

# **RULES FOR MANAGEMENT AND CARE OF STEAM BOILERS.**

The following summary is issued by the Hewes & Phillips Iron works, of Newark, N. J., and it comprises useful information to all in charge of engines.

"The first duty of an engineer, when he enters his boiler-room in the morning, is to ascertain how many gauges of water there are in his boilers. Never unbank nor replenish the fires until this is done. Accidents have occurred and many boilers have been entirely ruined from neglect of this precaution.

"In case of low water, immediately cover the fires with ashes, or, if no ashes are at hand, use fresh coal. Do not turn on the feed under any circumstances, nor tamper with or open the safety-valve. Let the steam outlets remain as they are,

"In cases of foaming, close throttle and keep closed long enough to show true level of the water. If that level is sufficiently high, feeding and blowing will usually suffice to correct the evil. In cases of violent foaming, caused by dirty water, or change from salt to fresh or vice versa, in addition to the action before stated check draft and cover fires with fresh coal.

"When leaks are discovered they should be repaired as soon as possible.

"Blow off 8 or 10 inches at least once a week; every Saturday night would be better. In case the feed becomes muddy, blow out six or eight inches every day. Never blow entirely off except when boiler needs scraping or repairing, and then not until fire has been drawn for at least ten hours, as boilers are often seriously injured or ruined by being emptied when the walls are hot. Where surface blow cocks are used, they should be often opened for a few moments at a time.

"After blowing down allow the boiler to become cool before filling again. Cold water, pumped into hot boilers, is very injurious from sudden contraction.

"Care should be taken that no water comes in contact with the exterior of the boiler, either from leaky joints or other causes.

"In tubular boilers the hand-holes should be often opened, and all collections removed from over the fire. Also, when boilers are fed in front and blown off through the same pipe, the collection of mud or sediment in the rear end should be often removed.

"Raise the safety-valves cautiously and frequently, as they are liable to become fast in their seats, and useless for the purpose intended.

"Should the gauge at any time indicate an excessive pressure, see that the safety-valves are blowing off. In case of difference, notify the parties from whom boiler was purchased.

"Keep gauge-cocks clear, and in constant use. Glass gauges should not be relied on altogether.

"When a blister appears there must be no delay in having it carefully examined, and trimmed or patched, as the case may require.

"Particular care should be taken to keep sheets and parts of boiler exposed to fire perfectly clean, also all tubes, flues, and connections, well swept. This is particularly necessary where wood or soft coal is used for fuel.

"Under all circumstances keep the gauges, cocks, etc., clean and in good order, and things generally in and about the engine and boiler-room in a neat condition.

"Barium chloride, and milk of lime are said to be used with good effect at Krupp's Works, in Prussia, for waters impregnated with gypsum.

"Soda ash and other alkalis are very useful in waters containing sulphate of lime, by converting it into a carbonate, and so forming a soft scale easily cleaned. But when used in excess they cause foaming, particularly where there is oil coming from the engine, with which they form soap. All soapy substances are objectionable for the same reason.

"Petroleum has been much used of late years. It acts better in water in which sulphate of lime predominates. As crude petroleum, however, sometimes helps in forming a very injurious crust, the refined only should be used.

"Rogers' tannate of soda is probably the best preparation for general use, but in waters containing much sulphate, it should be supplemented by a portion of carbonate of soda or soda ash.

"For muddy water, particularly if it contain salts of lime, no preventive of incrustation will prevail except filtration and in almost every instance the use of a filter, either alone or in connection with some means of precipitating the solid matter from solution, will be found very desirable.

"In all cases where impure or hard waters are used, frequently blowing from the mud-drum is necessary to carry off the accumulated matter, which if allowed to remain would form a scale."

## **COOPERAGE.**

It was not till the Christian era that man kind learned to make casks of wood. The ancient Greeks knew not the convenience of a wooden barrel; nor the Romans till after the time of Julius Cæsar. Jars of earth dried in the sun, or burned with fire, made by the potter, answered all the purposes of the modern hogshead, as witnessed the jars in which the forty thieves were hid. For portable kegs they used earthen bottles and sacks made of the hide of animals. The Kelts, dwelling in the forests, made use of tree trunks, hollowed by the decay of the heart growth, which they set upon flat stones, and filled with their harvested grain. As these split they learned to repair by slipping over them rings of other trunks. From this practice they gradually reached the art of making conic boxes, of straight flat sides, hooped in the same way, and tightened by wedges. The Kelts in Great Britain early attained a great skill in the manufacture of these wooden vessels, and the modern art of cooperage reached a high degree of perfection among them. From a very early date, the occupation of the cooper has been divided into several distinct branches. The dry cooper makes casks for holding all sorts of goods in a dry state, as grains, sand, flour, etc. The tight cooper makes casks or barrels, for liquids, water, etc. There are also general coopers, who prefer to undertake all kinds of work; but, to become a skillful cooper, it is necessary to confine attention and practice to one branch of cooperage, that the workman may be practically familiar with every detail.

In England, and indeed throughout Europe, staves and heads are made almost exclusively. The great abundance of other suitable woods has given the American cooper a wider range of stock. The ash and white pine here furnish a greatly superior wood to their brothers. To-day the preparation of the staves and heads is principally conducted in the country, where wood is cheaper and labor reasonable. Whole communities, as Townsend, Mass., Brookline, Milford, and Henniker, N. H., are devoted almost exclusively to this business.—*Cooper's Journal.*

## **HINTS ON THE CARE OF TOOLS.**

The following hints on the best means of keeping tools in good condition, are from the *Building and Engineering Times*, of London:

**WOODEN PARTS.**—The wooden parts of tools, such as the stocks of planes and handles of chisels, are often made to have a nice appearance by French polishing, but this adds nothing to their durability. A much better plan is to let them soak in linseed oil for a week, and rub them with a cloth for a few minutes every day for a week or two. This produces a beautiful surface, and at the same time exerts a solidifying and preservative action on the wood.

**IRON PARTS.**—Rust preventive.—The following receipts are recommended for preventing rust on iron and steel surfaces:

1. Caoutchouc oil is said to have proved efficient in preventing rust, and to have been adopted by the German army. It only requires to be spread with a piece of flannel in a very thin layer over the metallic surface, and allowed to dry up. Such a coating will afford a security against all atmospheric influences, and will not show any cracks under the microscope after a year's standing. To remove it, the article has simply to be treated with caoutchouc oil again, and washed after 12 to 24 hours.

2. A solution of India-rubber in benzine has been used for many years as a coating for steel, iron and lead, and has been found a simple means of keeping them from oxidizing. It can be easily applied with a brush, and is easily rubbed off. It should be made about the consistency of cream.

3. All steel articles can be perfectly preserved from rust by putting a lump of freshly-burnt lime in the drawer or case in which they are kept. If the things are to be moved (as a gun in its case, for instance), put the lime in a muslin bag. This is especially valuable for specimens of iron when fractured, for in a moderately dry place the lime will not want any renewing for many years, as it is capable of absorbing a large quantity of moisture. Articles in use should be placed in a box nearly filled with thoroughly pulverized slaked lime. Before using them, rub well with a woolen cloth.

4. The following mixture forms an excellent brown coating for protecting iron and steel from rust: Dissolve two parts crystallized iron chloride, two antimony chloride, and one tannin, in four water, and apply with a sponge or rag, and let dry. Then another coat of the paint is applied, and again another, if necessary, until the color becomes as dark as desired. When dry it is washed with water, allowed to dry again, and the surface polished with boiled linseed oil. The antimony chloride must be as nearly neutral as possible.

5. To keep tools from rusting, take ½ once camphor, dissolve in one pound melted lard; take off the scum and mix in as much fine black lead (graphite) as will give it an iron color. Clean the tools and smear with this mixture. After 24 hours rub clean with a soft linen cloth. The tools will keep clean for months under ordinary circumstances.

6. Put 1 quart of fresh slaked lime, ½ pound washing soda, ½ pound soft soap in a bucket, and sufficient water to cover the articles; put in tools as soon as possible after use, and wipe them up next morning, or let them remain until wanted.

7. Soft soap, with half its weight of pearl-ash, 1 ounce of mixture in about 1 gallon boiling water, is in every day use in most engineers' shops in the drip cans used for turning long articles bright in wrought iron and steel. The work, though constantly moist, does not rust, and bright nuts are immersed in it for days till wanted, and retain their polish.

8. Melt slowly together six ounces or eight ounces lard to one ounce resin stirring till cool; when it is semi-fluid, it is ready for use. If too thick, it may be further let down by coal oil or benzine. Rubbed on bright surfaces ever so thinly it preserves the polish effectually, and may be readily rubbed off.

9. To protect metals from oxidation—polished iron or steel, for instance—the requisite is to exclude air and moisture from the actual metallic surface; wherefore, polished tools are usually kept in wrappings of oil cloth and brown paper; and, thus protected, they will preserve a spotless face for an unlimited time. When these metals come to be of necessity exposed, in being converted to use, it

is necessary to protect them by means of some permanent dressing; and boiled linseed oil, which forms a lasting film of covering as it dries on, is one of the best preservatives, if not the best. But in order to give it body, it should be thickened by the addition of some pigment, and the very best—because the most congenial—of pigments is the ground oxide of the same metal—or in plain words, rusted iron reduced to an impalpable powder, for the dressing of iron or steel—which thus forms the pigment or red oxide paint.

10. Slake a piece of quick lime with just water enough to cause it to crumble, in a covered pot, and while hot add tallow to it and work into a paste and use this to cover over burnt work; it can be easily wiped off.

11. Olmstead's varnish is made by melting 2 ounces resin in one pound of fresh sweet lard, melting the resin first and then adding the lard and mixing thoroughly. This is applied to the metal, which should be warm if possible, and perfectly cleaned; it is afterwards rubbed off. This has been well proved and tested for many years, and is particularly well suited for planished and Russia iron surfaces, which a slight rust is apt to injure very seriously.

**RUST REMOVERS.**—1. Cover the metal with sweet oil rubbed in, and allow to stand for 48 hours; smear with oil applied freely with a feather or piece of cotton wool, after rubbing the steel. Then rub with unslaked lime reduced to as fine a powder as possible.

2. Immerse the article to be cleaned for a few minutes, until all the dirt and rust is taken off in a strong solution of potassium cyanide, say about ½ ounce in a wineglassful of water, take it out and clean it with a tooth brush with some paste composed of potassium cyanide, Castile soap, whiting and water, mixed into a paste of about the consistency of thick cream.

## **QUEBEC.**

The *Chronicle* of Nov. 7th says:—The large sale of timber referred to in our last Friday's issue was a very prime raft manufactured by Mr. McCann, and comes from French River, Georgian Bay; it was sold to Messrs. McArthur Bros., and consists of 150,000 feet of square white pine, 65 feet average, with about 50,000 feet of waney board of 20 inch average girth. The price, we are informed, was equal to 34½ to 35 cents all around.

About eighteen thousand standard of first quality spruce ex ship President, loaded at Batican, were sold at \$53 f.o.b. ship. Fifty-two per cent. are oddments and 30 per cent. 11 inch.

## **Advice to Mothers.**

Are you disturbed at night and broken of your rest by a sick child suffering and crying with pain and cutting teeth? If so, send at once and get a bottle of Mrs. Winslow's Soothing Syrup for children teething. Its value is incalculable. It will relieve the poor little sufferer immediately. Depend upon it, mothers, there is no mistake about it. It cures dysentery and diarrhoea, regulates the stomach and bowels, cures wind, colic, softens the gums, reduces inflammation, and gives tone and energy to the whole system. Mrs. Winslow's Soothing Syrup for children teething is pleasant to the taste, and is the prescription of one of the oldest and best female nurses and physicians in the United States, and is for sale by all druggists throughout the world, price 25 cents a bottle.

## **LIVERPOOL STOCKS.**

We take from the *Timber Trades Journal* the following Comparative Table showing Stock of Timber and Deals in Liverpool on Nov. 1st 1884 and 1885, and also the Consumption for the month of Oct. 1884 and 1885:—

	Stock, Nov. 1st. 1884.	Stock, Nov. 1st. 1885.	Consumption for the month of Oct. 1884.	Consumption for the month of Oct. 1885.
Quebec Square Pine.....	315,000 ft.	258,000 ft.	253,000 ft.	308,000 ft.
Waney Board.....	629,000 "	468,000 "		
St. John Pine.....	38,000 "	32,000 "	30,000 "	1,000 "
Other Ports Pine.....	78,000 "	59,000 "	6,000 "	11,000 "
Rod Pine.....	58,000 "	32,000 "	2,000 "	1,000 "
Pitch Pine, hewn.....	548,000 "	510,000 "	58,000 "	58,000 "
" Sawn.....	422,000 "	672,000 "	123,000 "	223,000 "
Planks.....	45,000 "	104,000 "	13,000 "	41,000 "
Dantzie, &c., Fir.....	96,000 "	67,000 "	49,000 "	17,000 "
Sweden and Norway Fir.....	76,000 "	58,000 "	27,000 "	9,000 "
Oak, Canadian and American.....	369,000 "	361,000 "	39,000 "	86,000 "
" Planks.....	182,000 "	207,000 "	57,000 "	67,000 "
" Baltic.....	9,000 "	5,000 "	9,000 "	0,000 "
Elm.....	36,000 "	62,000 "	12,000 "	19,000 "
Ash.....	36,000 "	32,000 "	14,000 "	8,000 "
Birch.....	73,000 "	185,000 "	68,000 "	139,000 "
East India Teak.....	33,000 "	133,000 "	33,000 "	2,400 "
Greenheart.....	31,000 "	117,000 "	5,000 "	2,000 "
N. B. & N. S. Spruce Deals.....	31,397 stds	23,007 stds.	0,000 stds.	0,000 stds.
" Pine.....	1,160 "	245 "	6,315 "	7,129 "
Quebec Pine Deals & boards.....	9,418 "	8,150 "	2,583 "	4,072 "
" Do.....	823 "			
Baltic Red Deals, &c.....	3,701 "	4,478 "	857 "	1,830 "
Baltic Boards.....	40 "	310 "	27 "	56 "
" prepared Flooring.....	2,975 "	2,148 "	804 "	731 "