LEO XIII.'S REVOLUTION.

REPRESENTATIVE GOVERNMENT IN THE CATHOLIC CHURCH.

Break with Traditions in His Motu Proprio for the Government of the Eastern Churches—Orientals Admitted to the Roman Commission—What the Reform Points to with Regard to Anglican Union.

ROME, Jan. 8.—For a New Year's gift Leo XIII. has given the Orient its organ of life, the commission established at Rome under the personal presidency of the Pope, and composed like the great Roman congregations, the ministries founded by Sixtus V., of councillors, some taken from the Occidentals and designated by the Pontiff, others selected from among the representatives at Rome of the Eastern patriarchs, and appointed by them. It is the realization of a Pontifical plan whose general outline THE SUN was the first to indicate.

The *motu proprio* is a historical as well as a governmental act; it marks a date and creates an institution. What the encyclical *Praeclara* and the Apostolic constitution for the Orient meant intellectually for the union of the church the *motu proprio* means from the administrative side. It is the ministry whose office it is to conduct in a stable and permanent manner the affairs of the Orient and above all to bring about the union.

What marks out this new function, this Pontifical organ, is the union of East and West in carrying out the work undertaken a year ago at the conferences in the Vatican. Till to-day Latinity alone directed the churches of the East; like other parts of the world, the Orient received from Rome life, inspiration, commands, execution. Henceforth the Oriental churches are an integral part of the central government of Catholicism in what concerns their spiritual interests.

That is an immense step, both in the direction of union and in the governmental "internationalization" of the Papacy. Since the Council of Florence the East has steadily held aloof from Rome because Rome alone governed. It meant the invasion, the rule of Latinity, it said, and Latinity was not at all in favor on the shores of the Bosporus, of the Red Sea, and of the Dneiper.

It is also a cause of separation, an unsurmountable barrier as it were, for the dissenters who accused the Papacy of tending to absorb the East, to an ecclesiastical hegemony, to the ruin of the national traditions of which those countries are so proud. Created, directed once by the Apostles, these churches reproached Rome for its mathematical unification.

These causes for dissent are about to fall away. Not only does the Pope promise that the traditions, sites, and hierarchical organization shall be preserved as a whole, but he also gives these churches a share in the very management of the religious affairs of the East. It is a return to the ancient customs; it is taking up again without faltering the government of the Church, as it was constituted before the triumph of Latinity, in its relations to the rights of Rome and to the particular interests of the Eastern communities.

Such is the historical meaning of this *motu proprio*; it is the beginning of a new epoch in the history of the Papacy and of the East.

Its universal significance is this: This widening of the governmental ministry of Rome may be looked upon as the first step in giving it an international character to the Church. There is in it, that is, certainly the prelude to a progressive, more and more serious and broad, representation of the churches of the world in the "dicasteries" and the congregations of the court of Rome.

The work of centralization, completed in the last three centuries, and crowned with so much energy by Pius IX., has brought about unnoticeably, I will say totally, the effective interpenetration of the provinces and the capital. Christianity, not only from the standpoint of dogma, of morals, and of discipline, but also from the point of view of the permanent and direct course of business of all kinds between Rome and the individual churches.

This enlargement of the sphere of work will bring about logically the extension of the organs of administration. When the "nations," as the old term ran, are in fact represented in the government at Rome, the Papacy will be much a manifestation of the science and practice of government as it is the providential and divine delegation of Christ. In this, as in so many other things, Leo XIII. will have been an innovator, a "historical" man, in the highest sense of the word. In its external and human side he is not the Papacy, the only immutable and progressive of institutions?

The transformation of the Papacy for the advantage of the various parts of Christendom would have been further advanced if the case of the Roman Pontiffs had found in Rome itself an equitable and satisfactory solution. An intellectual and political initiator, a sower of ideas and projects, Leo XIII. has been unable to be an organizer and reformer, as he would have wished to be. Face to face with the Quirinal encamped at his gates, watching for every discontent and taking advantage of it, the Pope has not dared to inaugurate the reforms which filled his great strong brain, and which he had thought out in the studious and fruitful solitude of Perugia. In reading the diplomatic correspondences of the Venetian Ambassadors, the most sagacious observers and news gatherers of their time, we see the struggles and the opposition of interests against which Sixtus V. had to contend from the day when he provided the Roman curia with those admirable organs whose wonderful action and latest splendor we can still see to-day. Cardinals, prelates, laymen, priests, ambassadors, political factions, as they called them then, all persons of importance, all selfish and vested interests, were in alliance against the revolution brought about by the great contemporary of Philip II. and Henry IV. To accomplish a task so delicate and so complex, security and free action are as needful as genius and force of character.

To be master in one's own house is the first requisite for any reorganization, and yet the more imperious the demand for the adaptation, to new circumstances becomes, the higher are the almost unbreakable barriers raised. To try to carry out these reforms now, to try to adapt to the more numerous functions of the Papacy the mechanism of the government, would be not only to bring down the storm of personal interests, but to create conflicts and confusion by which the Quirinal would profit to strengthen its hold upon Rome. Hence, the regrets so constantly and eloquently expressed by Leo XIII. that he does not enjoy at Rome full freedom of action. Hence his laying stress at times as it seemed too persistently in demanding independence and a material bulwark to carry out his Apostolic office. He will carry away with him probably thoughts for the future which the present situation will not allow him to put into effect in this world.

But these germs will come to flower. The hour will come when either he or his successor will be able to take up in security this ecclesiastical and administrative task.

From the English and American standpoint the position taken in the *motu proprio* has deep meaning. It is a new and clearer witness to the persistence of Leo XIII. in carrying out his evangelical work of bringing closer and reconciling the churches. The irreconcilable of all classes are strangely mistaken if they hope that resistance or difficulties will have any effect on the Pontiff's soul. In vain are reports from London or New York addressed to the feeble old man on the impossibility of union. His will does not bend; it stands upright, vivified, as if borne by an unyielding thought, an irresistible sentiment. In Paris itself, the centre of the Old World, an *Anglo-Roman Review* has been founded under his auspices, whose object will be to discuss, develop, and ripen the noble ideal of peace and unity of Leo XIII. Deeds will follow promises. Nothing proves this better than the last *motu proprio*.

ISNOMINATO.

GOOD FORM FOR COLLECTORS.

Tom Hannum Stood on Ceremony and Was "Not at Home."

From the Washington Post.

The death of Tom Hannum, one time a well-known habitué of the press galleries on both sides of the Capitol, was sincerely deplored among old-time members yesterday, and some amusing anecdotes were told of the popular newspaper man by his friends in the course of the day. One of the best is worth repeating.

Hannum was in the habit of taking a late breakfast at the Press Club every morning. On one occasion while he was vigorously discussing a hearty repast of ham and eggs a bill collector suddenly walked up to Hannum's side and laid his account before him. Hannum looked at the bill and then at the collector, and in a deliberate tone began:

"You blamed fool, can't you observe the amenities of ordinary civilized society? Don't you know that a man's club is like his home, and that you are in danger of being summarily ejected for coming in here without a card of membership and without being introduced? The rules of this club require that if you have business with a member to wait in the lobby outside until a waiter takes in your card and ascertains whether the gentleman with whom you have business is present. Now, you go out into the lobby—take this bill with you—and comply with the rules of this club."

The collector apologized for the infraction of the rules of the Press Club, which, to tell the truth, were never enforced on anything, and waited until the steward came to ascertain his wishes.

"Please announce me to Mr. Hannum," said the collector.

The steward told him to wait, and he carried the man's card to Hannum, who looked at it carefully, then handed it back to the steward, and said: "Not at home."

REED IN HIS NATIVE TOWN.

ATTITUDE OF PORTLAND TOWARD HER FAMOUS SON.

His Face Not Familiar There—Peculiarities of the Place That Made His Early Struggles Harder—His Ancestry.

PORTLAND, Me., Jan. 18.—The starting of the Reed Club in Portland during the present week, and the enthusiasm growing out of it, have again quickened outside interest in Mr. Reed and all that pertains to him. Indeed, ever since Speaker Reed has loomed into prominence as a possible candidate for the Presidency, people have turned to this little city by the sea, his birthplace and home when he is not in Washington, for information concerning him. They somehow seem to think that Speaker Reed is so big a figure in a small place that any one they accost must be able to tell them all they want to know about him. As a matter of fact, Speaker Reed when at home can walk daily from his house on Deering street to his office on Exchange street, a distance of about half a mile, without accosting or being accosted by those he meets on the way. Only a day or two before he last left for Washington he entered a store on Congress street, where more than a dozen men were lounging, and after he had passed out one of them remarked:

"That's a big fellow; who is he?" and even the shop keeper couldn't answer.

A good deal of this is due to village apathy, for the average Portlander, despite the 264 years since the town's foundation, is in his outlook and feelings still practically a villager. Hence, though the people can boom and cheer themselves hoarse over an able son of the place, after the great outer world has put its patent upon that ability, it would be difficult to name another place where sprouting ability would find it harder to make itself felt. And it has always been thus. Longfellow wrote rhymes here in his native town, but he had to go to Boston to establish his calibre. N. P. Willis and his sister, Fanny Fern, from the very start, found the air here too choked with Puritan miasma to allow them utterance. One can still find an odd old man or woman able to tell the story of their ostracism in their native town before New York found room for them. And it is not very different to-day. The true spirit of ancient Puritanism is, of course, dead as it is everywhere, but in no large city can one find the people all still wearing the mask and old clothes of their ancestors as they do here and in towns still smaller.

Doubtless it was as lucky a thing for Tom Reed's local prestige as it was for the training of his mind that one or two men of the richest Congregational Church here had some early suspicion of his ability, and worked upon the church to send him through Bowdoin College, with the purpose of having him enter its ministry. In a town where church membership and church vestry meetings still dominate and give social intercourse whatever life and color it has, this fostering of his education by the church gave a certain respectability to the son of a very poor man. A proof of this is yet visible in the fact that one may any day hear the story of how the State Street Church gave Mr. Reed his education, while rarely indeed is that statement supplemented by the no less important fact that Mr. Reed paid the church back every cent, after he had decided on another career than the ministry, and paid it back many years before he was able to do it. Had his early youth been better provided for, he would probably have now been thirty years instead of twenty in Congress.

Really, therefore, despite local pride and loud cheering and the cheers of political managers in a promising political campaign, the average Portlander has always been prone to look upon Thomas Brackett Reed as his protégé rather than his leader. Even Mr. Reed's air of self-conscious power, his easy mastery of everyone and everything, his ready sarcastic wit seems to have been half resented in the local phrase, "Reed, the great and only."

If Tom Reed ever comes to write his recollections, whether he reaches the Presidency or not, he will find in his articles he seen that his aggressive personality was not many years a greater weapon even than his now unquestioned intellect. Compared with any other equally prominent man in the land, his position seems unique. Other public men have risen from beginnings as small and obscure as his, but no other, it is safe to say, has arisen from obscurity who could at the same time claim such a background of far-reaching American ancestry. Two-thirds of all that is now spoken and written about Reed's parentage and ancestry is nonsense or fiction. The writer of this has seen both the father and mother of Reed, his only sister, and cousins and relatives by the dozen; all honest, hard-working people, and proud with that sort of pride which comes from honorable traditions and self-respect. Reed's father was no loud, but a man of limited education and practical intelligence, and above the average of working men in address; a couple of aunts of his, sisters of his father, are still living, and wear the air and speech of well-bred ladies of the old school. Reed's mother was a woman of remarkable brilliancy; keen, witty, sarcastic; of much beauty and all the qualities which in a different condition of life would have made her a social leader. But what makes Reed's position the most peculiar among the self-made public men of our day is that the further back you trace his American ancestry, the higher up they loom in place until you reach George Cleeves, the first white man to found a home within the limits of Casco Bay, in 1632. To find a man among the colonists who could write his name was a rarity, but Cleeves could do far more than that in the way of letters, as documents prove. He was, indeed, an adroit tactician, as is proved by his crossing of the sea to obtain an interview with Cromwell regarding lands here, and his returning armed with authority. His daughter, an only child, was married to an Englishman named Mitton, whom he brought over with him, who, the record is careful to tell us, "bore the rank of gentleman." Two daughters of this Mitton, Cleeves's granddaughters, married two brothers, Thomas and Anthony Brackett, and from them has descended Thomas Brackett Reed, as well as all the Brackett stock in and around Portland to-day, people who, if events had not been against them, would now own nearly all this town and adjacent towns—instead of the land being owned and run by "new people," who look on with a sort of wonder that a fellow like Tom Reed should become so famous. Who can tell how much of the oblique glance of Mr. Reed's keen eye, the suspicion of a sarcastic smile playing around his lips, and his indifferent air as he walks through the streets of his native town may be due to thought and comparison of the things touched upon above?

Speaker Reed leads a very quiet and studious life when here. He is always ready for a chat with a friend or to drop in at the home of some one whom he knows and likes. Once in a while he drops in of an evening for a few moments at the Cumberland Club, but he assists hardly ever at the functions of society. Neither does his wife, a quiet, refined woman of domestic tastes. One might suppose that his daughter, Miss Kitty Reed, would be prominent in society here, but, as a matter of fact, she is seldom heard of in that way. She is a studious girl and of great assistance to her father in his correspondence and other mental work. Possibly Miss Reed perceives such a contrast between social life here and that at Washington that she may not think the game worth the candle in her native town.

Looked at broadly, however, Speaker Reed's position is not so very peculiar. Throughout the length and breadth of the land are thousands of Americans of the best ancient lineage entirely unknown to place and fame. It is only Speaker Reed's rare ability that poises him at the front and makes him seem the typical American that the newspapers are calling him just now. And they are right he is typical, truly typical, of all the ups and downs, the failings and risings of American life. The very vicissitudes of his ancestors furnish an epitome of the whole, and these it is, perhaps, that have made him true to the instincts of the average American, whether East, West, or South.

T.

NO ADMITTANCE.

A Familiar Sign with Some of Its Variations.

There is a certain familiar sign that we see in a variety of forms. In its simplest form it reads like this:

> NO ADMITTANCE.

Apparently, however, this does not always suffice, for sometimes we see it with a word prefixed so that it reads like this:

> POSITIVELY
> NO
> ADMITTANCE.

Sometimes this is tempered somewhat by adding a few words so that the sign runs thus:

> POSITIVELY
> NO
> ADMITTANCE.
> INQUIRE AT THE OFFICE.

Painted on a board attached to the main rigging of a handsome iron French bark lying at a South street pier was this sign:

> EXPRESSLY
> NO ADMITTANCE.

It seemed a polite form of the injunction. As to the meaning of the sign in the form following there would seem to be no doubt:

> KEEP
> OUT.

KIND WORD SOCIETY'S AIM.

TO SUPPLY SERVANTS TO COUNTRY HOUSEHOLDS.

Places Obtained for Girls Who Find the Struggle of City Life Too Severe—Between 2,000 and 3,000 Women Already Provided with Places—Few Failures.

"You don't know what the Kind Word Society is?" said recently a young society leader in a tone of astonishment to a man who does much philanthropic work. "The very idea! I don't see where you've been, not to have heard of it, and the reason I haven't a new set of furs is because I wanted to help some of those poor girls who knock at its doors for encouragement and help. The reason the Kind Word hasn't an institution such as Mrs. John Sherwood, the President, is working for," continued the girl, meditatively, "is evidently because the public has never been aroused to a proper appreciation of that woman's wonderful work."

This society is not an incorporated organization, and the members are not bound to meet on certain days by any red tape. It was started by Mrs. Sherwood and a few of her friends three years ago without much encouragement and with no money, and its success speaks well for individual effort in charity work. In speaking of the society Mrs. Sherwood said:

"It has always been a fad of mine. I had a very large country house, and it took a great many servants to run it, and they were always so anxious to stay there even after I had returned to the city. This made me think that the girls who knew nothing but the slavery of the cashier's desk or the shop counter would like it, too, if they only tried it. Then I knew what trouble women had in getting servants in the country, and I put the two things together and concluded that if properly managed my scheme would work beneficially for employer and employees. So, with a few friends I started the Kind Word Society three years ago. At first people said that our object was beautiful but chimerical, and many went so far as to hoot and laugh at us. Some said very unpleasant and trying things. From the first we met with encouragement from the girls in the stores, but we did not achieve anything like wonderful success until 1893, when so many hundreds of girls lost their places—not through any fault of their own, but because of the hard times. We hunted these girls up and told them that if they would go to the country as housemaids and promise to stay a few months that we would find them places and pay their expenses. They clutched at this eagerly, for many of them were actually hungry, and we had to lend them money in many instances to pay their mothers' rent. We began by writing to clergymen all over the State asking them to employ these girls as servants in their families, and to talk to the women in their parishes about doing the same. The response was immediate and most gratifying, and some of our best successes have been with girls who have gone from behind the counter into some clergyman's family, where she has learned to cook and sew well, and at the same time become a companion, for many clergymen's wives do their own work.

"In our short existence we have placed between two and three thousand girls, and the failures are less than one out of every hundred. This is astonishing when one remembers that many of these girls come to us from the lowest classes. My correspondence with these girls is touching and delightful, and proves what a helpful thing our work has been to these self-supporting women. The hope and splendid courage that they show in striving to lead useful, upright lives is beautiful.

"We had no money to start with, and depend entirely on the dues of the members, voluntary contributions, and mainly on the returns from my fortnightly readings. Of course lack of funds hampers us very much, for many girls come to us who really haven't a change of clothing, and what they wear is insufficient to protect them. Miss Shea, the Secretary, is delighted to get cast-off clothes suitable for girls who are going out as servants, and receives such contributions at 116 East Forty-seventh street.

"Another class of women that I've become much interested in since our work has branched out is composed of refined, educated young girls who are reduced almost to starvation and are not fitted for a single way to earn their living. Entirely on my own hook I've recently placed a large number of these as maids or companions, music teachers, and in other posts. Cultured girls come to me shivering and hungry, and I know of nothing that is more satisfactory than to have them put on warm clothing right here in my room, and a thick coat, and see them go out with hope on their faces because I have been able to give them work. The clothing that is given to these girls that cast and cast-off contributed by wealthy girls, it is not suitable for those going out as servants, but is the very thing for women going out as companions, nurses, or music teachers, and I am so glad to receive such contributions at my home at the Windsor Hotel.

"The pleasantest thing that happened in Christmas week was in connection with one of these cases. I had a girl on hand that I wanted to send out as a music teacher, but she had pawned everything in the shape of a decent suit she wore. As I got in the elevator to go to dinner one night I met a lady, and asked her if her daughter had any cast-off clothing that she could spare me, telling her of the little music teacher. She said she thought she could find no more of it. When I sat down to the table a servant handed me an enormous roll of bills, saying, 'A gentleman who was in the elevator sent this to you for your girls, and says he doesn't care to have his name known.' It was enough to buy outfits for four girls.

"My ambition now is to establish a training school where girls can be taught to cook a beefsteak, to make good bread, to do laundry work properly, and to clean up a house, and I would open such a school to-morrow if I had the money. I'm trying to save a nest egg for this purpose this winter, but it is very hard when cases are constantly coming up that need immediate help. I've been hoping that some capitalist would give me a check to start this school, but no one has volunteered. Our idea is to start modestly and humbly with the girls that we have. If they were only trained we could place 500 to-morrow, but few people are willing to take a perfectly ignorant girl as a servant, and how could these be anything else? They go from their mothers' arms to the shops, and have never so much as cooked a meal for themselves. Such girls are not fit to be the wives of poor men, and that is, I believe, the reason so many men go to the saloons is because their wives can't cook. The sad part of it is that the girls are so anxious to learn these things, and the employers who have taken the ignorant ones and taught them write the most satisfactory letters about their success. If every woman who is able to do so would take one girl or more who is trying to help herself and do for her what this society is always trying to do, it would insure the prosperity and purity of the city more than anything that could be done. Less is done for the girls of New York than for anybody else, and nothing is done for those between the ages of 14 and 20, when they are exposed to danger and temptation, and in five cases out of ten have to support their entire families. They come to us with their stories; we listen, but never tell. Think of the dangers that bright, pretty, educated girls are exposed to who have to cross the Brooklyn Bridge before dawn and after dark! The more educated a girl is the more open she is to temptation, for she can't bear the degradation of poverty. Put a girl out of the city into the country beyond want and you have established the first step toward purity. If Jane Brown comes to a member of the Kind Word Society that member takes Jane's individual case, finds out about her character, and before night has her a place or makes her feel that she will have one immediately. This is like taking the knife from a would-be suicide's throat.

"A man and his pretty little wife applied for help not many months ago. He had been a cashier and she a saleswoman in a store. The firm went bankrupt and they could find no work. Both fell ill and were sent to different hospitals, neither knowing where the other was. They met in the street accidentally and came to us. We found how worthy they were, got them places on farms in country hotels, and in three months they paid every cent of the $25 loan, took their furniture out of pawn, and had $60 left. Now they lead a prosperous life.

"If Dr. Parkhurst, instead of raboring around as he did a few years ago, had furnished money to start such an institution as we wish to start, many a woman would have been saved from becoming a prostitute, and his movement would have been unnecessary. Give a girl plenty of work, help her to help herself, and give her hope and encouragement, and not many will go wrong. We don't bind our girls in any way, but say, 'We help you, and we expect you to help us by staying where we place you.' Our rule is gentleness and love and kind words."

Mrs. Sherwood's next reading will be at the Windsor Hotel, next Thursday, when she will read a story, "Doubt Idle Reports," taken from a book she is writing, which she expects to bring out soon. At one time she used to send out tickets, but the work has grown entirely out of her hands and the audiences have become so large that it is impossible to do this any longer, so they are on sale at the door of the lecture room.

The Tennessee Centennial.

Any woman having in her possession an article invented by women, and wishing to loan it, as an exhibit, for the Women's Department in the Tennessee Centennial, will please address the Chairman, Eleanor C. Ratterman, Nashville, Tenn., when particulars will be given. The committee will secure from damage all articles, and will see they are returned promptly at the close of the Exposition.

ELEANOR C. RATTERMAN,
1,215 North Summer street, Nashville, Tenn., Chairman Women's Patents and Inventions for the Tennessee Centennial.

WILL THIS PUMP WORK?

SOMETHING NEW AND INTERESTING IN HYDRAULICS.

The Inventor Believes He Can Lift Fifteen Million Gallons of Water a Day More than Eighty Feet by Efficiently Utilizing the Accessive Force of Bubbles.

From the Los Angles Journal.

Irrigation, upon which the people of this State depend so largely, is likely to undergo a decided change in the next few years, and all because a modest genius has gone to work and put in a plant on the Snake River that bids fair to revolutionize the antiquated methods for raising water above its level. After having seen the irrigation scheme which W. W. Priestly had almost completed, I cannot help but marvel at the simplicity of his plant.

Twenty miles southwest from Bliss, Idaho, which contains half a dozen houses and has less the suggestion of bliss than any point I have visited in Idaho, are the Thousand Springs, a wonderfully picturesque spot. Along a wall of rock, two miles in extent, hundreds of small springs gush forth from the solid face of the rock, and fall hundreds of feet, joining the Snake River far below, at peace with the whole world. Viewed from the bench lands or ridge far beyond, these springs or streams look like great incrustations of marble or snow fastened by the Great Builder to the sides of broad cañon through which the Snake River winds on its way to join the Columbia.

Far above these springs, beyond the rim rock, are thousands of acres of lava soil needing only the touch of water to make them rich beyond the dreams of men—a soil limitless in possibilities and inexhaustible. To water these lands that now grow only sage brush and grease wood is Priestly's determination, and the people who are at his back are evidently impressed with the ability of the engineer, for $10,000 has already been expended in harnessing the forces of these springs, that they may be made to do something more than help fill the bed of the Snake River.

Tunnels have been run, into which the water from these numberless subterranean streams is led, and by its force and the other forces of nature will shortly be utilized in irrigating some 1,500 acres of land, extending at least two miles back from the rim rock that darkly outlines the course of the Snake. Along the side of the wall rock and immediately below the tunnels, into which the former waste water is now led, there are immense steel pipes chained to the rocks and leading down to a compressor which stands on a level with the Snake River, its bottom being sunk below the river bed and standing upon solid rock, that the greatest anchorage may be obtained to resist the pressure of the volume of water, once the pump is turned on.

The water from these springs, upon the moment of completion of the new apparatus, will be turned into a large funnel connected with a horizontal pipe several feet in diameter and 152 feet long. A certain quantity of air will be carried with this water, and the mixed contents, air and water, will be discharged into the separator, as the reservoir is called, at the foot of the wall rock, which is ten feet in diameter, ten feet high, and with combined heads fifteen feet, having a capacity of 1,000 cubic feet. That the air may be properly distributed the pipe is tapered to a hyperbolic curve to meet the varying velocities of falling bodies. From the separator are two outlets, one for water, the other for air, the pipe for the water outlet being nearly three times as long as the pipe connecting with the air output. At the same point at which water is poured into the down or tapered pipe is a U-shaped pipe, and this simple bend in the rock presents a most instructive lesson in hydraulics. Into the longer arm, or leg, as Mr. Priestly calls it, of this U, is forced the air from the separator, thereby pumping water as in the numerous air lift pumps we hitherto have extensively used, not only in mining and irrigation, but for lifting water out of flooded mines.

There is not so much in the mere detail of this plant that is interesting and instructive to the layman, although there is not a single working detail which escapes the ingenuity of the inventor. In the absolutely new idea as to the size and relative velocity of bubbles that the chief interest centers. In a conversation with Mr. Priestly he said as to this most important discovery:

"I thought out the theory, and from the conclusion if I could make air bubbles the exact size I wanted them, I could lift water to almost any height. I examined closely all the books on hydraulics and mechanics, but found none that were of any assistance in the consideration of the question to my plan of lifting the water. In view of the dearth of anything like scientific investigation on the bubble question I went to work to demonstrate my theory, taking a series of glass tubes for my confined spaces and to take for my bubbles the smallest bubbles I could get. In the course of close study due to the phenomena of bubbles, I arrived at the conclusion that a bubble nine inches in diameter was the worst to contend with, and my work was upon to avoid a pipe that would create such a bubble. I found that bubbles either larger or smaller than nine inches, I ascertained that a nine-inch bubble would rise in a glass tube at the rate of nine feet per second. In rising through sixty-five feet of water it would take thirteen seconds. A pipe nine inches in diameter represents about two and one-fourth cubic feet of air to each foot of water, and, carrying my theory still further, 198 cubic feet of air must be placed in the pipe every thirty seconds to lift the water to the top of the chamber. This would be without a flow of any kind from the pipe. Having clearly demonstrated this problem, it is easily seen that any excess of air over the the amount required to lift the column of water to the top of the pipe will cause the flow desired, the size of the globules determining this result.

"The shorter leg in the U-shaped pipe, which is so essential to the complete success of my scheme, is 65 feet; the long leg is 152 feet. In the vertical While there are 65 feet of solid water in the short leg, in the long leg the 65 feet of water is scattered from top to bottom, the remaining space being occupied with air. It becomes absolutely necessary, under these conditions, to have an excess of 65 feet of water to give a velocity to the water of 5 feet per second. The air being at a standstill any excess of velocity of 5 feet will carry air in the separator tank and create the lifting force necessary to force the flow."

"But how did you arrive at a positive solution as to the velocity of bubbles?" I inquired.

"While I have not formulated a rule that will bear close inspection from a scientific standpoint, still I may say that the bubble which rises above the top of the globule represents the pressure on the top of the bubble; the pressure on the bottom of the bubble is represented by the height of water above the bottom of the bubble, the diameter of the bubble being added to the excess of pressure on the bottom of the globule over the pressure on top, which causes the bubble to rise and gives it velocity. Theoretically the bubble would have the same velocity whether under one foot or under 100 feet of water, the velocity being the same as that acquired by a body falling through space of the diameter of the bubble. Therefore the velocity of a bubble rising through water increases in the inverse ratio of squares of the diameter, or a bubble of air will rise eight feet per second, one foot in diameter, in the open water. In a tube the water must pass around the bubble at the same velocity as maintained by the bubble itself, taking up a large portion of the tube in consequence, the remaining cross section being left for the flow of water; consequently when your bubble is nearly or quite as large as the tube, it will act as a piston, and nature's force is soon working for the betterment of man's condition."

Mr. Priestly, however, not content with the forces as he finds them, has inserted a four-inch pipe into the large pipe through which air passes, and falls upon the column of water in the long arm of the U-shaped pipe, adding materially to the displacement of the water which by aid of the separator is constantly going on.

This novel and ingenius plant, which shows every reason for success, complying as it does with all the laws of mechanics, according to the young inventor, will discharge in the neighborhood of 15,000,000 gallons of water per day, and this geyser-like pump will continue to raise water on the bench lands above the Snake River until some of the stationary parts rust or wear away, or the supply of water is cutoff.

How About Our Engineers?

TO THE EDITOR OF THE SUN—*Sir:* Forty years ago I took an oath in open court, and there and then I became an American citizen. I am loyal to the American flag, and I will continue so as long as I live. The late war scare with England has brought to the surface a great many facts that ought not to be ignored. One is that we have a large number of men in the army and navy to-day that took the oath in their mother tongue—the English language—to renounce forever Victoria, Queen of Great Britain and Ireland, and become American citizens, pledged by that sacred oath to defend this country against any other. If we had war to-morrow with England, how many would follow the example of Edward Lang, an Englishman, a soldier in the engineers' battalion in Willet's Point, who distinctly told his comrades, with an oath, that in case of war he would not take up a gun against his country for the United States or any other?

One thing this war scare has brought to the surface. Have we American engineers capable of running mail steamers such as the Paris, the New York, and St. Louis, and if so, why are aliens put in charge? If this Venezuela question should cause war with England, our Government would arm these steamers. How could we send these ships to sea with English engineers? The writer of this is an engineer who was in the Spanish service forty years ago. At that time Spain had all foreign engineers in her navy; did not have a Spaniard capable to take a ship to sea. Even her only arsenal, in Ferrol, in Galicia, was run by Englishmen. At the present time Spain has no foreign engineers in her navy, and every steamer under her flag must have a Spaniard for engineer. ENGINEER.

BROOKLYN, Jan. 17.

HELEN KELLER'S FRIEND.

THE LATE JOHN P. SPAULDING AND HIS GENEROUS PURSE.

He Provided the Means for the Further Education of Miss Keller, the Well-Known Deaf, Dumb, and Blind Girl—His Many Gifts—One to Hotel Servants Brought Notoriety and Annoyance.

BOSTON, Jan. 25.—John P. Spaulding, the "Sugar King," was a little over 63 years old when he died one week ago. He was born in Madison, well up the Kennebec toward Carrituunk Falls, in Maine, where the old villagers of his day remember with pleasure his gentle ways. He loved the birds, the trees, the flowers, and everything endowed with life, so when he left the village in 1855 to seek his fortune in Chicopee in this State, the good wishes of the country folk went with him. Two years later found him in Boston, where he soon worked himself into a partnership with the firm he engaged with, and in 1867, when that firm took hold of sugar, he began laying the foundations of his fortune.

People who could not understand Mr. Spaulding said he was eccentric to a degree bordering on crankiness, but these people were mistaken. For nearly forty years he made the United States Hotel his home, and none, save perhaps Helen Keller, will miss him more than the scores of employees in that big establishment. To make others happy was a source of boundless enjoyment to himself. He used to say that it did him almost as much good as a well-cooked dinner when hungry to see the dance of happiness in another's eyes, and when the season of Christmas came around he was sure to prepare a surprise for nearly all with whom he came in contact. One of his holiday diversions was to fill his pockets with $5 gold pieces until his trousers sagged, and then go around distributing them among the employees of the hotel who had done him kindnesses.

In his own way Mr. Spaulding had amused himself in giftgiving for years without attracting any especial attention. He added all the time to the charity callers at his office, corner Broad and Central streets, for he was heralded everywhere as a "good thing." But this did not disturb him in the least, and he might have gone on until his death without notoriety were it not for an accident which gave to the newspapers information of his 1893 Christmas gifts of Sugar stock to eight servants at the United States Hotel. At that time he gave to each of the eight girls a certificate in the Revere Sugar Refinery valued at $3,000 par, although the market price was considerably less. Several other servants also received stock at the same time. This stock was placed in an envelope and given to the housekeeper for distribution. When she learned of the contents she was overcome with fright, thinking Mr. Spaulding had made a mistake, gathered in the whole lot, and hastened to his room with it.

"Do you know, Mr. Spaulding," she said in great agitation, "that this envelope contains Sugar stock?"

"I do," he replied smilingly, "and I also know that to-morrow will be Christmas."

"Then it is not a mistake," said the housekeeper.

"No, indeed," said Mr. Spaulding; "no mistake, I assure you. Kindly distribute the contents and let me know what the girls say."

It came out that he had given away about $50,000 of sugar stock at that time. The servants, who found themselves comparatively rich, had to tell their friends, and the story being too good to keep, was soon public. The day when Mr. Spaulding read of his philanthropy in the morning papers his indignation was high, but the publication was as nothing compared with later developments. Some of Boston's queer, heathen-harping women read of the gift, grasped their smelling bottles, and rushed for the hotel. They waited upon the proprietor, Mr. Tilly Haynes, to see if something couldn't be done of put a stop to the acceptance of the gift by the servants. This made Mr. Spaulding feel like the farmer who, after counting a load of potatoes from the top of a high hill, lost the tailboard of his cart, and didn't swear. The women explained to the proprietor of the hotel that gifts of such a nature should, in their opinion, pass through the recognized channels, forgetting, of course, that Mr. Spaulding's gift was an act of friendship. They chattered like a lot of parrots. It was "the idea," and "did you ever," "He must be crazy," and "I should have those girls would have discharged" were the kind of talk for three-quarters of an hour. They assured Mr. Haynes that any one in his hotel deserving of charity would be taken care of if report were made to the proper authorities, and before taking their leave they hinted that such gifts coming direct from Mr. Spaulding might have a demoralizing effect. They hoped that Mr. Haynes would put a stop to it, and he breathed a deep sigh of relief when, after telling them that the girls in his employ were capable of handling their own money, they withdrew.

Probably no one man knew more about Mr. Spaulding's charities than Tilly Haynes. He says they were far-reaching and extended into other States. The worthy poor were helped in all kinds of ways, and money was freely and systematically given on stated occasions to hundreds of persons, and in sums large enough to afford substantial relief. Those who had small sums to invest received valuable advice, and when they so desired the investments were made for them. The public got wind of the story concerning the gifts of stock brought to Mr. Spaulding several comforts, outweighing, as he said, the manifold annoyances. Through it he heard of the needs of the widow of a former friend, once the proprietor of the United States Hotel, and secured her entrance to the Pittsfield Old Women's Home, and, finally, as her last wish, bought a plot for her body at Forest Hills. Two months later she died.

It was Mr. Spaulding who made the famous deaf, dumb, and blind girl, Helen Keller, independent, and hers was the most touching friendship of Mr. Spaulding's life. Five years ago Miss Keller was asked to visit one of her friends while attending a local theatre, and staying at the United States Hotel. By chance Mr. Spaulding was invited to meet the guest, and from that day his interest in Miss Keller dated. The unfortunate girl required the constant attendance of a teacher, and this, with the expenses of tuition and travelling from her home in northern Alabama, made a burden that, had it not been for Mr. Spaulding's kindness, could not have been borne. Such an interest did he take in Miss Keller that it was not long before he began to call on her at the Perkins Institute, and finally blocks of Sugar stock found their way into her hands. Miss Sullivan, her teacher, was also remembered in like manner. His pity for the condition of the young girl was touching.

Had she been his own child his heart could not have gone out stronger to her. One of his carriages was always at her disposal, and a favorite drive was to the home of the President of the Lighthouse Hills, who has a most beautiful garden. One of Mr. Spaulding's most cherished treasures was a letter written by her, which shows her wonderful accomplishments, and made her benefactor feel proud of the work he had helped to do.

Mr. Spaulding never married. He had two brothers, the late Mahlon D. Spaulding of this city and Justin Spaulding of Chicopee. Before Mahlon D. died Mr. Spaulding bought the house at 99 Beacon street and gave it to his wife. He also presented a pretty place in Chicopee to his other brother, and would have done more, but his generous tenders were not accepted. His peculiarities were displayed in the gift of the Beacon street house. The invited his brother and wife to live over the house, giving no intimation of his purpose, and after they had expressed their admiration of it he said quietly, "It is yours."

At the time of the big Chicago fire, when a telegram came from a business man in that city saying he had lost everything, Mr. Spaulding and his brother telegraphed for him to draw on them for $100,000. That man to-day is one of the wealthiest men in the West. When the Rev. Dr. Hale reached his seventieth birthday, one of the subscribers to the paper given to him was Mr. Spaulding. He gave $10,000. He gave a like sum for the Rev. Dr. Herrick's new church, corner of Beacon street and Commonwealth avenue; also large amounts to Bates College at Lewiston, Me., and the Childrens' Hospital in this city.

If Mr. Spaulding had a hobby outside of making others happy it was horses. He owned a dozen or more, among them being the finebred stallion Mahlon, named for his brother. He owned a farm near his old home in Maine, and a fine home at Dorchester. His fortune was estimated at $2,000,000. His will contained no public bequests.

300 CONVICT CONVERTS.

Communion Bread Passed to Them Through the Bars.

From the Chicago Record.

LA PORTE, Ind., Jan. 16.—The great revival is still in progress in the northern prison, where, as the result of the labors of Chaplain Currie, scores of convicts are being converted. The celebration of the Lord's supper was uniquely conducted. It being administered by the chaplain kneeling on the ranges and passing the bread through the grated bars. The Christian Endeavor Society now numbers 300 members, and within the last ten days 150 convicts have been taken into the Church, distributed among the Baptists, Methodists, Presbyterians, and Lutherans. Men old in crime have been reclaimed, and the enthusiasm which has been awakened promises to continue.

A CHAT WITH LOLA BEETH.

TROUBLES THAT A PRIMA DONNA HAS TO ENDURE.

Disadvantages Under Which She Made Her Debut in New York—Successes Abroad—Some Compensations She Enjoys

"It's all very easy at the outset. When a singer's commencing her career everybody has kind things to say about her, everybody encourages her, and there is nothing for her to worry about. People say she has a charming voice and will make a name for herself, and everything is pleasant. But when she has made her reputation, then her troubles begin. So much more is expected of her; there is so much more responsibility, and it takes continual struggling to live up to it. Those are the difficult times in a singer's life."

This is one of Fräulein Lola Beeth's opinions about a prima donna's life. She expresses it with feeling, but she does not give the impression of having any very serious troubles on her mind. Her Paris