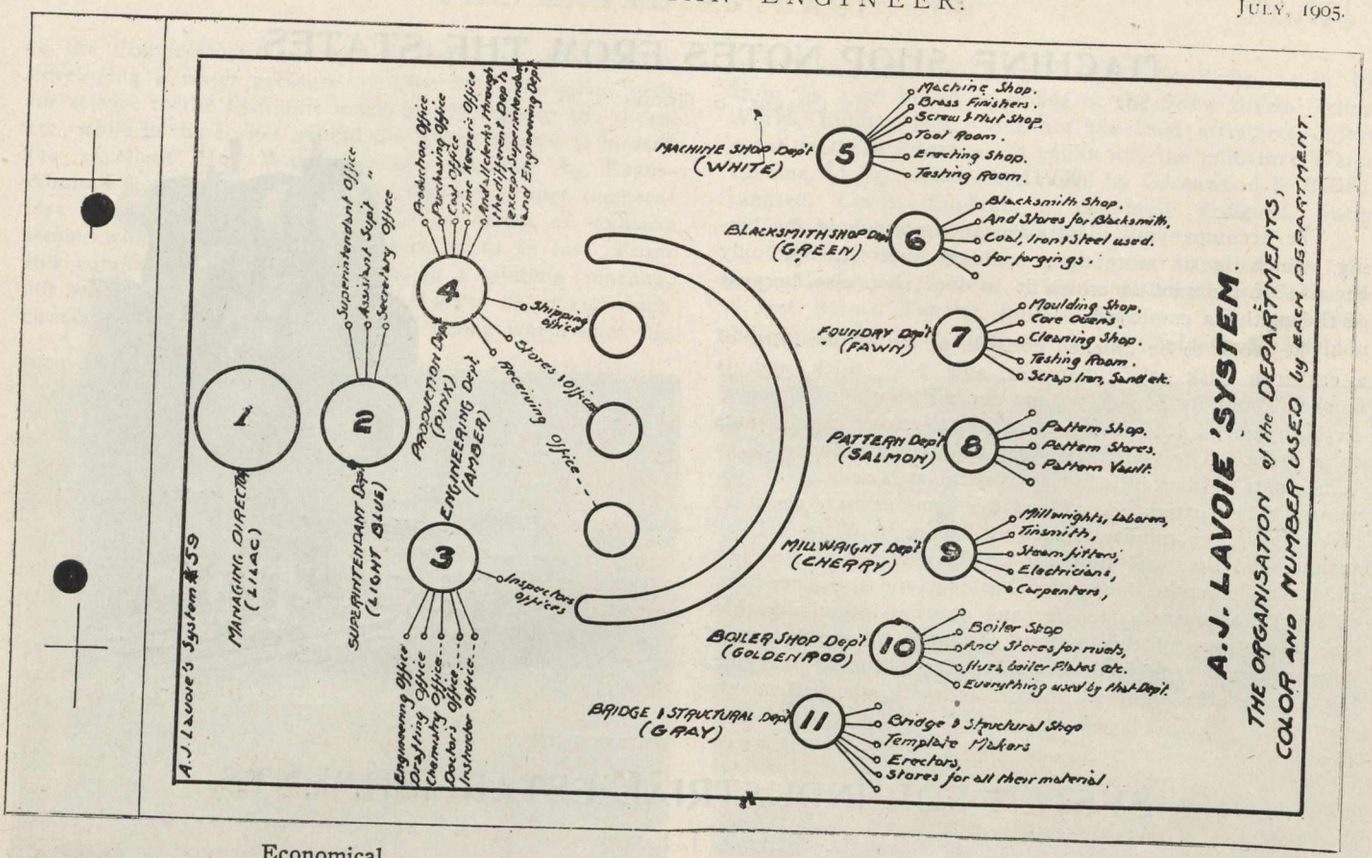

Economical.

This system is economical, for the cards are in two sizes only.—

(1) Working cards, indexes, and note pads, 3 x 5 in.

(2) Correspondence pads, 6 x 10 in., which, folded, in four, makes 3 x 5 in. also, thus practically reducing the whole filing space to one size, 3 x 5 in.

These forms being so small, each foreman can carry them in his pocket; hence, with his requisition forms on one side and his note pad on the other, he is ever ready to issue requisitions to stores, etc., in any part of the shop he controls. By this plan the foreman has very little writing to do in his office. He is enabled to be more among the benches, the machines, the moulds, or the forges, giving advice, seeing that the work is being properly done, and that the men are adequately provided with drawings, materials, time slips, instruction cards, tools, etc., thus ensuring better work in the shops, and the getting out of work with greater speed and despatch.

Only two sizes of Rodless Cabinets are required, and, as the cards are printed on both sides, the cost of paper is reduced by 50 per cent., and the cabinet space also.

Elastic.

The elasticity of the "Lavoie system" consists in its adaptability to either small or large establishments, and capability of being extended ad infinitum. The general system remains the same, no matter how fast the work comes in or goes out. The filing cabinet will grow as the firm progresses, but the system remains unchanged. In a word, the smooth running of the co-ordinated parts of the system cannot be affected by the addition or subtraction of any part thereof, since every part is complete in itself.

In travelling through a strange country, it is well to have known bounds and landmarks. The foregoing generalized statement of the main features and advantages of the "Lavoie system" will serve, therefore, as a guide to the better understanding of the details and subdivisions which follow. In the endeavor to describe and illustrate the various forms, and methods of handling same, our aim will be to avoid all circumlocution and tedious minutiæ of detail, setting forth only those things which we deem essential to a clear and lucid understanding of the system as a whole. Each form will be explained in logical order, commencing with the Sales Department estimate, and taking in every detail, until the article is manufactured, inspected, shipped, and accepted by the customer.

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EXTRACTS FROM AN ENGINEER'S NOTE BOOK.

Hints on Design.

A few days ago I listened to a venerable speaker at the Institution of Mechanical Engineers, who was discussing the report of the Steam Engine Research Committee. "How will this complicated mass of, perhaps, interesting information about valve-leakage help any one of the many eager students I see here to-night?" were the pith of the words which he uttered. Not long afterwards I heard Sir Guilford Molesworth make some facetious remarks about the pocket-book which is inseparably associated with his name, at a more festive occasion. He said, at the dinner of the students of the Institution of Civil Engineers, that he would warn them against "that mischievous book." Really, one scarcely knows how to coach students without a Molesworth! "They ought to master the principles underlying formulæ, instead of using them indiscriminately," was one of his expressions, and it is a text which was drilled into me by one of our most famous scientists, from whom I was privileged to get some hints. In design work, however, we have a great deal of empirical formulæ, founded mostly on the experience of others.

The Diameter of a Cylinder.

If we have to design a steam engine, we usually have given us the steam pressure of the boiler, or preferably at the engine stop-valve (the mean-pressure can then be easily calculated when the point of cut-off is decided upon, and for the point of cut-off usual for certain types of engines and steam pressures I must, I fear, again refer you to your pocket-book), and we know also the indicated horse-power that the cylinder is to develop. It is then only a matter of substitution to find the diameter of the cylinder, for we know that

$$I.H.P. = \frac{\pi D^2 p S}{4 \times 33{,}000},$$

where p is mean-effective pressure per square inch of steam on piston, and D the diameter of the cylinder in inches, and S the speed of the piston in feet per minute. From this it is quite clear that