

hortiana, and *monticola*; a *Cupressus*, and two species of *Juniperus*. In addition, a small number of shrubs and herbaceous plants are mentioned, among which seems to be the evergreen Chestnut, *Castanea chrysophylla*.

STEAM-POWER being now extensively used for country purposes, it would seem desirable that it should be applied to FIRE-EXTINGUISHING WORKS wherever a steam-engine is already provided; and this might be done at a very moderate expense.

The works of this kind, on a small scale, are no other than those proposed in the year 1797 by the late Brigadier-General Sir SAMUEL BENTHAM, which were sanctioned by the Lords Commissioners of the Admiralty, and carried into execution in Portsmouth Dock-yard early in the present century, and subsequently in all the principal Royal Dock-yards. It may be well conceived that, for such vast establishments, the works would be more ample than would be necessary for a country establishment, but the chief features of the plan would be alike for both; an outline of the Portsmouth works may not, therefore, be superfluous.

There being a scarcity of fresh-water at Portsmouth, Sir SAMUEL recommended that a large supply should be obtained by sinking a deep well; which having been accomplished, he gave plans for pumping up the water by means of powerful steam-engines, and to raise the greater part of it to a capacious reservoir over high buildings; from that reservoir to distribute the water throughout the yard by mains as usual, and thus supply various houses and manufactories in the customary way. So far the plan differed little from ordinary water-works; but he conceived the novel idea of rendering them at the same time powerful fire-extinguishing works. For this purpose he devised the placing of fire-cocks upon the main, at distances of from 80 to 120 feet; those fire-cocks being furnished with screws ready for the screwing on of hose, they being also provided with appropriate screws. The effect of this arrangement was that, on the outbreak of fire, a single man sufficed for the screwing on of a hose to the nearest fire-cock, and then on turning a cock to obtain a large supply of water, and throw it upon the burning mass in a powerful jet. In actual service the six hose that could at the same time be worked by as many men, were found sufficient to extinguish several fires that broke out in the dockyard; but in case a conflagration were not thus subdued, he made a still further provision, namely, that of two powerful force-pumps worked by either, or both, of two 40-horse steam-engines; by their means water was forced through the mains with sufficient power to throw six jets of water of some inches diameter to a height of 70 feet, and to a horizontal distance of 120 feet.

In the building of the wood-mills, where the steam-engine and the pumps were fixed, the interior of the mills was provided on every floor with a pipe of large diameter connected with the reservoir; upon this pipe in every room was a stop-cock, and below it a permanently fixed hose, so that by simply turning the cock, water could instantaneously be projected to any part of the floor that might be on fire. There was also provision by another cock for drawing water into buckets. By the adoption of these same means Windsor Castle has been saved perhaps from utter destruction.

Now it is conceived that an apparatus similar to that at Portsmouth, though on a small scale, would well compensate for its cost wherever a steam-engine is employed. A great quantity of water for various purposes is necessary at different parts of home buildings, and it is cheaper to raise that supply by steam power, and to convey it to different parts by pipes, than to carry it by hand, so that the extra expense for fire-cocks is all that could be fairly charged to this part of the works in adjusting them for the extinguishment of fire.

In the day-time when the steam-engine is in use, it might immediately be turned from its ordinary work to the force-pump, and thus enable a powerful jet of water to be thrown in a few seconds over buildings or stacks that might be on fire; but at night, before the engine-fire could be got up, the conflagration might have gained a serious hold on the premises; hence the expediency of constructing a reservoir on the highest near building, in most cases the dwelling-house itself. An inhabited house is also the most convenient and the most economical place for such a tank, since for domestic purposes a great quantity of water is used on every floor, which could be obtained from a reservoir above, to save the trouble of carrying buckets upstairs. The same taps that would supply water for domestic purposes would be equally suitable for filling fire-buckets, and hose might either be permanently fixed to the pipe on every floor, or, where such hose might be unsightly, it might be provided with proper screws

for speedily fixing it on to the descending pipe. Supposing the fire to break out among farm-buildings, or in stacks of hay and corn, the reservoir being connected with the system of distributing pipes, water would be supplied to them under sufficient pressure to throw it over the building or stack on fire at the first knowledge of the danger, and till the steam-engine could be ready for work.

The same description of works might be introduced for the protection of country mansions; but in this case, also, the connecting fire-extinguishing works with those for the supply of water is of great importance, as also that the water-works should be applied to as many uses as possible. How frequently we have to lament the conflagration of noble buildings, for want of immediate means of subduing fire at its first outbreak? Nay, often more to be deplored than the destruction of the pile itself, is that of the valuables it contained—books, costly furniture, jewels, pictures, and other productions of high art. One would not fix a smoky steam-engine in the principal approach to some stately hall, but how few such there are where a proper apparatus might not be erected in some near court or nook, for steam power seems in general to be the cheapest, and the most convenient means of raising water to great heights. There may be, too, a few buildings which would be disfigured by a cistern on its roof; but in this instance, by the aid of professional skill, the difficulty might be often overcome, and a high reservoir constructed, if not on the spot, at some distance from it.

The keeping the apparatus in frequent use is essential to its constant efficiency: to what purposes, then, could it be advantageously applied? Various horticultural uses will immediately occur to intelligent gardeners: the irrigation of cultivated grounds, the syringing of plants in hot and greenhouses, of trees against walls, and even of many plants in pleasure grounds, the watering of lawns, and so forth. The shaping and planing of the wood-work required for horticultural buildings; sawing up timber into planks, cutting billet-wood, &c. &c., are other purposes, continually demanding attention, and attended with much expense for manual labour, in country places. But besides such uses, there are in all large establishments many domestic operations which would even be better performed by simple machinery than by hand; laundry work, such as mangling, and the greater part of the heavy labour in washing; not the rubbing out of soiled spots it is true, but the great bulk of linen requires little more than agitation in a sufficiency of hot water, either charged with soap, or alone for rinsings; in culinary business, the mincing and pounding of meat and vegetables, the laborious operation of kneading bread, &c.; so in the butler's department, knives might be easily cleaned by steam power, shoes brushed and polished, even many articles of plate would be as well, if not better, cleaned and burnished by proper machine-brushes than the same article could be by hand.

As several of the above-mentioned operations would require to be performed at the same time, either the steam engine provided must be superfluously powerful, or at sometimes it would be inadequate to the performance of its duty. To obviate such inconvenience, on an extensive scale, Sir SAMUEL, in 1812, proposed that the water-works at Sheerness should be arranged so that, by a simple hydraulic apparatus, they should be applicable to occasional services; some 20 years afterwards the engineer of that dock-yard (Mr. MITCHELL) actually furnished the mains in that yard with means by which the steam-power of the engines might be applied at pleasure to occasional services; and the General Board of Health look to the high-service water works of the metropolis as affording to small manufacturers an inanimate force for temporary uses. In the same manner the herein proposed reservoirs for houses, gardens, and farms would afford means of applying force to several distinct machines at the same moment, though the water should be only occasionally replenished in the reservoir.

It may be observed that the importance of such reservoirs, and of the means so long ago exemplified at Portsmouth for rendering water always available at the first outbreak of fire, has been fully exemplified on the occasion of the late disaster at Windsor Castle; for there the conflagration was kept in check and extinguished, mainly by the pipes provided on every landing-place in the PRINCE OF WALES' Tower, the persons on the spot being well acquainted with their use; a particular essential to the prompt application of such works. On the other hand, a lamentable example was afforded last September, at Sheerness, of the want of familiarising persons on the spot with the application of such apparatus. A fire broke out there in the night, within 50 yards of the dock-yard wall, through which there were fire-cocks connected with

a reservoir holding 800 tons of water, so that 10 tons of water per minute might have been thrown upon the blaze, but no one present knew how to turn on the water, the engineer-people being all lodged in the new town a mile off, and even they were neglected to be roused; the fire had raged for nearly an hour and a half, when one of the lookers-on perceived that no water was furnished from the dock-yard—there is none other at Sheerness applicable to fire-extinguishing—this man happened to be conversant with the yard water-works, he ran into the yard, did what little was necessary to apply them to use, a large body of water was immediately thrown on the burning houses, and the fire was extinguished in the course of a few minutes.

In the application of the plan above suggested, the greatest error to be apprehended is a complication of the several parts of the apparatus, since the more simple they are made, the more effectual they are likely to be in use, not to speak of difference in first cost, and subsequent need of repair. Such details, however, belong wholly to the science of engineering; we wish only to draw attention to this very important subject.

SOME inquiry has been made respecting a certain *BEGONIA* called *Prestoniensis*, exhibited by Messrs. LUCOMBE & PINCE, of Exeter, some time since, when it was thought by the Horticultural Society worthy of a Certificate of Merit. A further acquaintance with it teaches us that the Certificate does not sufficiently represent its now ascertained good qualities. In point of beauty it yields to none; perhaps it exceeds all the species of this favourite genus. The flowers are larger than in any other kind; they have the brilliancy of *cinnabarina* and *fuchsoides*, and are fragrant, something like a Tea Rose. The foliage is firm, deep green, and well proportioned to the flowers. Like the rest of the genus, it is easily cultivated, and it seems as if it would flower for three-fourths of the year. Need we say more?

WE observe that our reporter has misunderstood the directions given by Mr. LOVEJOY for PRESERVING FRUITS, in the manner of the beautiful specimens exhibited by him at the last meeting of the Horticultural Society. As his method of management has great interest in the eyes of many, we give his receipt in his own words.

"Pick the fruit from the stalks; put them into the bottles. Put one drachm of alum into four gallons of boiling water; let it stand till it is cold. Then fill the bottles; bung them tight; then put them into a copper of cold water, and heat it to 176 degrees. Then tie them over with bladder and seal them."

The Raspberries and Mulberries preserved in this manner were as plump and transparent as when first gathered. The other fruit was equally fine. We understand that the quantity of alum, homoeopathic as it is, must on no account be exceeded. A larger quantity makes the fruit hard, which must of course be avoided.

GNIDIA PINIFOLIA.

THE delicious fragrance of this plant is of itself sufficient to secure it a place in the most select collection; but it is also a most profuse bloomer, each shoot terminating in a head of creamy white flowers, which, if guarded from damp and drying currents of air, retain their beauty and sweetness for several weeks. Like many other choice plants, however, it is somewhat delicate, and requires careful management. It is not very speedily propagated, but it is plentiful and cheap enough to render this of little consequence, and beginners will save time, and probably disappointment too, by leaving its propagation to those who devote exclusive attention to this department of gardening. In procuring young plants select those that are dwarf and bushy and in vigorous health, carefully avoiding pot-bound straggling examples; for when in perfect health and under good management some attention is required to produce dwarf compact specimens, and there is little chance of beginners effecting this unless they secure proper plants to commence with. In order to obtain the greatest possible amount of growth the first season, the plants should be in hand ready to be placed in a growing temperature early in March; but if obtained at the present season, with good management, they will make great progress before autumn. There is, however, no time to be lost by those who may purpose to make a commencement this season. On receiving young plants from the nursery the first thing to be done is to examine the drainage, &c., and if this is defective clear away the sodden soil, injuring the roots as little as possible, and repot in the same sized pots after securing perfect drainage, but in case the roots are found to be abundant and active, shift into a pot a size larger. As to situation and temperature, a position close to the glass, where the plants will receive all the light possible, is essential to the production of short-jointed wood during the spring months; and, if this is secured with a