returns for his efforts. Being an outsider he is not influenced or controlled by any conditions that existed previously to his arrival, and is therefore easily able to see flaws and recommend their correction. Hardly ever is there a firm through which he has gone but that can say after the bill has been paid that he has told them nothing that they did not already know.

This article is made to operate in very much the same way, pointing out results which will help toward a more close alliance between the purchasing agent and his right hand man, the engineer. Practically anyone can put this indicated procedure to work for himself and prosper in proportion. Then when through, they can say with all fairness that there has been nothing they had not thought of many times, but had somehow never got to working out before. There is probably no greater chance for mix-up and crossing of purposes and failure of accomplishment of a desired point on the part of the two departments than exists in the lack of a definite understanding and agreement between them of the limits in their responsibilities toward each other.

The agent has referred a salesman to the engineer for interview only, without any idea of making a purchase until he has had time to digest the information he will desire from the latter. The engineer sees the advantages of the article submitted and they strike him so favorably that he promises an order. Whether the purchase is finally made or not, he has gone entirely out of his jurisdiction and has placed himself and the agent in a very awkward position. The salesman begins to wonder what the purchasing agent is for in the organization, and his tendencies will be in the future to ignore him altogether. If the purchase fails of approval, his ideas on the authority of either agent or engineer are rather low, to say the least.

It is the chance of this thing happening that makes the agent who is proud of his position, as he should be, very chary in letting the engineer come in contact with any of his callers. There can be no blame attached to any agent who has this feeling, as the fault lies entirely with the firm whose rules allow any one at all but the agent to start the contract, or who fails to let the salesman know definitely that the purchasing agent only places the order, and that this is the line of action he must follow to obtain any business.

That is the agent's side, but suppose as often happens, that the engineer has found through careful experiment that a certain material is far and away the best for all purposes to which it will be put, regardless of the fact that its cost is higher. Suppose he requisitions this material and the agent side-tracks it for a cheap substitute, disregarding the engineer's recommendations. Then he has gone beyond his jurisdiction and has put his unsupported opinion against the engineer's facts based on actual test. The reputations of both will suffer with the outside, and the engineer will be prone to minimize the importance of requests for test runs or trial supervision if they come from the agent.

Again, neither is very much to blame for the condition. They are neglecting their useful services to the company while they consider the unfairness of things and hold hard thoughts for each other, while all the time the real cause of the situation can be attributed to the failure of the management to lay down the necessary rules of order. A definite understanding between departments is therefore the very first thing to establish if the action is to be smooth and profitable.

Time limit in making purchases is a factor that affects the proper operation of the agent-engineer combination. The agent will get a requisition for a certain article and will call in several representative firms. He will then have them submit their samples to the engineer for test, and will get the results and the name of the best firm to deal with, only to find that the article in question has to be obtained a lot sooner than this particular firm can supply it. Both agent and engineer are disappointed, and while the agent wonders why the engineer could not have said one of the quick delivery brands was all right, the engineer feels sorry for the lack of back-bone in the agent in not forcing timely requisition on the part of the shop.

Oftentimes this article is for the engineering department itself and it is clearly the duty of that department to bend every effort toward the elimination of the condition. Sometimes the agent is so busy thinking that the particular brand is difficult to secure, that he will let it lie and assume that timely deliveries are impossible, without even trying to make the grade.

When this occurs there are sure to be sparks and strained relations, for one of the creeds on which the engineering department has to operate, calls for the elimination of the word "impossible." Management does not allow them its use when it comes to getting things going in the shop, and being human, they do not consider that the agent should have the privilege either.

This condition often results in the engineer taking the bit in his teeth and actually finding out, as the agent could have done, that by a little extra effort the impossible was not so hard after all.

The agent has no way of getting away from his desk for any length of time in order that he go thru the plant and get the feel of things he has purchased, or to become sufficiently well acquainted with conditions, past or present, to be able to guide himself in determining future possibilities. The engineer, however, is in just the right position to supply him with this lack and can, if he works in close cooperation, be of very great assistance.

He can, for example, see a new operation started or from his experience will know of a change in methods which would effect big savings. He has only to make this fact known to the agent and he is then in exactly the right position to secure representatives from the outside who can talk things over and offer the thing that will be needed.

Again, the agent may purchase a standard article on which there is very little range in merit between several makes. He knows that he has the right thing, or at least, the best obtainable in the limits of his and his engineer's knowledge. This article is put into service and as far as the agent is concerned, forgotten. It has to be so in the very nature of things, for he has many other duties crowding him. The engineer, on the other hand, watches the performance of this article from day to day and it enters his mind that he is not getting all that should be gotten for the price. He asks the agent for the representative to talk things over, and sure enough, he has found a chance of making a saving due to a very small point indeed, a point the agent had no way of knowing.

An actual experience with saw blades furnishes an excellent example of this point. Most people with the exception of the men who sell a given brand, will assume that a saw blade is a—merely a saw blade—granting that the temper is uniform and right, and that the steel is average. In this particular case, a machine was running all day cutting nickle steel tubes. Many different grades of teeth had been tried and the best results that were obtainable even by adjusting the weight and doing everything that could be thought of, consisted of two tubes to one saw.

This is the point that did not sit well with the engineer even though he could see no solution, after trying different methods and sizes, purposes and speeds. The representative was called, through the purchasing department, and looked things over. He said that he could do much better and produced a saw from his bag that had the same tooth pitch as the ones that were being used. But there was a certain difference in that the one he put in the machine to try out had no set on the teeth. The net result was an average of sixty tubes per saw, and the reason lay in the fact that the saw without set had just the additional amount of bearings on the narrow edge of the metal it was cutting to keep it from digging in and losing all its teeth. Saw blades are saw blades, but the engineer and the agent thereby learned that there are many kinds to the saw blade game, and regulated their buying and use accordingly.

Very few purchasing agents have the time to stop long enough in their rush of daily work to consider the set in the teeth of a saw blade, nor would it ever occur to many of them that it makes any difference. As a matter of fact, how could the agent be expected to think of this small point when the engineer could not pick it out himself without the help of the specialist representative.

The importance of the point lies in the fact that the engineer had the opportunity to see the operation of the article and question it, and that he made use of his connection with the purchasing agent to secure some one who would put things on the right track.

Purchasing equipment and then getting it into operation are often widely separated steps in the modern plant. The agent may find some machine or labor-saving device that he knows needs no consultation with the engineer, and knows that it would be of material assistance to production. He will, though, if he is playing the game, call the engineer in and tell him about the find and arrange with him to see that it is installed to advantage when it arrives, and that the tests are carried through as they should be and that the article itself is sold to the men who are to use it.

Very often it happens, in those plants where there is a lack of close cooperation between the two departments, that the agent knows he is only wasting money to purchase an improved article for the simple reason that he cannot get into the shop and sell its advantages so it will even be used. In the old days he could, but by the very nature of present day requirements on his job he has been forced to delegate that duty to others.

Electric rivet heating and the possibilities involved came to the attention of the engineer through the agent. They worked together on the subject and secured an appropriation to cover the complete change-over in the assembly department where some twenty oil furnaces were in operation. The engineer was able to point out the possible savings and the agent obtained favorable terms from the makers of the equipment so that they were able to present an alluring report to the manage-