

per cent. on this ten horse power engine. (I have not in my possession the size of the re-heater used in this instance, but if any of the members would like to have the same I will gladly give it to them upon application to me.) I have noticed many other places where in winter time, particularly, they use re-heaters of different design. The one most noticeable was in the shipyards of Messrs. M. Beatty & Sons, Welland, Ont., where eight or ten pneumatic tools are being used in the open all the year round some three thousand feet from where the air is compressed, the pipe line being exposed for about five or six hundred feet. They experienced considerable trouble with the pneumatic tools in cold weather, while yet the pipe line was giving no trouble and very little moisture was coming through the line, having been all extracted before leaving the compressor room. The trouble was the air being low in temperature and any oil they could secure became sluggish and at times the tools would operate, but most unsatisfactory and their motor hoists would not work at all. To overcome this trouble they installed a few feet from the end of the air line and close up to a receiver an air re-heater and all the above mentioned troubles were eliminated, and, in fact, the tools worked more satisfactory on re-heated air than under the average good conditions. Considerable re-heating of air is done by carvers and stone dressers throughout the country using their tools as they do mostly in the open. One particular and noticeable feature about using re-heated air with their tools is that being of such fine construction the air must be clear and sharp to operate satisfactorily. I could touch on many other points, but I do not wish to take up more of your time and wish to hear some of the other members take part in this discussion.

In closing the subject of re-heating air, I must say that each case should be taken separately and studied out by itself and will admit that there are places where people have gone the limit with re-heating air, but this is generally done more or less in all classes of engineering. I trust I have been able to show you re-heating of air is a subject worthy of consideration to all users of compressed air more particularly to those who are using it transmitted a long distance in the open and using it in the open and I cannot bring Mr. Duguid's point too strongly before you that air pipes in the open should receive as much consideration as to covering as would a steam pipe line. The various tests made using different kinds of fuel seem to come back to a uniform basis of the equivalent of one pound of coal expended or consumed to every horse power gained in re-heating air.

In conclusion, I would recommend in all installations the use of up-to-date after-coolers to condense or extract as much moisture from the air before it enters the pipe lines and, as above