An Hour with the Editor

GREAT INVENTIONS

That a body would move more easily, when there was something under it that would roll, than when it lay flat upon the ground, must have been a very ancient discovery. One would suppose that a very little observation would have so familiarized even the most primitive races with that fact that the use of a roller in moving heavy bodies would have become common at a very early period in the development of mankind. It can hardly therefore be called an invention. Inventive genius, however, took the roller, cut a piece off the end, bored a hole in the middle of it, put a round stick in the hole and made the first wheel. It was probably pretty crude. Try your hand at making a wheel with the ordinary appliances available in an everyday household, and you will find the result not an unmeasured success. But crude as the first wheel must have been, there were in it possibilities whose limitations we are not yet able to define. Wheels play so great a part in the life of today that no one can possibly enumerate their uses. The principle of the wheel is that it enables force to be converted into motion, or motion into force. That may not be a very scientific way of expressing it, but it will do for a popular definition. Another way of defining it might be to say that a wheel is a continuous lever, the centre being the fulcrum. There have been some interesting speculations of how the wheel was evolved from the lever, but the truth of the matter, if we could ever discover it, would doubtless be found to be that given above; namely, that experience with moving heavy bodies over round sticks suggested to some long-departed genius that the same purpose could be served by a wheel. When once this was done the way was opened to an infinite field for the exercise of human ingenuity. Upon that crude foundation nearly all the mechanical progress of the race has been built up. Surely we may place this unknown inventor in our scroll of fame very little below the genius who first discovered how to convert motion into heat, and thus gave our primitive ancestors fire.

At the outset of this series of articles it was said that we take so many things for granted in everyday life that we rarely pause to think there was a stage in human progress when most of them were unknown. Let us at this point, before taking up modern applications of the great fundamental ideas, think for a little while of the vast gulf which separated primitive man, the unclad creature contending with the cave-bear for such shelter as the holes in the rocks afforded, from the enlightened creature, who had learned how to make fire; who had come to make use of the skins of other creatures to protect his own; who had overcome his handicap of weakness and lack of speed by designing a bow and arrows wherewith to supply himself with food and clothing; who had learned that a hollow log would float him safely on the water and devised a way of hollowing it; who had discovered that rollers and wheels would augment his strength in moving materials; who had learned to pile rocks thus moved upon each other to make for himself shelters and defences; who had discovered that if he made holes in rocks, put pieces of wood in them and poured water on the wood, he could split up the rocks into building materials; who had not only developed his faculty of speech, but had devised a way of recording his thoughts in letters so that others could know them. We are absolutely without any means of measuring the vastness of the time required to enable mankind to make this progress. And just here we are brought face to face with a question to which no satisfactory answer can be given. It may be thus stated: How is it that this progress has not been universal? There are people today who use the most primitive methods of making fire, who use the most elementary means of navigation, who have not yet devised a written language, whose ideas in regard to building are such as our earliest ancestors must have not been long in evolving. Wherein are we to discover the cause of this enormous difference between the races of men? The idea of a common ancestry seems utterly untenable when we think of this difference. The gap between the lowest type of civilized humanity and the dwarfs of Central Africa seems too great to be bridged. It may be that in some respects the latter is better than the former. The difference is not a moral one; it can hardly be called a mental one. We seem almost forced to the conclusion that certain branches of the human race have received impulses to improvement from some source external to themselves. On the other hand, the races which have not made such material progress as we have, seem to possess qualities, which, if we have them, we do not know how to employ. A man, who lives in the northern part of Vancouver Island, had been away cruising for more than a month. One day, as he was returning home, he met an Indian going in the other direction. They had a little conversation and he told the Indian what his movements would be. The next day his wife met another Indian, who told her where her husband was and what day he would reach home. There was no way by which the first Indian could have communicated with the other, so far as any white man knows. Other instances of this kind have been told. The wonderful manner in which news spreads among the tribes of Africa is an unsolved mystery and every one knows how things are told simultaneously in all the bazaars throughout wide areas in India. Therefore, while the white and yellow races have gained so vastly through invention and discovery, they seem to have lost something, or perhaps they have failed to find something, which has been within the reach of those races who lived more closely to nature. Until very recent years human ingenuity has concerned itself chiefly with the material side of nature. It has avoided the occult side. In dealing with our physical infirmities we have confined ourselves to medicines, drugs and the surgeon's knife; in providing for our physical needs we have confined ourselves to things we could cut, mould or otherwise shape; in developing power we have dealt with the crudest and most wasteful processes. Of recent years we have been getting glimpses of an occult realm, which we are beginning to turn to good account. Our progress therein is not nearly as great relatively as that made by those whose achievements in invention and discovery have been above outlined, and, in view of this, who will undertake to set any limit whatever to the triumphs of human wisdom? Truly, we may well believe that man was indeed created in the image of the Almighty and given the right to dominion over all the works of the Creator's hands.

A COMING REIGN OF FROST

The Scandinavian Sagas tell of the battle of the Frost Giants, of an age

"When brother made war with brother
And all the earth was filled with anguish."

Geology also tells of a Glacial Epoch. The traditions of all nations speak of a devastating deluge. We have in previous articles suggested that reasons existed for believing that there had been great climatic changes even within what may with a little enlargement be called the historical period. Most of us have supposed that the Glacial Age was gone never to return, although there have been men of more or less scientific attainments, who have contended that the conditions which brought about that period are certain to recur and bring with them consequences of the same nature. The discoveries of Lieut. Shackleton on the Southern Ice Cap have aroused renewed interest in this subject. and Major Marriott, of Chelmsford, has contributed the following interesting letter to Public Opinion:

"The observations of the recent Antarctic expedition regarding the retreat of Polar ice ought to revive the theory of the late Major-General Drayson regarding the second rotation of the earth.

"Acording to Drayson in his 'Thirty Thousand Years of the Earth's Past History,' the earth has a second rotation, whereby the northern semi-axis of the earth describes a conical movement round a point in the heavens removed some 6deg. from the Pole star. This movement is, of course, partaken by the southern semi-axis. The effect of this movement is to cause the earth's axis to vary in its inclination to the ecliptic, so that the obliquity of the ecliptic changes from a minimum of 23 deg. to a maximum of 35 deg.

"If this movement of the semi-axes of the earth does take place the result is a gradual change from a period of extreme conditions yearly of a tropical summer and an arctic winter in the temperate latitudes of both hemispheres, to years of more congenial conditions of cooler summers and warmer winters. At the coldest time of this cycle, which covers 31,682 years, the Arctic circle, as has been stated, would extend to our latitude, namely, 54deg. 34min. 13sec., and would include England, and thus we have all the conditions produced by which glaciers covered England from Scotland and Wales to the coast of Norfolk, and by which boulders were dropped from icebergs as far south as Bognor.

"Acording to this theory it was the year 13,544 B. C. when the extreme of the glacial period was attained, and the year 5624 B. C. when the more mild conditions began to supervene, which brings us nearer to historical times. By the same reasoning, only some 400 years remain ahead of us, until the mildest period of the cycle is reached; after this we shall again enter into the cycle of increasing cold. Finally, in 9000 A. D. the now habitable lands of the middle latitudes will be again invaded by another sheet of ice, probably more extensive than the former one.

"At the past date of 5624 B. C., when the climate of the temperate zone entered more modern conditions, took place the great migration of Neolithic man, spreading from the sub-tropical regions to Central Europe. The abrupt transition everywhere manifest where there are remains of man, from Palaeolithic to Neolithic implements, bears witness to a sudden influx of more civilized races into regions which had been hitherto as impenetrable to them as Greenland is to us today. From many other points of view geological evidence is entirely in favour of this theory. The intermingling of arctic and tropical fossil remains is just what might have been expected under these conditions, but would be a perplexing feature on any other hypothesis. The mystery of the migration and nesting of certain birds over such a wide extent thus receives a partial explanation, and the indications of ice and iceberg action in various places which appear so recent are thus given a date more in acordance with the evidence of the rocks themselves than is the very remote date, some 80,000 years ago, which is assigned by astronomers to the last glacial epoch.

"Lastly, the independent investigation by geologists, based on the slow retrogression of the Niagara Falls and other phenomena, all assign a date for the ice age more in accord with that of Drayson, and in some cases closely approach the figure of 13,000 years required by his theory It seems that at last we may obtain a measure which will serve as a unit of geological time.

"The scientific interest of this one fact among the many other discoveries of the Shackleton expedition is very great, and the human interest of it is scarcely less so.

"The time of the extreme of mildness, when the summer and winter climates of these latitudes will approach each other in character is only distant 400 years hence. A little consideration will show that we may expect a somewhat sudden change in the conditions of summer and winter, and that this change has perhaps already begun.

"Masses of ice have the property of not beginning to melt until the whole mass is warmed up to 32deg. F., so that there will be a critical period when the arctic spring begins to overcome his resistance of the ice to physical change (the so-called latent heat), and the change will then occur with great rapidity.

"Of late years the fishermen of Grimsby and other ports have met great quantities of floating ice round the Faroe Islands and near the Arctic Circle in regions hitherto free of it, indicating a more rapid melting of northern glaciers. This detached ice drifts south and makes our springs colder. Is not this in accordance with our experience of warmer winters generally and colder springs? Is it not the beginning of a change which will become more and more punctuated every year?

"Carry the imagination past the 400 years to come into the lean years of increasing glaciation. What then? The significance of the ice age is this, that whatever the cause it is bound to recur. When the ice age has these latitudes again in its grip, how will it have been met? Where will the activities of the northern races have been centred? Who is to reap and gather in the narrowed world of the tropics? The white man or the yellow? Imagination fails to grasp the changed aspect of the world. Can it be that in this wonderfully balanced world of ocean, continent, and atmosphere, of conditions certainly unique in the solar system, it is part of the scheme to thus put a term to the destiny of man? Or will it only serve to mark the beginning of another chapter in the evolution of the human race?

"The dictum of astronomy that 'the pole of the ecliptic described a circle round the pole of the heavens as a centre, but constantly varied its distance from that centre' appeared to Drayson so far from satisfactory that he set himself to find what actually was the central point, and thus was led to discover, after many years of computation and research, the second rotation of the earth, requiring 31,682 years for its completion."

NASEBY

The battle of Naseby, which is a village near Northampton, England, was fought on June 14, 1645. Charles I. and Prince Rupert commanded the Royalist; Cromwell and Fairfax the Parliamentary forces. The armies were of about equal numbers, neither exceeding 11,000. Cromwell won the victory by an impetuous charge of his cavalry. Five thousand Royalists were taken prisoners. The King fled to Scotland. Four years later he was executed. Though Naseby decided the fate of the King, it was not so great a battle as that at Marston Moor, which occurred during the previous year, when 24,000 Parliamentarians and Scots defeated 22,000 Royalists. These two battles marked the beginning of a new epoch in English history.

We have seen how Henry IV. held the crown in part by right of inheritance, but chiefly by parliamentary title, and how Henry VII. ruled under no other sanction whatever than his defeat of Richard III. at Bosworth Field and a subsequent Act of Parliament. We have also seen how the strength of the commonalty gradually increased, as the nobility was to a large extent obliterated by the Hundred Years War and the Wars of the Roses. We have mentioned how the defeat of the Armada left the people of England free for a long period to work out unmolested the problems of self-government. It may be remembered that a minister of Henry IV. gave that King a definition of limited monarchy, which could not be improved upon even today, and there is no doubt that the English people at that very early period had progressed far ahead of the nations of Continental Europe in their apreciation of the principles of personal liberty and their claim to control the sovereign. But society had not yet adjusted itself to this understanding of the relations between sovereign and subject and various causes, one of which was the lack of a strong baronage to hold the monarch in check, enabled Henry VII. and Henry VIII. to restore a great deal of the personal government, which had prevailed in former days. Edward VI. was too short a time on the throne to influence the progress of events. During the reign of Elizabeth everything connected with the state was so prosperous that little regard seems to have been paid to distinctions between the rights of the ruler and those of the people. The reign of Mary saw the country distracted with religious turmoil. James was a sovereign of no great strength of character and willing to yield much in order to secure from parliament money necessary for his foreign policy, and before he died it had been very clearly established that parliament, and not the King, was the first power in the state. When Charles came to the throne he found himself confronted with difficulties. He cherished exalted ideas of the kingly office, and was also strongly attached to the Duke of Buckingham, whom he had chosen as his minister, but who was cordially detested by Parliament. A series of disastrous expeditions further estranged the people from the King and matters were brought to something like a climax when, two years after his accession, Charles attempted to raise a forced loan. This led to the presentation of the famous Petition of Right, which shares with Magna Charta the premier place in the minds of the British race. By granting this Petition the King agreed to forego the right of raising forced loans, to billet soldiers on the people, to enforce martial law without the consent of parliament and granted freedom from arrest unless under due process of law. There have been struggles after the execution of Charles between the people, on the one hand, and the sovereign, on the other, over the extent of the prerogative, but since Naseby there never has been any real doubt in the mind of any Englishman that the King reigned only by the will of the people and that his powers can only be constitutionally exercised through the medium of ministers directly responsible to Parliament and through Parliament to the people. It was because he refused to concede this principle in its application to the Colonies that George III. lost the possessions of the Crown in America. The Revolution of 1776 was not at the outset a revolt against British rule: it was simply a protest against an abridgment of the liberties of the English peoples who lived beyond the seas.

There have been battles on British soil since Naseby, but none in which it can be said that any great principle of self-government was involved. Of the course of the Parliamentarians after their victory many things can be said in criticism. It is difficult, no matter how democratic our views may be to justify the execution of Charles. There seems to have been a needless exhibition of cruelty in that act, for although the king had undoubtedly justly forfeited the confidence of the people and was properly stripped of his kingly powers, there is no reasonable doubt that he believed himself to be acting within his constitutional rights. Today we hear a cry raised in England for the House of Lords to assume to themselves the right to forbid the people to exercise their constitutional right to determine what the taxes of the realm may be. No one doubts the sincerity of those who take this position. They are doubtless inspired by a love of their country and by the belief that the new methods of raising a revenue will spell ruin to the state. We have no doubt that there were men who said conscientiously of Cromwell, Hampden, Fairfax and all the other great Parliamentary leaders of those days things similar to what are being said of Mr. Asquith and Mr. Lloyd-George today—that they are purposely planning the destruction of the realm. Men may change in their manners and customs as the generations pass, but they do not change much in their natures, and as no one would regard either of the parties to the present political controversy in England as worthy of death, so from the modern standpoint it is difficult, if not impossible, to justify the execution of Charles I. Yet that melancholy act established a principle that must ever play an important part in the history of the British race. It is that the people are absolutely supreme within this realm, that they may and will resist to the extremest limit all efforts to deprive them of their ancient liberties. For be it remembered—and this is a good time to mention it, seeing that we have now traced the evolution of the English democracy through the battlefields of history—that British liberty is no new thing. From time immemorial our race has asserted that its liberty was ancient. Magna Charta was an assertion of ancient rights, and long before it was signed there had been assertions of similar rights as the ancient possession of the people. Among the British people alone has the principle of individual liberty been preserved from days preceding the dawn of the historical period of Central Europe.

The Birth of the Nations

XXVII.

(N. de Bertrand Lugrin)

THE IRISH—I.

The nations have fallen and thou still art young;
Thy sun is just rising when others have set;
And though slavery's cloud o'er thy morning hath hung,
The full noon of freedom shall beam round thee yet.

These words of Moore's probably find an echo in the heart of every Irishman, and when we read the brave history of this little island we can understand just what noble ancestry belongs to the sons of Erin, from what heroic blood the patriots have sprung, and we can appreciate the lasting loyalty of the race to the Emerald Isle, which has been the scene of so many victorious conflicts in the past, but for which, alas! the present holds so much of disappointment and sadness. Whatever the cause of the latter fact, whether it lies with the Irishmen themselves or with others, or with conditions brought about by unavoidable circumstances, the sympathy of everyone is with the sufferers, and the universal hope is that a better and a happier order of things may soon prevail.

Historians tell us that the Irish are the most ancient nationality of Western Europe. Their antiquity and their high degree of progress in antiquity are evidenced by the relics which are exhumed from the ancient ruins, and which prove to us that when Greece was still in a state of barbarism, and before Romulus laid the foundation of his great city, Ireland knew much of the arts and refinements of civilization. Another proof of the advanced order of things which must have existed at a very early day, is found in the old annals and histories of which Ireland has a larger number probably than any other country in the world.

At the earliest period the island was occupied by a sparse population known as the "forest tribes," who inhabited the country prior to the coming of the Celts. The first records we have of the government tell us that the clan system prevailed. The highest in office was the Ard-Righ, or supreme monarch; next to him came the provincial kings, and after them the subordinate chiefs. The clannish spirit showed itself in the absolute authority of every chieftain over his own clan. The latter were supposed to be of the same blood with himself, and this tie of relationship constituted him as a sort of father to them all, and bound them to him at all times, particularly in periods of adversity. It engendered also a feeling of equality which was conducive to the happiness of everyone. In regard to the distribution of land, each chieftain had a certain amount of the territory of the kings assigned to him, part of which was for his own personal use as long as he remained in office, and the rest of which was held in common by the clansmen. There was a general assembly of the nation, termed the Feis, which was held every three years, and where important matters were discussed and decided upon.

The most interesting class among the ancient Celts was the class of learned men, the highest of whom were known by the name of "Ollamh." The Ollamhs enjoyed many and various privileges, which Prof. Curry describes as follows: "Every one of them was allowed a standing income of twenty-one cows and their grasses in the chieftain's territories, besides ample refection for himself and his attendants, to the number of twenty-four, including his subordinate tutors, his advanced pupils and his retinue of servants. He was entitled to have two hounds and six horses—and the privilege of conferring a temporary sanctuary from injury or arrest by carrying his wand or having it carried around or over the person or place to be protected. His wife also enjoyed certain other valuable privileges. (This old custom of waving the wand has come down to us in our fairy tales.) But in order to retain these advantages he must preserve himself pure in regard to learning, pure in regard to speech, to keep his hands clean from theft and bloodshed, to perform faithfully his marriage vows and to have but one wife. Under the Ollamhs were the Shanachies, who were the historians of the chieftains and their tribe, as the Ollamhs were the historians and usually the advisers of the monarchs and the minor kings. The Shanachies were bound to preserve the same degree of purity as the Ollamhs, or else lose half their dignity and income, as well as incur severe penalties. Next in order of literary rank came the File, which means poets. The poets were also always attendant upon those in authority. Very naturally where the literary class was held in such high esteem there were many candidates for the different offices held by them, until we are told that by and bye they became a nuisance to be abated; sometimes as many as 1,200 poets meeting in one company, and probably all desiring to make their talents known. The harp has always been the national musical instrument of Ireland, and its age can be attested by the fact that it was used more than six hundred years before Christ. In the old days it was as common an instrument with the Irish as the piano is with us now, and the players upon it attained such proficiency that the native musicians became famous all over Europe.

As time went on so popular became the poets that they attained a position of unique significance. An Irishman is probably the most emotional of beings, with the exception perhaps of the French, and the singing of the bards with the harp accompaniment could inspire in a moment love, hate, fear or courage, according to the theme of the song. It is little wonder then that the poets became the most powerful allies of patriotism, and at a gathering of the chief and his clansmen capable of swaying the throng until they were ready for any deed of daring. In fact, their influence was so fully recognized by Ireland's enemies that in times of trouble or invasion a price was set upon the heads of all singers and harpists. And there must have been many among them whose valor was quite equal to their literary and musical ability, for Montalembert wrote: "They made music and poetry weapons against foreign oppression; and the oppressors used the bards as they had used the priests and nobles. But while the last scions of the noble and royal races, decimated or ruined in Ireland, departed to die out under a foreign sky amid the miseries of exile, the successor of the bards, the minstrel, whom nothing could tear from his native soil, was pursued, tracked and taken like a wild beast, or chained and slaughtered like the most dangerous of rebels." It follows as a matter of course that the harp has remained the emblem of Ireland.

Study nature. There is a wealth of pleasure to be derived from the little things all around and about us, if we only look for it!