CYLINDER PROPORTIONS FOR COMPOUND ENGINES.

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To make this application, let it be assumed that cylinders are to be selected for a triple expansion engine, where the boiler pressure is 150 lbs. above atmosphere, and the vacuum gauge shows 26 inches. Allowing for wire drawing, let it be assumed that the initial pressure in high cylinder will be 160 lbs. absolute, and the back pressure in low cylinder 3 lbs. absolute. The total range of pressure is therefore 157 lbs., and the corresponding range of temperature 221° Fahr.

The object of a compound engine being to reduce cylinder condensation by dividing the range of temperature judiciously between two or more cylinders, the first step is to decide through what range of temperature each cylinder shall work. In doing this, the desirability of a tolerably uniform division of work between the various cylinders forming the system must not be overlooked, although it cannot be considered good engineering to impair the economy of the engine materially to accomplish this result, as each engine of the system may be built to carry any load found desirable to put upon it. If the range of temperature is divided equally between the three cylinders in the proposed engine, the greater internal surface of the low cylinder would warrant the expectation of greater cylinder condensation than in the smaller cylinder, and if so, the total condensation can be reduced by giving the low-pressure cylinder less range of temperature and the high cylinder more.



Cylinder condensation in this investigation, whether considered relatively or collectively, must be made to include the