this; they simply do it like this: that is how it is done.—Do these people not calculate?

144. If somebody calculates like this must he utter any 'arithmetical *proposition*'? Of course, we teach children the multiplication tables in the form of little *sentences*, but is that essential? Why shouldn't they simply: *learn to calculate*? And when they can do so haven't they learnt arithmetic?

145. But in that case how is the *foundation* of a calculating procedure related to the calculation itself?

146. "Yes, I understand that this proposition follows from that." —Do I understand *why* it follows or do I only understand *that* it follows?

147. Suppose I had said: those people pay for wood on the *ground of calculation*; they accept a calculation as proof that they have to pay so much.—Well, that is simply a description of their procedure (of their behaviour).

148. Those people—we should say—sell timber by cubic measure ——but are they right in doing so? Wouldn't it be more correct to sell it by weight—or by the time that it took to fell the timber—or by the labour of felling measured by the age and strength of the woodsman? And why should they not hand it over for a price which is independent of all this: each buyer pays the same however much he takes (they have found it possible to live like that). And is there anything to be said against simply giving the wood away?

149. Very well; but what if they piled the timber in heaps of arbitrary, varying height and then sold it at a price proportionate to the area covered by the piles?

And what if they even justified this with the words: "Of course, if you buy more timber, you must pay more"?

150. How could I shew them that—as I should say—you don't really buy more wood if you buy a pile covering a bigger area?—I should, for instance, take a pile which was small by their ideas and, by laying the logs around, change it into a 'big' one. This *might* convince them—but perhaps they would say: "Yes, now it's a *lot* of wood and costs more"—and that would be the end of the matter.—We should presumably say in this case: they simply do not mean the same by "a lot of wood" and "a little wood" as we do; and they have a quite different system of payment from us.