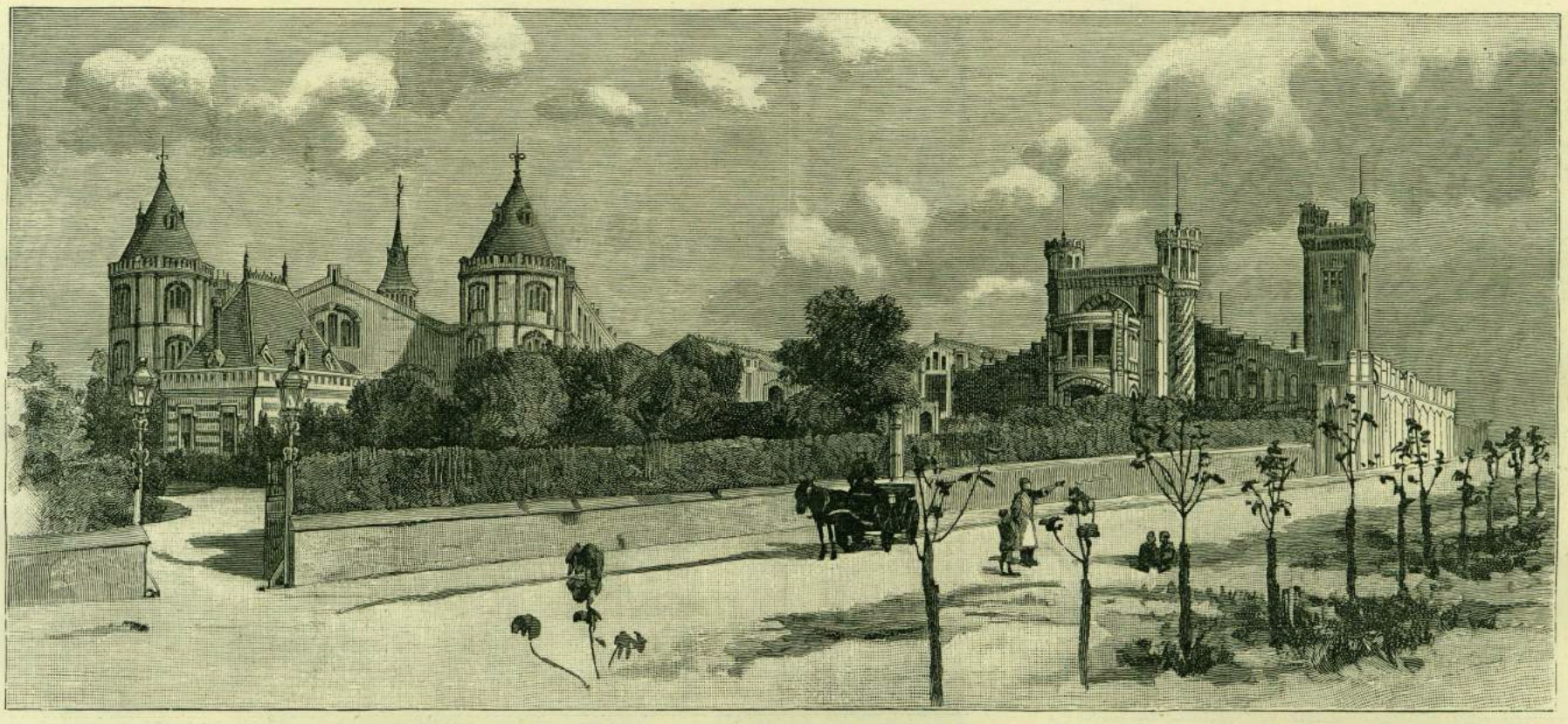


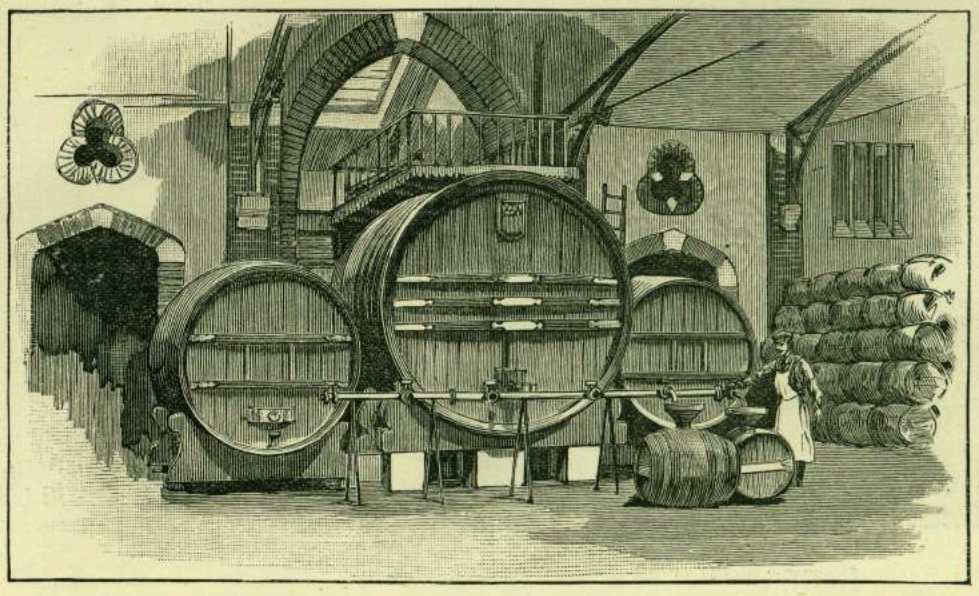
GENERAL VIEW OF THE ESTABLISHMENT OF POMMERY AND GRENO, REIMS.

VISITORS GOING DOWN TO VIEW THE CAVES.

VISITORS COMING DOWN TO CELLARS, GUIDED BY CONDUCTOR.

THE VINEYARDS OF CHAMPAGNE.

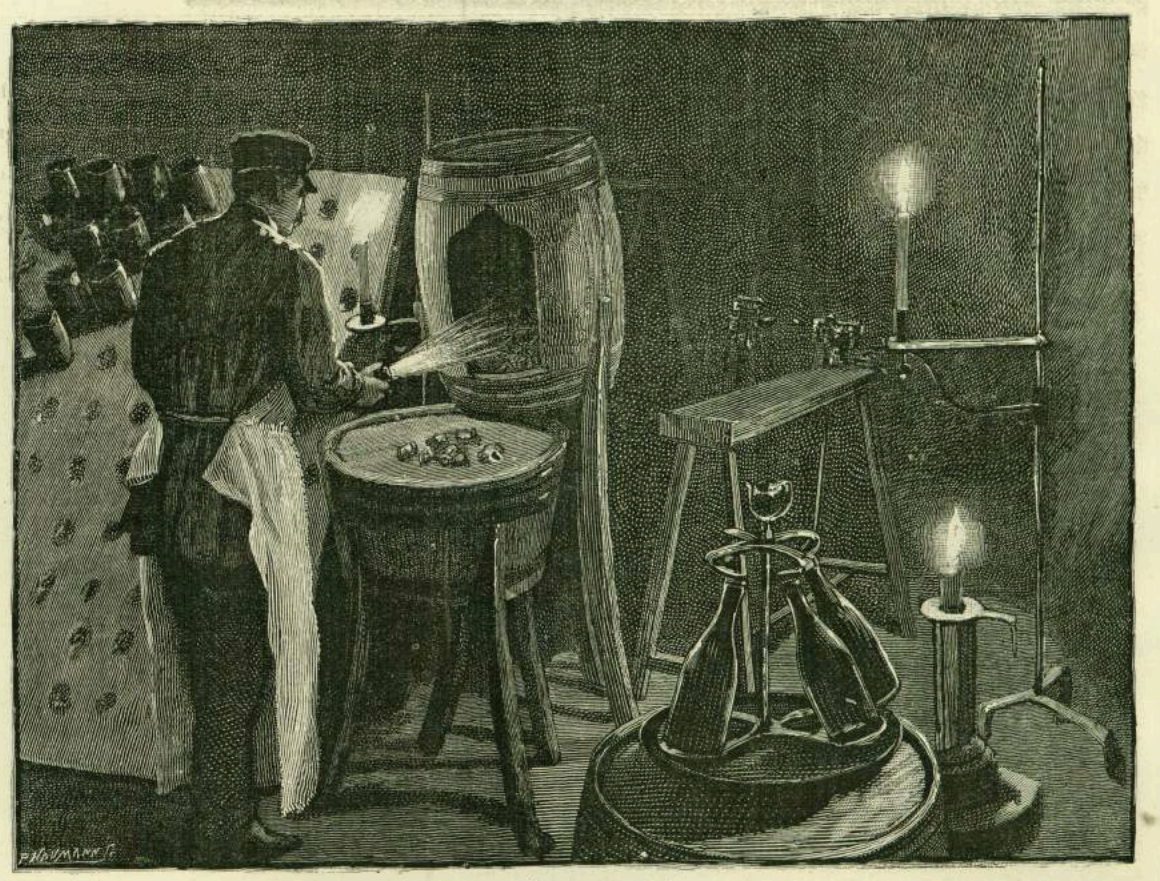
The wine of Champagne was known to be delicious in the latter ages of the Roman Empire in Gaul, when Valerian and the Consul Jovinus, after defeating the Alemanni, feasted together at Reims, an ancient city which is still the commercial capital of the Champagne wine district, and was the historic cradle of the Frankish monarchy, and the coronation-place of the Kings of France, down to the last Sovereign of the Legitimist dynasty. Reims, which derives its name from St. Remi (Remigius), a great Bishop of the Gallic Church in the fifth century, the converter of Clovis and the planter of vineyards—a practice followed by his episcopal successors—naturally attained high importance under the Merovingian and Carlovingian reigns. In Mr. Henry Vizetelly's interesting "History of Champagne," from which we shall quote a good deal, the curious reader may find many amusing anecdotes of the ecclesiastical patronage of vine-growing and wine-making in the Middle Ages. Pope Urban II. had the wine of Ay sent to him at Rome, and that of Epernay is extolled in the poetry of the thirteenth century. During the next century, Reims became the chief place of the Champagne wine-trade, exporting largely to Hainault and Flanders, and to England from the seaport of Sluys. Its conquest by the English was speedily redeemed, when, in July 1429, the patriot heroine Joan of Arc, fresh from her victory at Orleans, saw Charles VII. chrismed and crowned in Reims Cathedral. Other vicissitudes of local fortune, and those shared by this province and city with all France, are related in Mr. Vizetelly's book. It is rather with the Champagne wine, or wines—for different kinds are mentioned in past times—that we are here concerned. Sparkling champagne is thought to have been first made towards the close of the seventeenth century, though a tendency to effervesce had been early noticed. The still wine of this district was



THE "FOUDRES"—LARGE CASKS WHEREIN THE WINES ARE BLENDED.

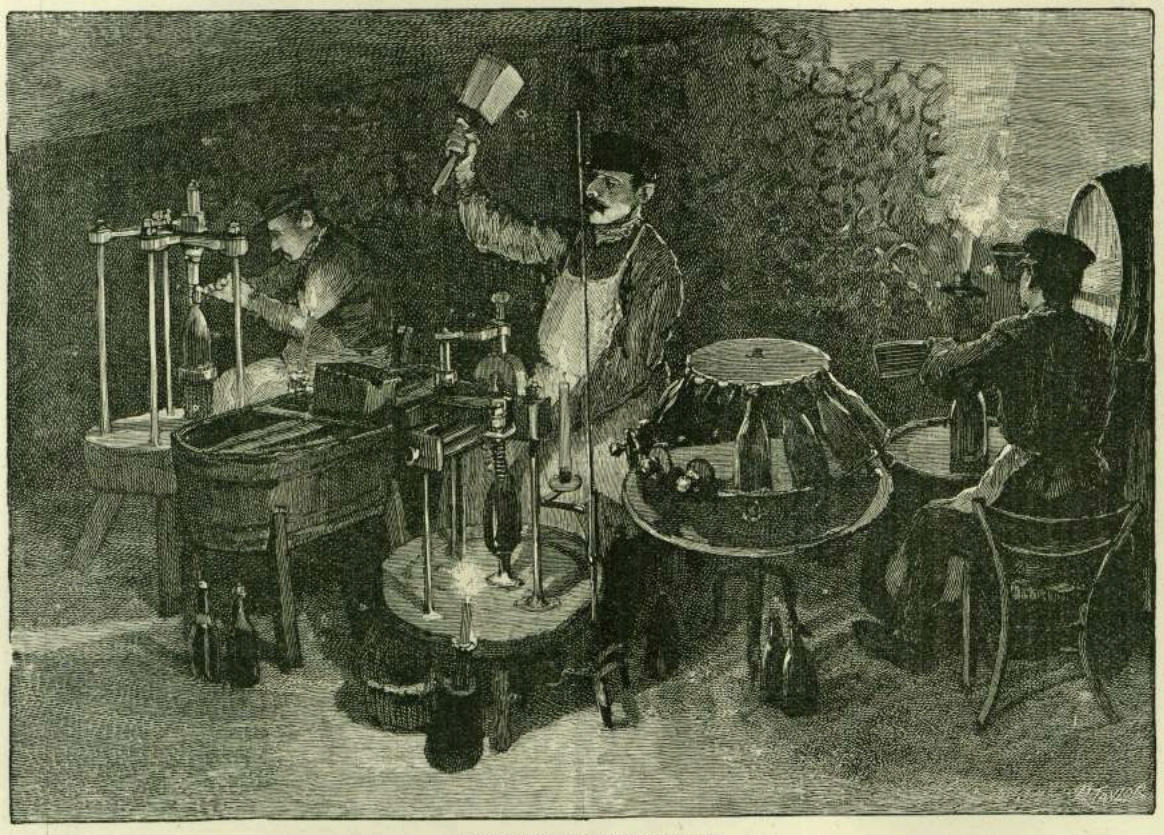
THE "REMUEUR."

The "Remueur" is a man who turns the bottles slightly round every day to collect the deposit in the necks of the bottles against the corks. He turns as many as 30,000 bottles in one day.



THE "DISGORGER."

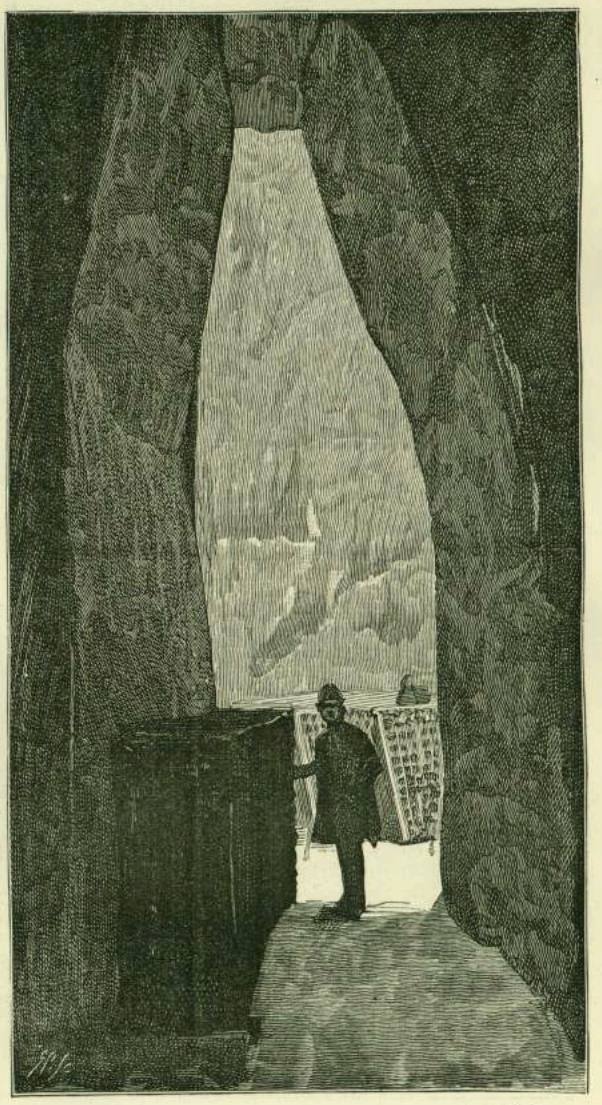
The "disgorger" is a man who breaks the first wire, and lets fly the first cork, followed by the deposit accumulated on the cork.



A "CHANTIER," OR GANG.

The man on the right fills the bottles after disgorging, the middle one corks them, and the one on the left puts the wire round the corks.

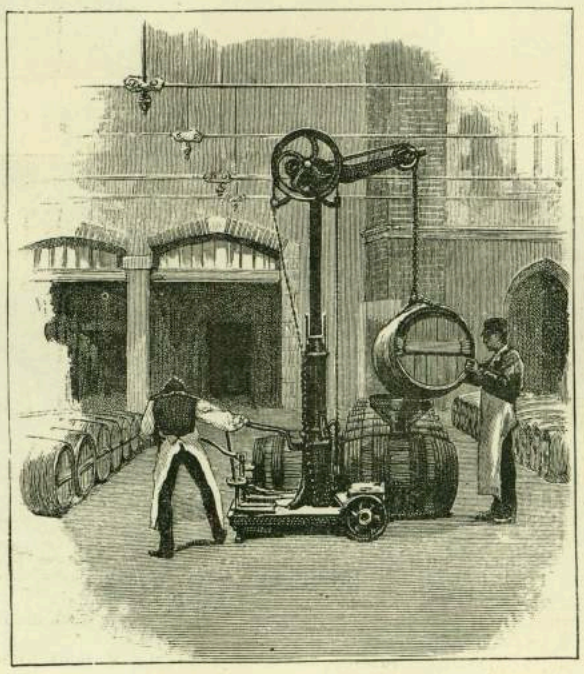
WASHING BOTTLES.



A GALLERY, OR PASSAGE.

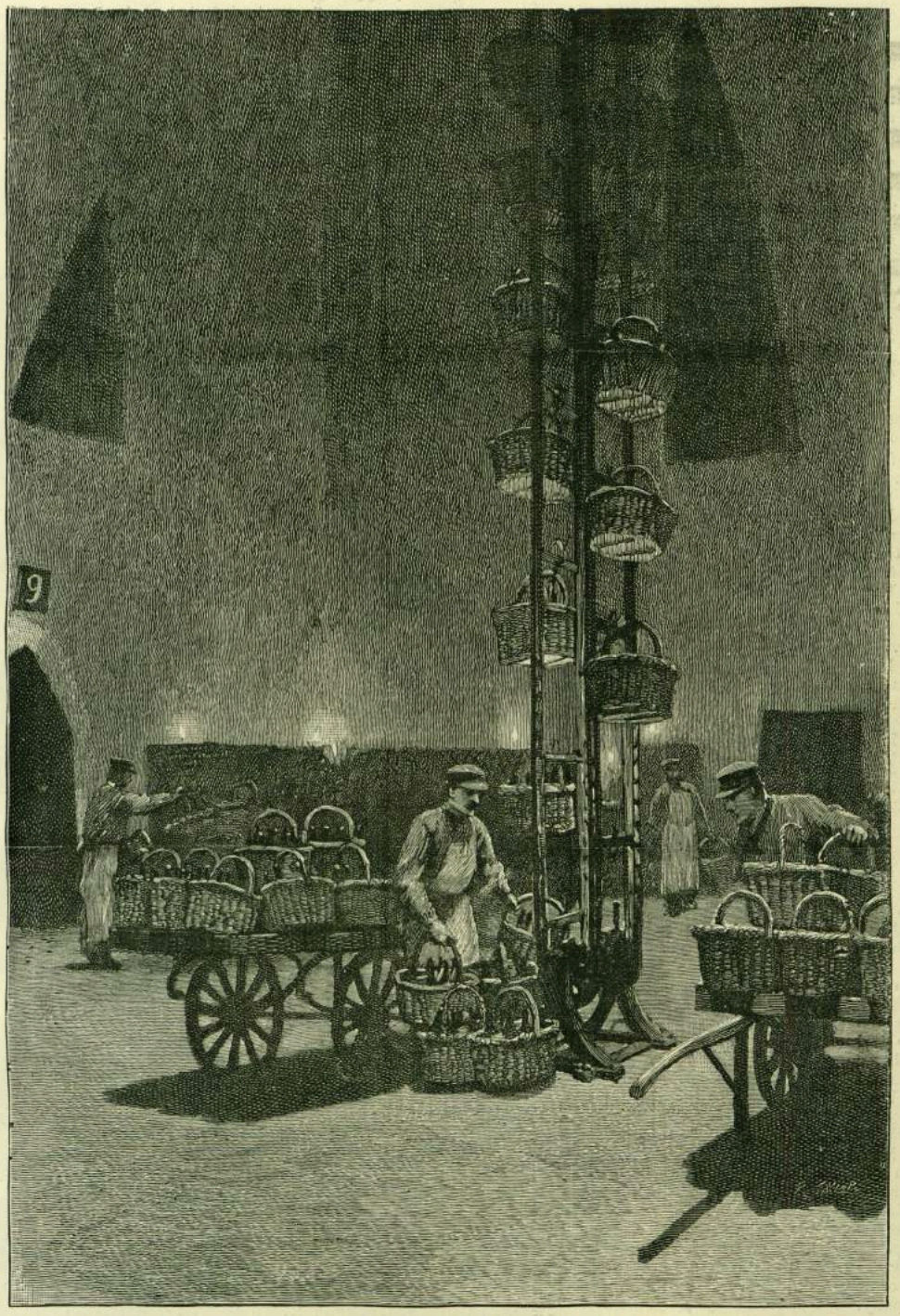
GRAND TUNNEL.

Champagne stacked on each side.



A MOVABLE CRANE.

TREATMENT OF CHAMPAGNE AT REIMS.



ONE OF THE ENDLESS CHAINS TO TAKE UP BASKETFULS OF BOTTLES AND TO BRING DOWN EMPTIES.

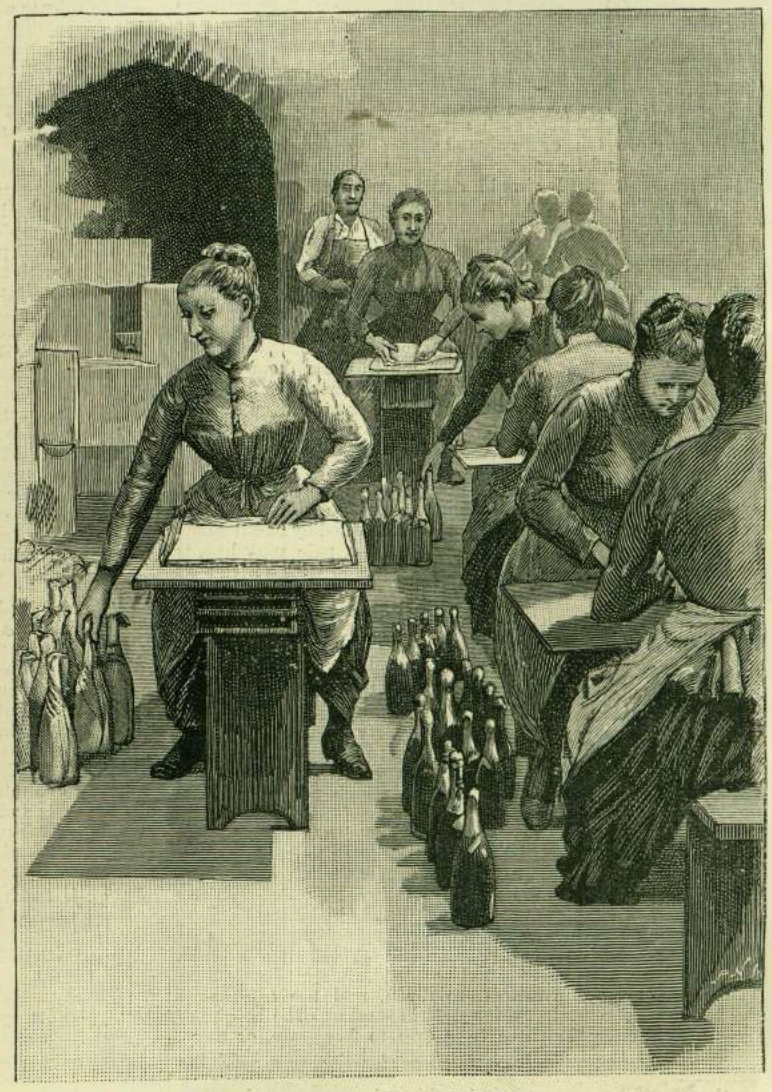
CUTTING WIRES THE REQUIRED LENGTH FOR FASTENING CORKS.

constantly drunk by Louis XIV. It was a "grey," almost white, wine, which had superseded the red wine in Champagne, for some fifty years past, and was preferred to all others by St. Evremond, writing in 1674 to his brother, the Comte d'Olonne. The Benedictine Abbey of Hautvilliers, on the Marne, owing to the skill of a worthy monk called Dom Perignon, boasts the invention of the art of producing fine sparkling white wine from the juice of black grapes. Mr. Vizetelly relates, in several entertaining chapters, the progress of its renown, with lively controversies between the partisans of Burgundy and those of Champagne. But we must hasten to describe the actual features of the vine-growing districts in the last-mentioned region.

These are to be distinguished, according to geographical locality, as the vineyards of the river Marne, to which belong Cramant, Oger, Le Mesnil, Ay, Dizy, Mareuil, Avenay, Cumières, Hautvilliers, Epernay, &c., with those of Vertus and others to the south, on the Côte d'Avize; and the vineyards of the hills around the city of Reims, separated from the Marne by a wide tract of country, fields and woodlands. The latter, of which we take more particular notice, comprise those of St. Thierry, Marsilly, Hermonville, and others, to the north of Reims; and Sillery, Verzy, Verzenay, Mailly, Ludes, Chigny, and Rilly, to the south, with Bouzy and Ambonnay at some distance. The smallest of these vineyards, that of Sillery, has been one of the most celebrated for its "sec," or dry still wine, but little of this is now made, and the same kind of wine is produced from Verzenay and Mailly, chiefly for local consumption. Some vineyards are owned and cultivated by a few of the large firms in the wine trade, but many are in the hands of small peasant proprietors. It has been estimated that there are nearly 16,000 owners of vineyards in Champagne, where the extent of land so occupied is about 40,000 acres.

The soil best for vine-growing is chalk, with a mixture of silica and light clay, containing a proportion of oxide of iron, and with a substratum of stones and sand. The vineyard is on the lower slope of rising ground. The vine-plants, two or three years old, raised in nurseries, are planted in holes or trenches, pretty close together, sometimes as many as six in a square yard. It may be done from November to April. A little earth is put over the roots, with plenty of manure or compost; and the vines are pruned down to a couple of buds above

CRAYÈRE NO. 13: ONE OF THE CAVES.



LABELLING AND WRAPPING.

PACKING UP.

TREATMENT OF CHAMPAGNE AT REIMS.

the ground. After two or three years, the operation of "provinage," or layering, is performed, by burying two or more of the oldest shoots of each plant in trenches, six or eight inches deep, extending horizontally on each side: these are dressed with manure, strike new roots, and grow up as new vines, while all the young shoots above are cut down again to the second bud. This is repeated yearly till the mother-plant is five years old: it is then allowed to rest two years, after which the provining is resumed, to fill up vacant places. The "taille," or pruning of superfluous shoots, is done in February, after which there is the "bêchage" or "hoyerie," digging round the roots so as to lay bare the old wood, which is then bent down and secured in its position underground. Stakes are then fixed to support the future growth of the vines, about three feet high, and this is a costly business where 24,000 stakes are needed for an acre of land. In May or June, after hoeing, the vines are fastened to the stakes, trimmed at the top, and must not grow above the regulation height of thirty to thirty-three inches. The ground is manured with a compost of animal and vegetable refuse mixed with loose friable volcanic soil called "cendre," which is dug from the hillsides; and there are two or three hoeings and weedings in the summer. To protect the vines from the white frosts in spring, some peasant vignerons place fan-shaped shields of branches; others make heaps of dead leaves, straw, and twigs, which are set on fire, to produce a smoke, whenever a frost is feared. The larger cultivators use a movable roof of straw matting, extended along wires upon iron stakes; and, later in the summer, this matting can be fixed vertically as a wall, to aid the ripening of the grapes on its sunny south side.

The vintage usually begins about the first week of October, differing a week or two in varying seasons and in different situations. People come from all the towns and villages fifty miles round, like our English hop-pickers; the day's wages are a franc and a half, with three meals, or perhaps twice the pay without food. Work begins at daylight. Baskets, full of grapes, are piled in the carts, or on the panniers of mules, and are carefully carried to the press-houses, where, after being weighed or measured, the grapes are stored in a cool shed, to be subjected to the "pressoir," which is a powerful machine, worked by a large fly-wheel with four men to turn it. The first application of the press gives the finest part of the juice, which makes the best wine; two or three squeezes are followed by the "rébêche," producing liquor of an inferior quality for "piquette," after stirring the mass of crushed grapes on the floor. The must descends through a wicker filter-basket into a reservoir, from which, after settling and depositing its lees during twenty-four hours, it is pumped into the casks, holding each some forty gallons. It begins to ferment in ten or twelve hours (it depends upon the temperature), and its colour then fades from a pale pink to a light straw-colour. It should remain undisturbed till about Christmas, but many casks are speedily sent to Reims, Epernay, Ay, and other towns engaged in the wine manufacture.

Champagne wine, though a gift of nature—that is, of the soil, climate, and species of vine—owes much of its prized qualities to the skill of modern manufacturers. The "brut," or raw wine, of this province, having lost a good deal of its natural saccharine through its first fermentation, tastes hard, bitter. After the first fermentation, which lasts from a fortnight to a month, according to weather, the casks are filled up tightly stopped to exclude the air, to prevent the wine absorbing oxygen. Racking and fining are followed by the critical operation of making the "cuvée"—i.e. of blending several different "crus" (neighbourhoods) to combine in the desired proportions their characteristic qualities of vinosity, flavour, and bouquet. They are mingled in huge vats in which the mixture is stirred by a fan-shaped apparatus, worked by handles outside. Usually, four fifths of the wine, of a pale pink hue, is from the juice of black grapes, and is tempered with a fifth part from white grapes; the former giving vinous body, with softness and "roundness," the latter giving lightness, delicacy, and effervescence; and this combination is both scientific and artistic. The precise amount of saccharine in the blended wine is ascertained by the glucometer. Sometimes further treatment is required, as fining with isinglass, or the addition of some liquid tannin derived from nutgalls, catechu, or grape husks and pips, till the wine, after another month, is perfectly clear and limpid, and ready to be bottled. In the "salle du tirage," where it stands in vats or tuns, it flows through pipes to the syphon-taps, at which the bottles are quickly filled, and these are instantly corked and wired. The bottles, necessarily of great strength, and of a peculiar form, with sides of uniform thickness, and smooth in the interior, are such as are best adapted to prevent an explosion of the gas, which exerts a great internal pressure. They are chiefly supplied by the factories of Reims, Fourmies, Anor, Trélan, Loivre, and Vauxrot. The breakages from bursting during manipulation of the wine average 5 per cent per annum. When filled with wine and washed, they are placed in baskets neck downwards, to drain, and are afterwards stored in a horizontal position, laid in stacks to the height of a man. They remain there from two to five years, or more, according to the taste of the markets for which they are destined.

Sweet champagnes must be shipped young, or else they become clammy. Dry champagnes should be shipped older, or else they will be hard. At the end of two or three years the wines are disgorged. The bottles are transferred from the horizontal stacks to inclined boards, with holes to fix them neck downwards, and, the sediment sticking to the lower side, a man nimbly shakes each bottle every day and turns it round. The sediment slides down in a fortnight or so, when it gets to the cork. When it is there the bottles are handed in baskets, cork downwards, to the disgorgers, who break the first wires, and the first corks fly, followed by the deposit. It is done so nimbly that little wine is lost: what may be lost is invariably replaced by filling the bottle with wine of identical age and quality kept in reserve for the purpose. When the wine is shipped "brut," the bottles are handed to the last corker. When it is to be "liqueured" it is handed to the "opérateur." The liqueur is simply still champagne wine of the choicest, in which is melted cane-sugar. To prevent its fermenting, a little raw spirit of cognac is added. In the dry champagne consumed in Great Britain, that addition of spirit represents the tenth of a drop in each bottle. The "opérateur" is surrounded by the corkers and the wire and string men. When the wine is thus finished, the bottles are replaced on horizontal stacks, where they remain for at least a few weeks to insure their limpidity.

The establishments of the Reims wine-shippers occupy some of the most important buildings in that old city, and their cellars, excavated in the chalk beneath, extend far in every direction, an endless labyrinth of vaulted corridors and galleries, often in two storeys, filled with square piles of full bottles, or, here and there, with casks of wine reserved for bottling. Of these great establishments the most striking is that of Messrs. Pommery and Greno (now Veuve Pommery, Fils et Cie., the Illustrations of whose buildings and cellars appear herewith), situated in the outskirts of the city. Its lofty castellated tower is visible from afar. It is entered by a Gothic portico, leading into a vast hall, 180 ft. long and 90 ft. wide, the roof supported by iron girders without pillars. Rows upon rows of casks of old Champagne vintages are piled on all sides: to the left hand are two immense tuns ("foudres") with a capacity of 5500 gallons, around which is a platform reached by a staircase, for the working of the handles of the wine-making apparatus. Steam-lifts, each of which can raise eight casks at once, communicate with the cellars beneath. Access to these cellars is down a flight of 116 steps, 12 ft. wide, the top of which is beyond the ornamental iron door at the end of the hall. The cellars are formed by 130 large shafts, which are 90 ft. deep and 60 ft. square at the bottom, connected by galleries so extensive that one may walk through those underground passages for seven miles without going twice over any part. They contain, at present, a million dozen—twelve million bottles—of wine, a stock being always kept equal to five years' average supply. These cellars are visited by about three thousand people in the course of the year, two men being regularly employed in showing them. There are some five hundred workpeople in all there, and the establishment is fitted up with the electric light and with private telephones, communicating with the houses and offices in the town. The members of the firm are individually large proprietors of vineyards, principally at Verzenay, Ay, and Bouzy, the finest wine-growing districts.

We understand that Messrs. Pommery and Greno, whose stock of fine champagne is believed to be the largest in the world, and commands the highest price in the market, have purchased this year an immense number of hogsheads, being one sixth of the entire vintage of 1889, which is of excellent quality in every way, but proved small in quantity. The prices paid for this vintage being the highest ever known, the purchase has cost that great firm the large sum of over £600,000—a transaction of magnitude never equalled in the trade by any firm or company.

The will (dated Feb. 10, 1879) of Francisco Ribeiro de Faria, Viscount de Barros Lima, late of No. 39, Rua da Torrinha, Oporto, who died on April 14 last, was proved in London on Nov. 8 by John Battcock, acting under a power of attorney from the executors, the value of the personal estate in this country amounting to over £53,000. The testator bequeaths one million reis for a tombstone over his burial-place; a legacy of one million reis and an annuity of three million reis to his housekeeper, Doña Anna Augusta d'Oliveira, and he gives her the right to select out of his house furniture to the value of 500,000 reis and plate to the value of 150,000 reis. As to the residue of his property, he appoints his nephews, Manuel and Francisca, his heirs in equal shares.

The will (dated April 7, 1880), with a codicil (dated July 24, 1886), of Miss Madeline Hill, late of No. 16, Cambridge-square, Hyde Park, who died on Oct. 2, at Boulogne, was proved on Nov. 1 by Miss Matilda Hill, the sister, one of the executrixes, the value of the personal estate amounting to over £19,000. The testatrix bequeaths £300 to the Orphanage of Mercy (Randolph-gardens, Kilburn), £100 each to St. Andrew's Hospital (Folkestone) and Westgate Convalescent Home; £1000 each to her sisters, Letitia Dreffell, Harriet Brown, Matilda Hill, and Eliza Hill, and legacies to godchildren and others. The residue of her real and personal estate she gives to her two sisters Matilda and Eliza.

SCIENCE JOTTINGS.

ART AND NATURE.

The other day, in the course of my walks abroad, I saw a set of schoolboys flattening their noses against the panes of a picture-dealer's window. The shop was a very commonplace one, it must be confessed, for the art-dealer's stock consisted, for the most part, of a series of cheap chromos and equally meretricious engravings. But that which was attracting the juvenile eyes was a picture of Mount Vesuvius in full eruption. Naples and its bay were duly depicted. From the crater of the mountain belched forth fire and smoke. Molten lava, from which flames issued, rolled in torrents down the mountain-slopes. Lightnings cleft the clouds, and a lurid light shot athwart the darkened sky beyond and behind the volcano itself. Little wonder, perhaps, that my school-boy friends stood entranced before this vivid representation of a volcanic outburst. Their expressions of horror were highly realistic, and they departed from the printseller's window duly impressed with the terrible nature of at least one phase of the great cosmical drama which somewhere or other is being played out around us on the crust of the globe. Unfortunately, in the present case, art was but a blind guide. Matthew Arnold somewhere says that the poet is only great when he is true to nature; which, I take it, is a very fair and common-sense way of criticising the poet's work. Of the artist, the same remark must necessarily hold good. He, too, is a poet, and he, too, is alone great when he succeeds in impressing us with the close agreement of his study with the nature whereof it is the tacit representation.

Now, judged by this standard, the picture of Vesuvius was decidedly a work of utterly inferior type. I do not mean that its lithography was bad, or its colours glaring. Doubtless it was a poor thing at the best, judged by the canons of representative art-work; but it was worse still, for it was not "true to nature." In a volcanic eruption, there are no flames and no smoke. There is often a black cloud truly, but this is composed of particles of dust and not of smoke-carbon. The fiery tongues of the picture in the window are non-existent in reality. There is a heat-glow in a volcanic eruption, which is due to the reflection of the heated matters carried upwards into the air by the steam-vapours; but of actual flame no trace exists. Lightning flashes may now and then occur, because, as Professor Judd remarks, the rush of steam from the crater generates electricity, which seeks relief in the usual fashion; and as for the lava, it may be, and is, molten, but it does not emit flame as was depicted in the picture of the shop-window. The whole picture was an imaginary sketch. The artist probably had never seen an eruption: if he had he must, in any case, have distorted his conceptions very considerably in the process of reproducing them in his picture. Eruptions and outbreaks of volcanic nature are often terrible things, as everybody knows; but if they at all resembled the picture that entranced the schoolboy-mind, they might very justly be designated much worse calamities than they really are.

If one turns to poetry itself as another form of art, we find man merely expressing his thoughts in a pleasant way. As a scientist, I may be thought guilty of underestimating the poetic gift and practice; but I hold that the essence of the poet's work is to convey his ideas and thoughts in a manner which shall impress and please the mind. It is so with song, as distinguished from ordinary speech. Thoughts are clearly not the monopoly of either poet or singer. Each draws his material from the store of knowledge and experience common to his non-poetic fellows and himself. If I express a thought in prose, it can be "understanded of the people" because it is (or should be) a plain account of what is, or what may be. The poet has no advantage over the prose-writer in clearness of expression—presuming, that is, that the latter is able to write prose fairly well. All the poet can do is to put the same thought into a pretty form; to draw close metaphors and apt similes; and thereby, it is supposed, to excite in us the same admiration for beauty of diction which we experience when on a canvas we see reproduced the fairness of sky or sea, or when in a song or symphony we hear the charms of melody. To call dewdrops "the tears of the flowers" is a very pretty fashion—our American friends would call it "elegant"—of suggesting the mere presence of a familiar phenomenon. To call dew the "liquid diamonds of the morn," or to term a tear in its turn "the dewdrop of sorrow or joy," is only a mode of expression which derives whatever force it possesses from its apt comparison of two distinct and disconnected things. Poetry, in a word, is a pleasant, pretty, and enchanting way of saying things which impresses the mind with a new sense of the likenesses or differences between objects, thoughts, ideas, and conditions of life and matter. Whatever the poet may claim for his art, he cannot, I imagine, traverse this plain statement, which, I must add, is not meant or intended to be uncomplimentary, but quite the reverse.

I will go further, however, and avow that there never was any great truth or good lesson ever taught by a poet which could not have been as well and forcibly expressed in good honest prose. This also may be deemed rank heresy on my part; but it is a bit of unorthodoxy which is at least worth the consideration of people who are