4 Materials Handling: Analysis of Product

Before we can attempt to decide the method of handling materials and products in a particular case, it is necessary to have a very clear understanding of the manufacturing processes required in that industry, and all the raw materials which are used. It makes no difference whether the investigator is reviewing a production unit or a distribution depot: unless he has a clear understanding of the chain of events that extend from supplier, through his own organisation, through to the customer, he is in no position to make recommendations.

In all commercial enterprises we are purchasing one kind of material, subjecting it to some form of processing and selling it, usually in changed form. In primary manufacturing we may purchase a raw material and sell a sophisticated product; in distribution we may buy in large quantities to sell in smaller ones, but in each and every case the material undergoes a change in form as a result. Sometimes these changes may be great, as in the production of tableware from raw clay; in distribution it may be simply a change in pack size. But in every case the material is handled many times between input and output, and our job is to see that this handling is reduced to a minimum. Movement uses energy and costs money; having established that it is necessary to move an item, we must then use the lowest-cost energy to move it. And moving things by human labour incurs the highest cost of all, at least in what we usually describe as ‘developed countries’.

THE RAW MATERIALS: GOODS INWARDS

Except for the primary producers, whose raw material consists of ore, sand, clay or similar materials, all industries are purchasers in one way or another of products produced by others. (The supreme example of this is the motor industry: some of the smaller makers could be described as merely assemblers of parts produced elsewhere.)
When goods are ordered from a supplier, very often little attention is given to the form in which the items will be delivered. It is likely that the supplier has a standard pack which he will use, regardless of customer; it is also probable that the buying department of the purchasing firm will have discussed the minimum cost of delivery, without reference to the methods of unloading in use or available on their premises. In other cases particular methods of delivery may have been agreed which were satisfactory, say, five years ago, but now, with changed equipment in the recipient’s premises, have become difficult or time-wasting. So the first place to look for economies in handling is the receiving bay. The primary question should be: ‘Does this material come to us in the form in which we are best equipped to handle it?’ and the next follow-up: ‘Are the suppliers aware of our inward handling arrangements, and how far can dispatch from them be made compatible with our receipt?’

Sometimes it is only a question of a phone call: items which are sent loose on a drop-sided lorry could be palletised, with savings in load and unload times. But this must depend on both supplier and customer having compatible handling equipment, i.e. pallets and FLT’s, and an agreed method of loading the vehicle. It would be of little advantage, for example, if the supplier loaded a lorry with two-way entry pallets end-on from the rear if the receiving firm either had no loading dock, or were obliged to unload from one side of the vehicle.

As materials travel through a handling chain, they change in form, weight and complexity. A firm manufacturing instruments or alarm clocks may buy raw materials as steel bars or sheets; in the manufacture of plastic articles the raw materials may be powders, liquids or pellets, received in tankers, sacks, drums or boxes. It may be that equipment used for handling in the goods receiving area may not necessarily be the same as, or even compatible with, that used elsewhere. Engineering materials are usually in long lengths (tube, bar, rod), coils (strip) or sheets, and in such quantities that equipment capable of handling tons at a time is required to unload it from the incoming transport and place it in store. The same type of equipment (or it may, in fact, be the same equipment) will be needed to transfer it from store to the first process. But in most cases, after the first process, quite different handling methods can be used. Pursuing our engineering example, once the stock of bars has passed to the cutting-up machine, we have a large quantity of smaller pieces, which may