

THE DOOM OF LONDON.

BY ROBERT BARR.

I.

THE SELF-CONCEIT OF THE TWENTIETH CENTURY.

I TRUST I am thankful my life has been spared until I have seen that most brilliant epoch of the world's history—the middle of the twentieth century. It would be useless for any man to disparage the vast achievements of the past fifty years ; and if I venture to call attention to the fact, now apparently forgotten, that the people of the nineteenth century succeeded in accomplishing many notable things, it must not be imagined that I intend thereby to discount in any measure the marvellous inventions of the present age. Men have always been somewhat prone to look with a certain condescension upon those who lived fifty or a hundred years before them. This seems to me the especial weakness of the present age ; a feeling of national self-conceit, which, when it exists, should at least be kept as much in the background as possible. It will astonish many to know that such also was a failing of the people of the nineteenth century. They imagined themselves living in an age of progress ; and while I am not foolish enough to attempt to prove that they did anything really worth recording, yet it must be admitted by any unprejudiced man of research that their inventions were at least stepping-stones to those of to-day. Although the telephone and telegraph, and all other electrical appliances, are now to be found only in our national museums, or in the private collections of those few men who take any interest in the doings of the last century, nevertheless, the study of the now obsolete science of electricity led up to the recent discovery of vibratory ether which does the work of the world so satisfactorily. The people of the nineteenth century were not fools ; and although I am well aware that this statement will be received with scorn where it attracts any attention whatever, yet who can say that the progress of the next half-century may not be as great as that of the one now ended, and that the people of the next century may not look upon us with the same con-

tempt which we feel toward those who lived fifty years ago ?

Being an old man, I am, perhaps, a laggard who dwells in the past rather than the present ; still it seems to me that such an article as that which appeared recently in *Blackwood* from the talented pen of Pro-



"CLOUDS OF BLACK SMOKE WERE Poured FORTH."

fessor Mowberry, of Oxford University, is utterly unjustifiable. Under the title of "Did the People of London deserve their Fate?" he endeavors to show that the simultaneous blotting out of millions of human beings was a beneficial event, the good results of which we still enjoy. According to him, Londoners were so dull-witted and stupid, so incapable of im-

provement, so sodden in the vice of mere money-gathering, that nothing but their total extinction would have sufficed, and that, instead of being an appalling catastrophe, the doom of London was an unmixed blessing. In spite of the unanimous approval with which this article has been received by the press, I still maintain that such writing is uncalled for, and that there is something to be said for the London of the nineteenth century.

II.

WHY LONDON, WARNED, WAS UNPREPARED.

The indignation I felt in first reading the article alluded to still remains with me, and it has caused me to write these words, giving some account of what I must still regard, in spite of the sneers of the present age, as the most terrible disaster that ever overtook a portion of the human race. I shall not endeavor to place before those who read, any record of the achievements pertaining to the time in question. But I would like to say a few words about the alleged stupidity of the people of London in making no preparations for a disaster regarding which they had continual and ever-recurring warning. They have been compared with the inhabitants of Pompeii making merry at the foot of a volcano. In the first place, fogs were so common in London, especially in winter, that no particular attention was paid to them. They were merely looked upon as inconvenient annoyances, interrupting traffic and prejudicial to health; but I doubt if any one thought it possible for a fog to become one vast smothering mattress pressed down upon a whole metropolis, extinguishing life as if the city suffered from hopeless hydrophobia. I have read that victims bitten by mad dogs were formerly put out of their sufferings in that way, although I doubt much if such things were ever actually done, notwithstanding the charges of savage barbarity now made against the people of the nineteenth century.

Probably the inhabitants of Pompeii were so accustomed to the eruptions of Vesuvius that they gave no thought to the possibility of their city being destroyed by a storm of ashes and an overflow of lava. Rain frequently descended upon London, and if a rainfall continued long enough it would certainly have flooded the metropolis, but no precautions were taken against a flood from the clouds. Why,

then, should the people have been expected to prepare for a catastrophe from fog, such as there had never been any experience of in the world's history? The people of London were far from being the sluggish dolts present-day writers would have us believe.

III.

THE COINCIDENCE THAT CAME AT LAST.

As fog has now been abolished both on sea and land, and as few of the present generation have even seen one, it may not be out of place to give a few lines on the subject of fogs in general, and the London fogs in particular, which through local peculiarities differed from all others. A fog was simply watery vapor rising from the marshy surface of the land or from the sea, or condensed into a cloud from the saturated atmosphere. In my day, fogs were a great danger at sea, for people then travelled by means of steamships that sailed upon the surface of the ocean.

London at the end of the nineteenth century consumed vast quantities of a soft bituminous coal for the purpose of heating rooms and of preparing food. In the morning and during the day, clouds of black smoke were poured forth from thousands of chimneys. When a mass of white vapor arose in the night, these clouds of smoke fell upon the fog, pressing it down, filtering slowly through it, and adding to its density. The sun would have absorbed the fog but for the layer of smoke that lay thick above the vapor and prevented its rays reaching it. Once this condition of things prevailed, nothing could clear London but a breeze of wind from any direction. London frequently had a seven days' fog, and sometimes a seven days' calm, but these two conditions never coincided until the last year of the last century. The coincidence, as every one knows, meant death—death so wholesale that no war the earth has ever seen left such slaughter behind it. To understand the situation, one has only to imagine the fog as taking the place of the ashes at Pompeii, and the coal-smoke as being the lava that covered it. The result to the inhabitants in both cases was exactly the same.

IV.

THE AMERICAN WHO WANTED TO SELL.

I was at the time confidential clerk to the house of Fulton, Brixton & Co., a firm in

Cannon Street, dealing largely in chemicals and chemical apparatus. Fulton I never knew; he died long before my time. Sir John Brixton was my chief—knighted, I believe, for services to his party, or because he was an official in the city during some royal progress through it; I have forgotten which. My small room was next to his large one, and my chief duty was to see that no one had an interview with Sir John unless he was an important man or had important business. Sir John was a difficult man to see, and a difficult man to deal with when he was seen. He had little respect for most men's feelings, and none at all for mine. If I allowed a man to enter his room who should have been dealt with by one of the minor members of the company, Sir John made no effort to conceal his opinion of me. One day, in the autumn of

attached to it, and the American said that if a man took a few whiffs a day he would experience beneficial results. Now, I knew there was not the slightest use in showing the machine to Sir John, because we dealt in old-established British apparatus, and never in any of the new-fangled Yankee inventions. Besides, Sir John had a prejudice against Americans, and I felt sure this man would exasperate him, as he was a most cadaverous specimen of the race, with high nasal tones, and a most deplorable pronunciation, much given to phrases savoring of slang; and he exhibited also a certain nervous familiarity of demeanor toward people to whom he was all but a complete stranger. It was impossible for me to allow such a man to enter the presence of Sir John Brixton; and when he returned some days later I explained to him, I hope with courtesy, that



"THE FOG CAME DOWN UPON US."

the last year of the century, an American was shown into my room. Nothing would do but he must have an interview with Sir John Brixton. I told him that it was impossible, as Sir John was extremely busy, but that if he explained his business to me I would lay it before Sir John at the first favorable opportunity. The American demurred at this, but finally accepted the inevitable. He was the inventor, he said, of a machine that would revolutionize life in London, and he wanted Fulton, Brixton & Co. to become agents for it. The machine, which he had in a small handbag with him, was of white metal, and it was so constructed that by turning an index it gave out greater or less volumes of oxygen gas. The gas, I understood, was stored in the interior in liquid form, under great pressure, and would last, if I remember rightly, for six months without recharging. There was also a rubber tube with a mouthpiece

the head of the house regretted very much his inability to consider his proposal regarding the machine. The ardor of the American seemed in no way dampened by this rebuff. He said I could not have explained the possibilities of the apparatus properly to Sir John; he characterized it as a great invention, and said it meant a fortune to whoever obtained the agency for it. He hinted that other noted London houses were anxious to secure it, but for some reason not stated he preferred to deal with us. He left some printed pamphlets referring to the invention, and said he would call again.

V.

THE AMERICAN SEES SIR JOHN.

MANY a time I have since thought of that persistent American, and wondered

whether he left London before the disaster, or was one of the unidentified thousands who were buried in unmarked graves. Little did Sir John think, when he expelled him with some asperity from his presence, that he was turning away an offer of life, and that the heated words he used were, in reality, a sentence of death upon himself. For my own part, I regret that I lost my temper, and told the American his business methods did not commend themselves to me. Perhaps he did not feel the sting of this; indeed, I feel certain he did not, for, unknowingly, he saved my life. Be that as it may, he showed no resentment, but immediately asked me out to drink with him, an offer I was compelled to refuse. But I am getting ahead of my story. Indeed, being unaccustomed to writing, it is difficult for me to set down events in their proper sequence. The American called upon me several times after I told him our house could not deal with him. He got into the habit of dropping in upon me unannounced, which I did not at all like; but I gave no instructions regarding his intrusions, because I had no idea of the extremes to which he was evidently prepared to go. One day, as he sat near my desk reading a paper, I was temporarily called from the room. When I returned I thought he had gone, taking his machine with him; but a moment later I was shocked to hear his high nasal tones in Sir John's room, alternating with the deep notes of my chief's voice, which apparently exercised no such dread upon the American as upon those who were more accustomed to them. I at once entered the room, and was about to explain to Sir John that the American was there through no connivance of mine, when my chief asked me to be silent, and, turning to his visitor, requested him gruffly to proceed with his interesting narration. The inventor needed no second invitation, but went on with his glib talk, while Sir John's frown grew deeper, and his face became redder under his fringe of white hair. When the American had finished, Sir John roughly bade him begone, and take his accursed machine with him. He said it was an insult for a person with one foot in the grave to bring a so-called health invention to a robust man who never had a day's illness. I do not know why he listened so long to the American, when he had made up his mind from the first not to deal with him, unless it was to punish me for inadvertently allowing the stranger to enter. The interview distressed me exceedingly, as I stood there helpless, knowing Sir John was becoming

more and more angry with every word the foreigner uttered; but, at last, I succeeded in drawing the inventor and his work into my own room and closing the door. I sincerely hoped I would never see the American again, and my wish was gratified. He insisted on setting his machine going and placing it on a shelf in my room. He asked me to slip it into Sir John's room some foggy day and note the effect. The man said he would call again, but he never did.

VI.

HOW THE SMOKE HELD DOWN THE FOG.

It was on a Friday that the fog came down upon us. The weather was very fine up to the middle of November that autumn. The fog did not seem to have anything unusual about it. I have seen many worse fogs than that appeared to be. As day followed day, however, the atmosphere became denser and darker, caused, I suppose, by the increasing volume of coal-smoke poured out upon it. The peculiarity about those seven days was the intense stillness of the air. We were, although we did not know it, under an air-proof canopy, and were slowly but surely exhausting the life-giving oxygen around us, and replacing it by poisonous carbonic acid gas. Scientific men have since shown that a simple mathematical calculation might have told us exactly when the last atom of oxygen would have been consumed; but it is easy to be wise after the event. The body of the greatest mathematician in England was found in the Strand. He came that morning from Cambridge. During a fog there was always a marked increase in the death rate, and on this occasion the increase was no greater than usual until the sixth day. The newspapers on the morning of the seventh were full of startling statistics, but at the time of going to press the full significance of the alarming figures was not realized. The editorials of the morning papers on the seventh day contained no warning of the calamity that was so speedily to follow their appearance. I lived then at Ealing, a Western suburb of London, and came every morning to Cannon Street by a certain train. I had up to the sixth day experienced no inconvenience from the fog, and this was largely due, I am convinced, to the unnoticed operations of the American machine. On the fifth and sixth days Sir John did not come to the city, but he was in his office on the seventh. The door

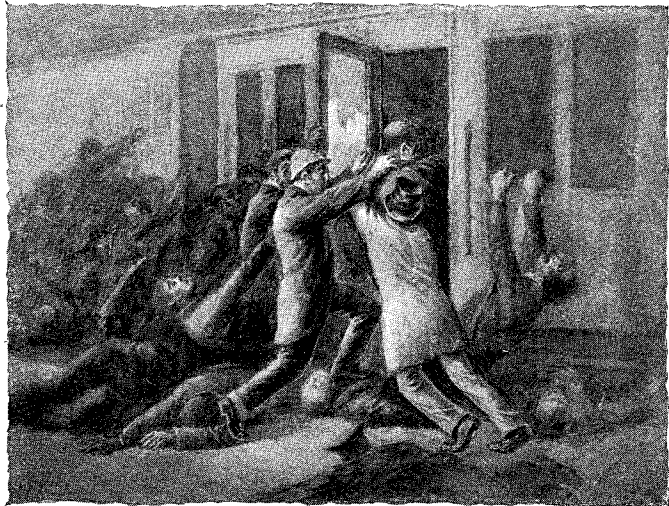
between his room and mine was closed. Shortly after ten o'clock I heard a cry in his room, followed by a heavy fall. I opened the door, and saw Sir John lying face downward on the floor. Hastening toward him, I felt for the first time the deadly effect of the deoxygenized atmosphere, and before I reached him I fell first on one knee and then headlong. I realized that my senses were leaving me, and instinctively crawled back to my own room, where the oppression was at once lifted, and I stood again upon my feet, gasping. I closed the door of Sir John's room, thinking it filled with poisonous fumes, as indeed it was. I called loudly for help, but there was no answer. On opening the door to the main office I met again what I thought was the noxious vapor. Speedily as I closed the door, I was impressed by the intense silence of the usually busy office, and saw that some of the clerks were motionless on the floor, and others sat with their heads on their desks as if asleep. Even at this awful moment I did not realize that what I saw was common to all London, and not, as I imagined, a local disaster, caused by the breaking of some carboys in our cellar. (It was filled with chemicals of every kind, of whose properties I was ignorant, dealing as I did with the accountant, and not the scientific, side of our business.) I opened the only window in my room, and again shouted for help. The street was silent and dark in the ominously still fog, and what now froze me with horror was meeting the same deadly, stifling atmosphere that was in the rooms. In falling, I brought down the window and shut out the poisonous air. Again I revived, and slowly the true state of things began to dawn upon me. I was in an oasis of oxygen. I at once surmised that the machine on my shelf was responsible for the existence of this oasis in a vast desert of deadly gas. I took down the American's machine, fearful in moving it that I might stop its working. Taking the mouthpiece between my lips I again entered Sir John's room, this time without feeling any ill effects. My poor master was long beyond human help. There was evidently no one alive in the building except myself. Out in the street all was

silent and dark. The gas was extinguished; but here and there in shops the incandescent lights were still weirdly burning, depending as they did on accumulators, and not on direct engine power. I turned automatically toward Cannon Street station, knowing my way to it even if blindfolded, stumbling over bodies prone on the pavement, and in crossing the street I ran against a motionless 'bus spectral in the fog, with dead horses lying in front, and their reins dangling from the nerveless hand of a dead driver. The ghostlike passengers, equally silent, sat bolt upright, or hung over the edge-boards in attitudes horribly grotesque.

VII.

THE TRAIN WITH ITS TRAIL OF THE DEAD.

If a man's reasoning faculties were alert at such a time (I confess mine were dormant), he would have known there could be no trains at Cannon Street station; for if there was not enough oxygen in the air to keep a man alive, or a gas-jet alight, there would certainly not be enough to enable an engine fire to burn, even if the engineer retained sufficient energy to attend to his task. At times instinct is better than reason, and it proved so in this case. The railway, in those days, from Ealing came under the City in a deep tunnel. It would appear that in this underground passage the carbonic acid gas would first find a resting-place, on account of its weight; but such was not the fact. I imagine that a current through the tunnel

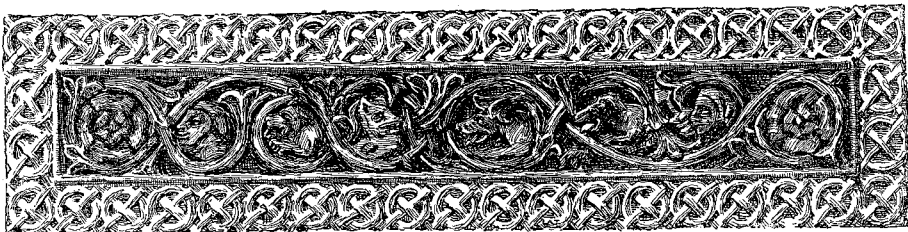


"FOUGHT LIKE DEMONS."

brought from the outlying districts a supply of comparatively pure air that, for some minutes after the general disaster, maintained human life. Be this as it may, the long platforms of Cannon Street underground station presented a fearful spectacle. A train stood at the down platform. The electric lights burned fitfully. This platform was crowded with men, who fought each other like demons, apparently for no reason, because the train was already packed as full as it could hold. Hundreds were dead under foot, and every now and then a blast of foul air came along the tunnel, whereupon hundreds more would relax their grips and succumb. Over their bodies the survivors fought, with continually thinning ranks. It seemed to me that most of those in the standing train were dead. Sometimes a desperate body of fighters climbed over those lying in heaps, and, throwing open a carriage door, hauled out passengers already in, and took their places, gasping. Those in the train offered no resistance, and lay motionless where they were flung, or rolled helplessly under the wheels of the train. I made my way along the wall as well as I could to the engine, wondering why the train did not go. The engineer lay on the floor of his cab, and the fires were out.

Custom is a curious thing. The struggling mob, fighting wildly for places in the carriages, were so accustomed to trains arriving and departing that it apparently occurred to none of them that the engineer was human and subject to the same atmospheric conditions as themselves. I placed the mouthpiece between his purple lips, and, holding my own breath like a submerged man, succeeded in reviving him. He said that if I gave him the machine he would take out the train as far as the steam already in the boiler would carry it. I refused to do this, but stepped on the engine with him, saying it would keep life in both of us until we got out into better air. In a surly manner he agreed to this

and started the train, but he did not play fair. Each time he refused to give up the machine until I was in a fainting condition with holding in my breath, and finally he felled me to the floor of the cab. I imagine that the machine rolled off the train as I fell, and that he jumped after it. The remarkable thing is that neither of us needed the machine, for I remember that just after we started I noticed through the open iron door that the engine fire suddenly became aglow again, although at the time I was in too great a state of bewilderment and horror to understand what it meant. A western gale had sprung up—an hour too late. Even before we left Cannon Street those who still survived were comparatively safe, for one hundred and sixty-seven persons were rescued from that fearful heap of dead on the platforms, although many died within a day or two after, and others never recovered their reason. When I regained my senses after the blow dealt by the engineer, I found myself alone, and the train speeding across the Thames near Kew. I tried to stop the engine, but did not succeed. However, in experimenting, I managed to turn on the air brake, which in some degree checked the train, and lessened the impact when the crash came at Richmond terminus. I sprang off on the platform before the engine reached the terminal buffers, and saw passing me like a nightmare the ghastly train-load of the dead. Most of the doors were swinging open, and every compartment was jammed full, although, as I afterward learned, at each curve of the permanent way, or extra lurch of the train, bodies had fallen out all along the line. The smash at Richmond made no difference to the passengers. Besides myself, only two persons were taken alive from the train, and one of these, his clothes torn from his back in the struggle, was sent to an asylum, where he was never able to tell who he was; neither, as far as I know, did any one ever claim him.



THE SEARCH FOR THE ABSOLUTE ZERO.

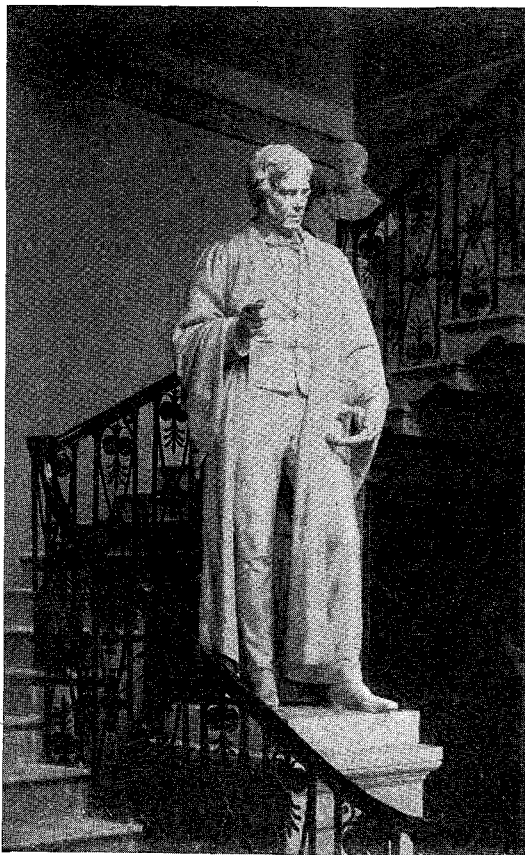
BY HENRY J. W. DAM.

THE search for the zero of absolute temperature is being rapidly pushed forward. It is one of the strangest and most important quests ever undertaken by science, and its attainment will have an effect upon our general knowledge of the universe and of matter, for instance, compared to which the results of the discovery of the North Pole will be trifling. The temperature of the absolute zero is supposed to be the lowest point of cold existing or possible in the universe. It is the supposed starting point of that molecular motion which we call heat. To attain it would give us the basis for a new and absolute thermometer, which would in itself be an enormous advantage in many branches of natural science, among which physics, chemistry, and astronomy would reap the greatest benefit. All our present measurements of heat are relative.

A Fahrenheit thermometer merely marks the height in a tube attained by a column of mercury at the temperature of melting ice, and the height it attains at the temperature of boiling water. Between these two points the tube has been arbitrarily divided, the expansion of the mercury by heat being uniform, into one hundred and eighty equal parts, called degrees. The division is also continued below the freezing point of water, and thirty-two more degrees are marked off, creating an arbitrary zero. In the centigrade thermometer the zero is assumed at the freezing point of water, and 100° are marked off between that and the boiling point. In the Réaumur thermometer the zero is at the freezing point of water, and 80° are marked off on the tube between that and the boiling point. Consequently, under a given atmospheric pressure the boiling point of water is 212° Fahrenheit, 100° centigrade, and 80° Réaumur. In other words, our measure of heat in general use in all laboratories and observatories has nothing absolute about it, but is merely a convenient means of comparing the heat of any object or place with the effects of heat upon water. To discover the absolute zero

and to make an absolute thermometer would change all this. It would set the science of heat upon an exact basis, and enable us to state how hot, absolutely and not comparatively, any object or place in nature might actually be.

The zero of absolute temperature has long been indicated as a mysterious and important point in two ways. The first is the contraction of gases, which in all known gases operates uniformly as the temperature is lowered. As long as they retain the gaseous state, gases shrink in volume so uniformly with each added degree of cold that an exact, unvarying line of diminishing volume is established. This line is as unvarying as the pointing of the needle to the North Pole. It cannot be explained any more than the action of the needle can be explained. As every gas



STATUE OF MICHAEL FARADAY IN THE ROYAL INSTITUTE.