

but neither in London nor its neighborhood are blast furnaces or iron mills and forges to be found.

The operation, consequently, was carried into effect upon pig iron melted in a cupola instead of melted iron flowing from a blast furnace; but this in no particular favored the experiment, for the bulk from which the contents of Mr. Bessemer's cylinder were taken being less than that of a charge in a blast-furnace, the heat, in all probability, was less, and the metal, consequently, not so well prepared for that admixture of atmospheric air by which its high state of incandescence is acquired.

The second condition attaching to the experiment that could not be fulfilled was the conversion of the contents of the cylinder into bar iron. No attempt to do this could be made in consequence of none of the machinery for the purpose having been erected in connection with establishments for melting iron in the metropolis or its neighborhood; but the fact that malleable iron, fibrous iron, has been made by Mr. Bessemer's process, is, we understand, placed beyond doubt by the exhibition of bars that are the result of the process.

Thus the process would seem complete, and the evidence of its completion before our eyes. Still the discovery is so simple, yet so great and unexpected, and the results so extensive and important, that some amount of doubt as to its immediate perfection may be excusably entertained.

There is not, so far as we can understand, any chemical difficulty whatever in the way of the invention. On the contrary, through its chemical action—that is, by the infusion of compressed atmospheric air into the mass of melted iron in the cylinder—it works out the chemical change effected by puddling, and at the same time supplies that mechanical motion in the mass which the puddler with his long iron bar can only with great labor effect.

The liquid iron, owing to the intense heat gained, literally boils, bubbles, and the scum is cast off; taken from the cylinder in this state, it is 'semi-steel,' allowed to remain a little longer, it becomes, as thickened liquids after the evaporation of portions of their aqueous contents often do, of a pasty and stringy character—of that consistence that gives the fiber to the iron.

How this is effected is not quite clear. We know the modus operandi, but the cause of the change is beyond our view. In the case of Mr. Bessemer's iron, it seems to be effected by intense heat; in the present practice the heat is less, and the exposure to the influence of atmospheric air, modified or changed by its progress through the puddling furnace, would appear to be greater; for the surface of iron presented to atmospheric influence in Mr. Bessemer's cylinder cannot be more than the superficies of its circumference. Hence, in the two operations there is an important difference. Whether that difference ends in precisely the same result, so far as obtaining malleable iron is concerned, is a circumstance which only practice can substantiate.

Mr. Bessemer, in the present position of his discovery, and the comparatively imperfect state in which it has been submitted to the public, must expect to encounter many doubts—doubts that only its general adoption can solve. As many be guessed from our preceding remarks, some of these have already appeared, and have received a most satisfactory and conclusive answer.

Another of these doubts is the character of the pig iron which has been the subject of experiment. A writer who adopts the signature of 'Ironmaster' wishes to know what the quality of pig was that he used in his experiments; whether it was cold air, hot air, mine, cinder, or any of these mixed, as a knowledge of this is necessary to render the comparative loss by puddling and 'boiling' accurately known—and, of course, to some extent, the value of the invention.

We have ourselves, from good authority, heard of Shropshire pig iron of such excellent quality that, upon being heated in a blacksmith's forge and hammered, it was, without puddling or any other process, converted into excellent malleable iron.

We cannot here enter into any description of the qualities that constitute good iron, further than to state that its ductility and capability of extension, either by elongation or in breadth, or by both with its anti-laminating nature, are the constituent merits of high class iron. It is, of course, too soon to ask that Mr. Bessemer should present us with specimens of iron of the high quality we have indicated. All that the terms of his invention allow us to require is that malleable iron produced from pig-iron, without puddling, should be shown. And this is, indeed, a high requirement. One of the principal, and most expensive, and most laborious processes in iron-making will be superseded. This is gained, if Mr. Bessemer's invention should produce only a low class of fibrous iron. Improvements would naturally follow; and the cost of iron being reduced, its wonderful adaptability to the requirements and the accommodations of life would be rendered more and more evident, as human ingenuity ever progressing, devised.

It has not been our purpose, as the reader will perceive, to dwell upon the more immediate and pecuniary results of Mr. Bessemer's invention. We wish to indicate its bearings, not merely with regard to its local or national, but its social result. We take it for granted that the cost of the production of iron will be materially diminished, and the consequent application of it to many purposes yet unperceived take place, hence a greater demand, a greater manufacture, and greater employment. No useful invention has ever diminished employment. A change of the mode of employment has become necessary; but the more readily that change has been accepted the greater has been the well doing of the individuals concerned. In the present case, so hard and so life-destroying is the puddler's labor that we believe there does not exist any serious objection to its re-

linquishment on the part of very many concerned. Less of human life they wisely think—and their own lives are the lives concerned—would be exhausted.

Experiments to test the invention will, we hear, soon take place. It will be advisable that they should be as numerous and as much diversified as circumstances will permit. The invention is so important that no conceivable test ought to be omitted, for by its capability of standing these tests its value must be ascertained. These tests, so far, as we can judge are likely to be rigorous, yet fair, and, we may add, conducted with every wish to find them successful. The theory of the invention, so far as we can ascertain, is believed to be perfect; in its practice, beyond the experimental range of Mr. Bessemer, some difficulties are assumed, but they are not considered to be insurmountable, and while the testing spirit is awakened, that of inquiry cannot slumber, they must work together; and we believe we can say that experiments, upon a scale calculated to show whether the invention is one of limited or of universal applicability, will soon be undertaken. In a few weeks we shall, upon safe ground, be able to speak of one of the greatest inventions of the day; and this we might say upon the supposition that it proceeds no further than its 'semi-steel' process. For ourselves we do not quit it here, for we have faith; we believe that the contemplated experiments will verify the statements of the inventor.

NEW MODE OF MANUFACTURING IRON AND STEEL.—The London Times speaks of the interest excited among the iron manufactories by the discovery of Mr. Bessemer, by which he takes crude iron directly from the ordinary blast furnace, and in the incredibly short space of thirty minutes converts it into ingots of malleable iron or steel of any size, and fit for the various manipulations ordinarily employed to adapt them to all the material purposes to which they are now applied. He thus dispenses with all the intermediate processes to which recourse has been had to produce the same effect within the last seventy years, including the making iron into pigs, and the refining, puddling and squeezing stages, with all their attendant labor and fuel.

Atmospheric air is the prime element in providing this result. The carbon of the crude iron, at a white heat, is brought in contact with atmospheric air, and the oxygen of the air combining with the carbon, rapidly produces carbonic acid gas. The rapid union of carbon and oxygen adds still farther to the temperature of the metal, while the diminished quantity of carbon present allows a part of the oxygen to combine with the iron, which undergoes combustion and is converted into an oxide.

At the excessive temperature that the metal has now acquired, the oxide, as soon as formed, undergoes fusion, and forms a powerful solution of those earthly bases that are associated with the iron. The violent ebullition going on mixes most intimately the scoria and metal, every part of which is thus brought in contact with the fluid oxide, which washes and cleanses the metal most thoroughly from the silica and other earthly bases that are combined with the crude iron, while the sulphur and other volatile matters which cling so tenaciously to iron at ordinary temperatures are driven off, the sulphur combining with the oxygen and forming sulphuric acid gas. Experiments have been conducted before iron masters and men of science in London, and they pronounced it eminently satisfactory, and a discovery of great importance.

DISCOURSE

By Elder Parley P. Pratt, Bowery, Sunday, September 7th, 1856.

[REPORTED BY J. V. LONG.]

Beloved brethren and sisters, being about to depart from this Territory and from the 'home mission' to which I was appointed among you, and to journey to the States on a mission, I rise to express my feelings and my faith, and to leave my testimony with you.

There are some, I presume, in this congregation who personally have been strangers to me and who have not heard my testimony. I have been acquainted in this Church and connected with it, from the first year of its organization in the wilderness of western New York. It was organized on the 6th day of April, 1830, and I was baptized into it about the first of the September following.

When I first became a member of this Church, one small room could have contained all the members there then were in the world, and that too without being crowded, for at times I presume there were not fifty.

The first thing that attracted my attention towards this work was the Book of Mormon. I happened to see a copy of it. Some man, nearly a stranger to it, and not particularly a believer in it, happened to get hold of a copy; he made mention of it to me, and gave me the privilege of coming to his house and reading it. This was at a place about a day's journey from the residence of Joseph Smith, the Prophet, and his father, and while I was returning to the work of my ministry; for I was then traveling and preaching, being connected with a society of people sometimes called Campbellites or reformed Baptists.

I had diligently searched the scriptures, and prayed to God to open my mind that I might understand them; and he had poured his Spirit and understanding into my heart, so that I did understand the scriptures in a good degree, the letter of the gospel, its forms and first principles in their truth, as they are written in the Bible. These things were opened to my mind, but the power, the gifts and the authority of

the gospel I knew were lacking, and did really expect that they would be restored, because I knew that the things that were predicted could never be fulfilled, until that power and that authority were restored. I also had an understanding of the literal fulfillment of the prophecies in the Bible, so that I really did believe in and hope for the literal restoration of Israel, the cutting off of wickedness, the second coming of the Lord Jesus Christ and the triumph of his kingdom on the earth. All this I was looking for, and the Spirit seemed to whisper to my mind that I should see it in my day.

Under these circumstances I was traveling to impart the light which I had to others, and while doing this I found, as I before stated, the Book of Mormon. I read it carefully and diligently, a great share of it, without knowing that the priesthood had been restored, without ever having heard of anything called 'Mormonism,' or having any idea of such Church and people.

There were the witnesses and their testimony to the book, to its translation and to the ministrations of angels, and there was the testimony of the translator, but I had not seen them, I had not heard of them, and hence I had no idea of their organization, or of their priesthood. All I knew about the matter was what, as a stranger, I could gather from the book; but as I read I was convinced that it was true, and the Spirit of the Lord came upon me while I read and enlightened my mind, convinced my judgment and reveled the truth upon my understanding, so that I knew that the book was true, just as well as a man knows the daylight from the dark night, or any other thing that can be implanted in his understanding. I did not know it by any audible voice from heaven, by any ministration of an angel, by any open vision; but I knew it by the spirit of understanding in my heart, by the light that was in me. I knew it was true, because it was light and had come in fulfillment of the scriptures, and I bore testimony of its truth to the neighbors that came in during the first day that I sat reading it, at the house of an old Baptist deacon named Hamblin.

This same Spirit led me to enquire after and search out the translator, Joseph Smith; and I traveled on foot during the whole of a very hot day in August, blistering my feet, in order to go where I heard he lived; and at night I arrived in the neighborhood of the little village of Manchester, then in Ontario County, New York. On the way I overtook a man driving some cows, and enquired for Joseph Smith, the finder and translator of the Book of Mormon. He told me that he lived away off, something more than a hundred miles from there, in the State of Pennsylvania. I then enquired for the father of the Prophet, and he pointed to the house, but said that the old gentleman had gone a journey to some distant place. After a while, in conversation, the man told me that his name was Hyrum Smith, and that he was a brother to the Prophet Joseph. This was the first Latter Day Saint that I had ever seen.

He invited me to his home, where I saw mother Smith, and Hyrum Smith's wife and sister Rockwell, the mother of Orin Porter Rockwell. We sat up talking nearly all night, for I had not much spare time, having two appointments out, and a long day's journey for a man to walk. I had to return the next morning, and we conversed during most of the night, without being either sleepy or weary.

During that conversation I learned something of the rights of the Church, its organization, the restoration of the priesthood and many important truths. I felt to go back and fill the two appointments given out, and that closed my ministry, as I felt that I had no authority and that I would go back and obey the priesthood which was again on the earth.

I attended to my appointments, and was back again the next morning to br. Hyrum's. He made me a present of the Book of Mormon, and I felt richer in the possession of that book, or the knowledge contained in it, than I would could I have had a warrantee deed of all the farms and buildings in that country, and it was one of the finest regions in the world. I walked a while, and then sat down and read awhile, for it was not my mind to read the book through at once. I would read, and then read the same portion over again, and then walk on. I was filled with joy and gladness, my spirit was made rich and I was made to realize, almost as vividly as if I had seen it myself, that the Lord Jesus Christ did appear in his own proper person, in his resurrected body, and minister to the people in America in ancient times. He had surely risen from the dead and ascended into heaven, and did come down on the American continent, in the land Bountiful on the northern part of South America, and did minister to the remnants of Joseph called the Nephites, and did show his resurrected body unto them.

They did handle him, see him and examine the wounds that were pierced in his hands, his side and his feet; and they bathed them with their tears and kissed them, and thousands of them did bear record of these facts. He did deliver to them his gospel in its fulness and plainness, in the presence of thousands, and did command them to write it in a book; and he promised that that book should come to light in latter days, in time for the great restoration of all Israel and the fulfillment of the prophecies relating to the great work of the last days.

I was made to realize this, and to bring it home to my faith, my senses and my knowledge, with a warmth, love and assurance that I could scarcely contain, for I had either studied and seen him in my reflections, or I had heard his voice whispering to me. Do you not think that I rejoice?

As before stated, I fulfilled my two appointments; crowds heard me and were interested, and solicited me to make more appointments. I told them that I would not, that I had a duty to perform for myself. I bided them farewell, and returned to Hyrum Smith, who took me to a place, about twenty five miles off, in Seneca county, New York. He there introduced me to the three witnesses whose names appear at the beginning of the Book of Mormon, also to the eight witnesses. I conversed with Oliver Cowdery, one of the three witnesses, and on the next day we repaired to Seneca Lake, where I was baptized by Oliver Cowdery, then the second Apostle in this Church, and a man who had received the ministration of an angel, as you can learn by reading his testimony.

After being baptized, I was confirmed in a little meeting during the same day, was full of the Holy Ghost, and was ordained an Elder. This transpired on the first day of September, 1830, and from that day to this I have endeavored to magnify my calling, and to honor the priesthood which God has given me by testifying, to both small and great, of the things that he has revealed in these last days.

I have testified and do still testify of the truth of the Book of Mormon, that it is an inspired record, the history of a branch of the house of Israel that live in America; that it does contain the fulness of the gospel as revealed to them by a crucified and risen Redeemer, and that wherever it goes and its light is permitted to shine, the Spirit of the Lord will bear testimony of its truth to every honest heart in all the world. Wherever that book is candidly perused, the Spirit will bear record of its truth; and I bear this testimony, this day, that Joseph Smith was and is a Prophet, Seer and Revelator, an Apostle holding the keys of this last dispensation and of the kingdom of God, under Peter, James and John. And not only that he was a Prophet and Apostle of Jesus Christ, and lived and died one, but that he now lives in the spirit world, and holds those same keys to usward and to this whole generation. Also that he will hold those keys to all eternity, and no power in heaven or on the earth will ever take them from him, for he will continue holding those keys through all eternity, and will stand, yes again in the flesh upon this earth, as the head of the Latter Day Saints under Jesus Christ and under Peter, James and John. He will hold the keys to judge the generation to whom he was sent, and will judge my brethren that preside over me, and will judge me together with the Apostles ordained by the word of the Lord through him and under his administration.

When this is done, those Apostles will judge this generation and the Latter Day Saints; and they will judge them with that judgment which Jesus Christ will give unto them, and they will have the same spirit and the same mind as Jesus Christ, and their judgment will be his judgment, for they will be one.

Some of my brethren feel, once in a while, as though we were but men, which is true; and at times we are very forgetful, and especially myself. Sometimes men will come up and say, 'Why, do you not remember me, br. Pratt?' No, I do not, particularly, though your countenance looks familiar. 'What, do you not remember me?' I was along with you at such a place; it is strange that you cannot remember me. At such times you may think, how will br. Parley, with his brethren, sit in judgment upon us, when he forgets some things and cannot remember what we have done to him? I expect, by the power of the resurrection and the quickening power of the celestial glory, that my memory will be perfected, and that I will be able to remember all the acts, duties and doings of my own life. I will also remember, most correctly and perfectly, every act of benevolence that has ever been done to me in the name of the Lord and because of my calling; and I will remember, most perfectly, every neglect and slighting by those to whom I have been sent.

I will be able to say to a just person, 'Well done, good and faithful servant, for you did good so and so to me, or my brethren, therefore enter into the joy of your Lord.' I will also be able to say to others, 'Depart from me, for I was an hungered and ye did not feed me; I was naked and ye clothed me not; I was sick, or in prison, or in a strait, and ye helped me not; I had a mission to perform, and ye took no interest in it.'

So it will be with br. Joseph, or br. Brigham, or any of the Apostles or Elders that hold a portion of the keys of the priesthood to this generation, if they hold them faithfully. They will be able to remember and understand all their own doings, and all the acts of this generation to whom they are sent; and they will judge them in the name of Jesus Christ. We will be judged by br. Joseph, and he will be judged by Peter, James and John and their associates. Br. Brigham, who now presides over us, will hold the keys under br. Joseph; and he and his brethren, who hold the keys with him, or under his direction, will judge the people, for they will hold those keys to all eternity, worlds without end. By those keys they will have to judge this generation; and Peter, James and John will hold the keys to preside over and judge and direct br. Joseph to all eternity; and Jesus Christ will hold the keys over them and over us, under his Father, to whom be all the glory. This is my testimony; and in obedience to these keys, if God will open my way and spare my life, I will continue to act.

I am now about to start to the States, to preach the gospel of Jesus Christ and bear testimony of those things which I most assuredly do know, for this is my calling. I have desired, after traveling for 25 or 26 years, mostly abroad, to stay at home and minister