

## Scientific Notes.

**WONDERFUL CLOCK.**—A Norwich paper recently stated that Mr. James White, of Wickham Market, had succeeded in making a clock which is self-winding, keeps time well, and will perpetuate its movements so long as the parts exist. Were this literally the case, Mr. White would have discovered the perpetual motion, which is simply as absurd as to imagine that the clock could have originated itself. Some motive power must be given from without; as in electrical clocks, the pendulums of which will continually oscillate so long as the conditions of electrical action are maintained.

**THE OAK OF MONTRAVAIL.**—Near Saintes, in France, is an aged oak of remarkable proportions, the wonder of the vicinity. At the ground it has a diameter of twenty-seven feet, which is reduced to nineteen feet six inches at the height of a man's head. The first branches are thrown out at twenty-three feet, whilst its total height is sixty-five. In the decaying trunk a room has been excavated twelve feet square, and nine high, all round which a bench has been carved from the tree itself. On occasions a round table is introduced that will admit of twelve guests seating themselves at it; and, while enlightening, to shelter their festivities from the elements, a glazed door and window have been adapted to this abode, which is tapestried with moss and lichens. In a piece of the excavated wood 200 concentric arcs may be counted, and allowing for the original distance of this fragment from the centre, it may be inferred that there are 1,800 or 2,000 of these layers, which being estimated at the rate of one annually, as is generally the case with dicotyledons, the age of the tree may be assumed approximately at 2,000 years. It receives nourishment now exclusively through the bark, which, however, furnishes sufficient sap to support a fresh and abundant foliage amid the branches; and the tree is so robust that it may be expected to survive yet many years.

**THE SAW.**—The names of those whose discoveries have most benefited mankind are generally forgotten, as is the case with that of the inventor of the saw. The Greeks gave the honour to Dædalus, a fabulous personage, and its use remounts to a very remote antiquity, for no record remains of its earliest appearance among the nations within the influence of the Roman civilisation. The pertinacity, however, with which the Russians resisted its introduction among them, and for ages clung to the very inconvenient and uneconomical custom of cutting planks with the axe, is surprising, and indicates their Asiatic origin and mind. So strongly rooted, even among boat and ship builders, was this perverse habit, and so injurious to the national forests, great as is their extent, that Government interference alone effected a change in it. The Empress Catherine II. ordered that every vessel passing Tver, on the river Volga, which contained a single plank thus hewn, should pay a duty to the revenue of 200 roubles, a sum equivalent to about £35. During the first year in which this edict came into operation, the duty amounted to 150,000 roubles; during the second, to 37,500; during the third, to 2,500; and during the fourth it produced nothing. In this way alone, and so recently, was the saw introduced into the ship-yards of Eastern Russia; but the peasantry even yet generally employ the axe in every imaginable work, carrying it always in their girdles, and displaying a singular dexterity in its use.

## TRUST AND FAITH.

CARES and griefs may come to-day,  
Clouds may gather thick and grey,  
Sorrow near us oft may stray.

Yet through gathering mist and gloom  
Some sweet flowers for us may bloom,  
Some bright rays our path illumine.

Every human heart must bear  
Through Life's pilgrimage a share  
Of its trials and its care.

Better for us not to gaze  
Through the mystic floating haze,  
Which hides the swiftly coming days.

Better for us day by day,  
As we watch the shadows play,  
For trusting faith to humbly pray,

That our Bark may reach the Land,  
May anchor on that golden strand,  
Where waits a glorious angel band;

Where light will banish all the gloom,  
Which shrouds the portals of the tomb,  
Where flowers unfading ever bloom.

## THE ENGRAVING OF THE QUEEN AND THE ROYAL FAMILY.

The engraving of Her Majesty the Queen, the Prince Consort, and all the members of the Royal Family in the direct line, from the Princess Royal to the Princess Beatrice inclusive—artistically grouped together in one magnificent tableau—which we have the gratification of issuing, at a merely nominal price, to the purchasers of the FAMILY PAPER, is a work of great national interest and importance.

We do not now intend to discuss the respective merits of arbitrary, constitutional, or democratic forms of Government, or to contrast the amount of religious and political freedom which the citizen of either state enjoys. Louis XIV., of France, a monarch so absolute in his own dominions, that, in analysing the different elements of his Government, he summed up the whole subject in one pithy sentence—"Tout c'est moi," disparagingly defined the English sovereign of the day as only "*le premier homme de la république*"—the first man of the republic. So limited—even in those days of state prosecutions, of rotten boroughs, and unreformed Parliaments—were the functions of the Crown in England, compared with the irresponsible powers exercised by continental monarchs.

Since the days of the Stuarts, liberty—civil and religious liberty—has made rapid strides in Great Britain; and, under the mild and constitutional government of Queen Victoria—the wisest Sovereign in her public capacity, and the most irreproachable personage in the private and domestic relations of life, that ever swayed the English sceptre—we enjoy as near an approximation to that model form of government sketched out by the Grecian philosopher, which it has been the ambition of all subsequent legislators to emulate, as the imperfections of human institutions will permit.

Corruptions many, and grievous, still exist in various departments of the state, and there are serious imperfections in our representative system, which we shall be glad to see removed; but we must not forget that, notwithstanding all these shortcomings, England, under her constitutional form of government, has reached the highest pinnacle of glory, that she stands first in the list of nations, that her soil is the only safe asylum for political refugees of all countries, and that the champions of freedom in every quarter of the globe acknowledge her as the representative of progress and of civil and religious liberty. "I speak," said Curran, the great Irish orator and patriot, more than fifty years ago, "in the spirit of the British law, which makes liberty commensurate with, and inseparable from, the British soil; which proclaims even to the stranger and the sojourner, the first moment that he sets his foot upon the British soil, that the ground on which he treads is holy, and consecrate to the genius of universal emancipation. No matter in what language his doom may have been pronounced; no matter what complexion incompatible with freedom an Indian or an African sun may have burnt upon him; no matter with what solemnities he may have been devoted upon the altar of slavery—the first moment he sets his foot upon the British soil his soul walks abroad in her own majesty—his body swells beyond the measure of the chains which burst from around him, and he stands regenerated, redeemed, and disenthralled by the genius of universal emancipation."

Under our virtuous Queen, who, as the sovereign of these realms, is the chief personage in the magnificent engraving of the Royal Family, the liberty so eloquently described by Curran has most certainly suffered no diminution, and it is therefore with the conviction that our most ultra-politically-liberal subscribers will consider the tableau as a work of great national interest, that we present it to the public. The likenesses are all copied from photographs taken by Mr. Lake Price, and were drawn and engraved on wood by artists of the highest standing in their respective departments. With regard to the execution of the work, it is enough to say what is the simple fact—that it is a *chef-d'œuvre* of wood-engraving.

Her Majesty, Alexandrina Victoria, Queen of Great Britain and Ireland, is the only daughter and heiress of the late Edward Duke of Kent (fourth son of George III.), by Victoria Maria Louisa, his wife, who was first married to the Prince of Leiningen. Her Majesty was born on the 24th of May, 1819, and is therefore in her forty-first year. She succeeded to the crown at the death of her uncle, William IV., on the 20th June, 1837, and is now in the 23rd year of her reign. She married on the 10th of February, 1840, his Royal Highness Francis Albert, Duke of Saxe—the Prince Consort; and

the numerous family by whom we see them surrounded in this interesting engraving are the offspring of that happy union.

The Queen is here represented at home, in the midst of her family. The Prince Consort stands on her left hand, and by his side the Prince of Wales, who wears the uniform of a colonel in the army. The next figure in the group is the Princess Royal (Princess Frederick William of Prussia), very plainly dressed, as is usual with her; and next to her the Princess Alice, who looks fresh and blooming as from a morning ride, and whose eyes are directed towards her little sisters—the Princesses Louisa and Beatrice. On the other side of the picture you immediately recognise Prince Alfred, the sailor; Prince Leopold sits on a stool at his mother's feet, and behind him stands Prince Arthur. The Princess Helena, in the background, between Her Majesty and the Prince Consort, completes the group.

Her Majesty and the Prince Consort have nine children, whose birthdays are as follows:—Albert Edward, Prince of Wales, K.G., November 9, 1841; Alfred Ernest Albert, August 6, 1844; Arthur William Patrick Albert, May 1, 1850; Leopold George Duncan Albert, April 7, 1853; Victoria Adelaide Mary Louisa Princess Frederick William N.C. of Prussia, November 21, 1840; Alice Maud Mary, April 25, 1843; Helena Augusta Victoria, May 25, 1846; Louisa Caroline Alberta, March 18, 1848; Beatrice Mary Victoria Feodora, April 14, 1857.

Field-Marshal his Royal Highness the Prince Consort was born August 26th, 1819. He has, ever since his elevation to the high position which, as consort of our Sovereign and father of the royal children, he occupies in these realms, been distinguished by the discriminating patronage he has on all occasions afforded to science, art, and agriculture. His improvements in the cultivation of the soil entitle him to rank among the most advanced reformers in the modern system of agriculture. In the fine arts, especially music, the Prince Consort is not only a proficient himself, but a critic of first-rate eminence; while his advancement in science is well attested by the able and eloquent manner in which he inaugurated the late meeting of the British Association. The Prince Consort has also distinguished himself by his persevering efforts to encourage a love of the fine arts among the people; and the Kensington Museum, which has already had a very beneficial effect upon the public taste, was established under his patronage.

The Prince of Wales, to whom, as the future sovereign of these realms, the greatest interest necessarily attaches, has been educated, by the wisdom of his parents, in such a manner as to fit him for the lofty station which, if his life be spared, he will one day occupy. Carefully instructed at home during his early years, he was sent, on approaching the age of manhood, to the continent, where, in strict *incognito*, as it is called, taking the title of Baron Renfrew, he was occupied in observing the condition of other nations, and studying the working of foreign institutions. Passing through Germany and Switzerland, he stayed for a season at Rome, and, after a tour in Spain, returned to England. But it was not intended that, while visiting other countries, he should remain ignorant of his own. Accompanied by his brother Alfred, he went to Ireland, and passed some weeks amidst the beautiful scenery of the south. Soon afterwards his royal highness entered Edinburgh University, where he pursued his studies for a time, and then removed to Oxford, where he still remains. The prince entered the army, and, in consequence of his rank, received at once the title of colonel. At college, and on his travels—indeed, whenever he has been seen in public—the Prince has been remarkable for his quiet, unassuming manners, and amiable disposition.

On his last birthday the Prince attained his eighteenth year, when, according to English law, he is entitled to ascend the throne, in case of any unforeseen event rendering it necessary—an event which, we trust, may not take place for many, very many years.

The Princess Royal, who possesses that amiability of disposition which is the family characteristic, married, Jan. 25, 1858, Prince Frederick William of Prussia, heir to the Prussian throne, and has one son.

Prince Alfred selected the sea as his profession. Entered as a "middy" on board the Euryalus, His Royal Highness has seen a little peaceful service in the Mediterranean; and though *feld* on shore whenever the ship touches at a port, it is understood that he is kept as regularly to his duties on board as any other less distinguished reefer. In all these arrangements we recognise the good taste and excellent sense which have guided the education of the royal children.