

Art Glass Window Making Latest of Thriving Industries for Omaha



PREPARING THE PATTERN.



CUTTING THE PIECES.



PUTTING THE GLASS TOGETHER.



SOLDERING THE STRIPS.



PARTLY COMPLETED WINDOW.

FIFTEEN men are employed nine and a half hours a day, six days a week in Omaha making art glass windows. This may not seem a large force of men to be engaged in any occupation, but it must be remembered that the consumption of art glass is not as great as that of coal beds or soda crackers. An art glass window, when made, is practically indestructible. It may last for centuries, as many of those in the cathedrals of Europe have lasted. Perhaps never before in history has the art of making beautiful windows from art glass, penetrated into this territory which is now known as Nebraska. It is very difficult to make any positive or definite statement on this point, for the art of making these windows, and, indeed, of making the glass itself, has been found and lost a number of times since history began, and its beginning or first discovery is lost in the shadowy period five or six thousand years ago before history began. The ancient Egyptians knew the art and handsome specimens of the glass they made are to be found in some of the ruins of earliest date. Then for centuries the art was lost until in the middle ages, the Venetians picked it up. Under their monopoly it flourished. The glass works of Venice were the most famous of the world has ever known. The men who possessed the knowledge of how to make glass moved to the island of Murano, where they guarded their secret with the greatest jealousy. The workmen who, of necessity, had to know the secret were sworn to never reveal it. More than one hapless fellow who went to the country northward and there tried to sell the process, was hounded down and found later with the fatal dagger in his heart. The nobles of Venice gave their daughters in marriage to the rich possessors of the great secret and their descendants hold titles to this day. But the glass works of Venice are no longer in their former glory.

Young in Omaha.
Art glass window making began in Omaha about four years ago. The men who follow the occupation are all skilled workmen in a trade which demands a combination of an artistic mind with the nimble fingers and manual skill of the workman. The principal or fundamental materials used in this industry are glass and lead, zinc or copper "carnes" for the fastening together of the pieces which compose the windows. The glass is chiefly of the opalescent kind. It is peculiar in many ways. It is much harder than ordinary window glass; it is rough on one side and smooth on the other; it is made in all the hues of the rainbow and thousands of hues never seen in the rainbow; many of the pieces contain several different hues in the same piece. The pieces vary in transparency. The genuine opalescent glass is manufactured by a secret process, guarded with the most jealous care. It is a process which has come down from ancient times, though through centuries it was lost, for it possesses that same elusiveness which seems to be an intrinsic property of glass throughout the ages. Today the opalescent glass commands from two to four times the price of the base imitation of it which Yankee ingenuity has discovered. The price varies, strangely enough, with the color. Red tints are more expensive than any other and the blues are nearly as cheap in the genuine as in the imitation. The glass is made in great slabs, seven and a half feet long and two and a half feet wide. It is received here in this form from the glass works in Indiana and Pennsylvania.

Designer Heads the List.
An artist-designer is at the head of the work in Omaha. It is his duty to get the orders. When he hears of a church about to be built he goes with his catalogue and samples and shows the prospective customer just what he can deliver. Of course, the work is by no means confined to the churches. Dwellings, stores, club houses, theaters, and, in fact, nearly all types of buildings, are apt to find art glass windows desirable. The order being received, the design is placed in the hands of the foreman of the works, who is an expert draughtsman. He lays out the window to the desired size on great sheets of paper. The colors of glass to be used are designated by numbers. There may be 1,000 pieces of glass in the window of fifty or more different colors and of many different shapes, but when the draughtsman gets through with it everything is written plainly on the sheet and it only remains for the workmen to convert the instructions of the paper into the complete window.

Birth of the Beautiful Window.
After the completion of the design, and color scheme of the window by the head draughtsman, an assistant makes an exact copy of it on thicker paper. Then the great design is cut to pieces, the result being an exact pattern of each piece of glass that is to go to make up the window. These little patterns are next handed to the cutter who cuts all the glass. He uses a diamond cutter, while a pair of sharp pliers and a file are used to smooth off the rough edges. The work is done with incredible swiftness. In spite of the hardness and brittleness of the glass, the cutter, with a few strokes, evolves a piece of intricate shape as easily as most people would cut a pane of window glass. As each little pattern contains its number, the cutter is never in doubt as to the color of glass to be used.

All the pieces of glass are now reassembled by means of the original design, which



WORK ROOM OF THE FACTORY.

placed on a table in their respective places. The work of putting the puzzle together is begun. For this purpose the "carnes" are used. They are long strips of lead, zinc or copper, with grooves in both sides. Most windows are made with the lead carnes, and the only tool used by the man who puts the window together is a knife with a heavy metal handle. The knife is to cut the lead "carnes" and the heavy handle is utilized for driving little nails into the table to hold each piece of glass as it is put in until the next piece is added. But when this process is finished and the little pieces of glass are all fitted into the grooves the window is by



no means complete. It would not stand up alone. The next process is the soldering of the joints, which is done with ordinary solder and an ordinary soldering iron. When this is completed the window is fairly strong. But it is not water tight, and, while it might be beautiful, would not be very serviceable on a rainy day. It is



PUTTING THE WINDOW TOGETHER.

therefore, given over to boys, who, with big stiff brushes, rub a cement made of linseed oil and putty into the grooves where the glass is bedded. Then the window is water tight. It only remains to set it in its frame, clean it and add the braces, for, with nothing but the lead "carnes" to hold it, a hard wind would blow the window



more difficult, however, to construct a window with these metals than with lead.

Besides opalescent glass, there are other materials used in making art glass windows. "Jewels" are hemispherical objects made of different colored glass and used as ornaments in windows. They come from Austria. "Spin roundels" are glass disks which are made in Europe by a process of rapid whirling of the molten glass. When pictures are needed in the windows these must be placed there by artists who work with paint and brush. The work is not as simple, however, as painting on canvas, for the paint must be fused into the glass and made a part of it. This is done by using a paint made of pulverized colored glass which is fusible at a lower temperature than the glass on which the painting is done. When the artist has painted the picture the glass is placed in an oven, where it is subjected to a very great heat and the paint is fused and burned into the glass. None of this work is done in Omaha, though windows are made containing pictures. The artistic work is done elsewhere, sent here, and the picture is incorporated into the window in this city.

Tricks of Window Glass.

The making of prism glass windows and bevel plate glass windows is a department in itself. Prism glass is used in stores and dwellings where it is desired to divert the rays of light into a dark corner or to make the most of a small amount of light. It is used largely in stores above the plate glass of the show windows where its peculiar properties for throwing light make it useful.

Bevel plate glass is used largely in making ornamental windows for homes. The process of beveling is interesting. It consists in merely grinding down the edges of the glass. This would not, in itself, be very difficult were it not for the fact that after the grinding the glass is left in an oblique condition. It then has to be smoothed and polished to its former transparency. The first grinding is done on a cast iron disk, which revolves rapidly in a horizontal direction. On this disk sand and water are allowed to run. After the main part of the grinding has been done the glass is placed on a similar wheel, where emery is used instead of sand and some of the roughness produced by the sand is removed. It is next placed on a "Newcastle smoothing stone," which is much like a sandstone. The polishing is further done by a "wooden stone," which is made of a cross section of a poplar tree. It revolves very rapidly in a vertical position. The final polish is given by a wheel which is bound with felt and on this wheel French rouge is used.

Making of Mirrors.

Mirrors are also made in Omaha. They are of the best quality, being made with nitrate of silver, and their backs being varnished and painted to protect them against wearing out. In this work the glass is first polished with felt and jeweler's rough, so that every scratch may be removed. It is next washed by letting cold water run over it for a considerable time. Then it is placed on a rack over steam pipes. The plate of glass must be perfectly level. The workman then pours the solution of nitrate of silver on the glass, so that it will be perfectly level. At moments, under the influence of the heat from the steam pipes, the silver is precipitated to the glass and later the water is poured off. When the silver is dry it is protected with a coat of varnish and this is covered with a coat of paint. The result is a mirror which will last for years. No glass will last forever, as heat and other atmospheric conditions will cause it to deteriorate.

Old-Fashioned Ways Prevail.

Art glass window making is one of the industries unaffected by the modern educational methods. There are no graduates of colleges or technical schools there. A visit to the shop shows apprentice boys learning the trade in the old-fashioned way, under the masters of the craft, who, in their turn, received their training in the same manner.

When a boy enters the shop he is first put to work in applying the cement to the finished windows—a task that requires no particular skill. As he advances he learns to put together simple windows, where most of the pieces are square or rectangular. Then he is advanced to putting together more intricate windows. Later he learns the soldering work. Then he learns the difficult department of the cutting of the glass and finally after mastering the designing department he is proficient for every branch of the craft.

Creighton University Students in Annual Play

MOLIERE'S comedy, "Le Bourgeois Gentilhomme," will be given next Thursday evening at Creighton University hall, Twenty-fifth and California streets, by the students of that institution under the name of "The Uptask." Moliere, whose real name was Jean Baptiste Poquelin, wrote "The Uptask" in 1670. He was a successful actor as well as playwright. More than a century after his death the French academy, which had in his lifetime refused to admit him as a member because of his profession of actor, voted that his bust should be placed in their chamber, with this inscription: "For his glory there is nothing needed; he is needed for ours."

The play which the Creighton students will attempt next Thursday evening is considered one of the best of Moliere's comedies. It is expected to surpass all other efforts of this dramatic association, and much time has been devoted to its preparation. Everyone knows the story of "The Uptask," how the tradesman tried to rise above his station and what a failure he made of the attempt. The audience will have an opportunity to enjoy the many ludicrous situations and appreciate the sarcasm, wit and humor of the comedy. The following prologue gives the key to the play:

Our neighbors in civilized Europe, alas! Have to deal with that monster, a privileged class, A proud aristocracy, creme de la creme, Putting all the industrious classes to shame. Yet some of the latter a paltry ambition Spurs on to attain to the former's position—A paltry ambition, for naught would be gained Were even that tinzel advantage attained; And no man of worth would desire recognition In a title resolved to refuse him admission. The attempt is both foolish and ludicrous, And its failure in our "Mr. Jordan" you view. Oh, long may it be ere our free native shore See its privileged class to say "Come and adore!" But if any exclusives should perk themselves up, Nor deign with their neighbors to dine or to sup, Let us leave them alone in their grandeur to dwell, And laugh at their efforts at cutting a swell.

This play was often produced by the Jesuit students of Paris before Louis XIV and his court. So gorgeous were the plays presented by the Paris students at that time that the general of the Society of Jesus, notwithstanding they were patronized by royalty, forbade so much money to be spent in the costume and staging. The Creighton students are not likely to receive such an order; nevertheless, no trouble has been spared to costume the play suitably. Jourdain will appear as the jackdaw in borrowed plumes and will meet with a similar fate. There will be a riot of color in the burlesque scene at the end, when monsieur is thoroughly duped by his acquaintances, who impersonate the son of the sultan of Turkey and his suite, in order to carry out their practical joke, and where Jourdain learns that the very finest kind of feathers does not make fine birds.

The following is the complete cast, which



J. WALTER SCHOPP, '07, AS THE PROFESSOR OF PHILOSOPHY.



WILLIAM J. DONAHUE, '08, AS M. JOURDAIN.



JOHN A. McSHANE, '07, AS UNCLE JOURDAIN.



CHARLES J. THIBLEN, '08, AS NICHOLAS.

appear on Thursday at the University hall at 8:15 sharp:

Monsieur Jourdain, ambitious to associate with "persons of distinction"..... William J. Donahue
Uncle Jourdain, a common sense uncle..... John A. McShane
Cleon, suitor for the hand of Lucelle, cousin to Monsieur Jourdain..... Raymond P. Corrigan
Yves, Raymond's friend..... Charles J. Thiblen
Covielle, his roguish friend..... Charles J. Thiblen
Dorimene, the marquise, a nobleman of the highest rank..... W. Paxton Ware
Dorante, a count in reduced circumstances..... W. Harold Downey
Nicholas, a fat and saucy servant in the Jourdain family..... Charles J. Thiblen
Professor of Philosophy..... J. Walter Schopp
Professor of Music..... John G. Jamieson
Professor of Dancing..... Thomas W. Lamigan
Professor of Fencing..... John McCormick
Tailor..... Michael Stagno
Footman..... Eugene Noonan
Cornelius Peacock..... Cornelius Peacock

Reflections of a Bachelor.
A man looks eligible to a girl either because he has money or a handsome mustache. There is nothing that arouses a man's ridicule so much for the fellow that wrote them as the old love letters his wife keeps until he finds they are his own. A woman would like to be a man if she could wear her hair long, have the same kind of clothes she saw has, and think it was exciting to go buggy riding with one. When you try to kiss a girl in the dark and find out that it is not her, the only way you can square yourself is to pretend that you saw the very thing you meant to do. The Breman had an easy job in keeping

steep up on her, and it was said that the engine could outrun and outpull any engine of her build on the road. But she was unlucky. She had been in many smashups and every engineer who had run her had been killed. Yet the last engineer who got her became so proud of her that he never stopped talking about her good qualities. To a friend he said one day, as he was oiling up: "I can't give this engine up. I have become so attached to her that I wouldn't care to run any other. And yet I feel that she'll get me one of these days." "Well," replied his friend, "if you feel like that you ought to quit running her right away." "This engine is too fast for this run. It's too bad we're not behind a little that I could show you what she could do." "I just the same this was the fastest run between Chicago and St. Louis on any of the roads, and the engine at the time her engine spoke was traveling not much less than a mile a minute." "Watch her jump now when I use a little of the reserve power," continued the proud engineer. "And then she pulled the long throttle lever out to the limit—wide open, in railroad parlance." "Jump she did, and began to move at almost redoubled speed." "Why, this old girl should travel like that right into St. Louis and not turn a

Peculiar Yarns About the Locomotive.
LOCOMOTIVE engineers will tell you that of all pieces of machinery a locomotive comes nearest to being a living thing. It may be slow or it may be fast; it may be a good puller or a poor puller. These things are beyond the power of manufacturer or engineer to determine. To get the best out of her—to use the pronoun that engineers employ customarily in speaking of a locomotive—she must be humored. Her engineer must know just what she can do and what he her limit. If a strange engineer attempts to run her, he naturally fails to get the best results from her. In former days the engine was a gorgeous affair, glittering with brass from one end to the other. Some engineers showed affection for the machine by spending hundreds of dollars on brasswork. But all that is changed in modern practice on the big railroads which makes the locomotive as plain as possible. The engineer studied his engine until he knew every one of her points, both good and bad. And it is right here that the locomotive becomes almost human. Build twenty of them along exactly the same lines, and yet each machine will be different from all the others. This is one of the reasons why the engineer becomes attached to his machine. He is the only one who knows her, and he can get from her the best results. The story is told of an engineer who said he would almost rather run over a friend than reverse his engine. Reversing an engine while moving at full speed has a tendency to shake her up some. The engineer meant that he would rather risk injuring a friend than his locomotive. Down on the Missouri Pacific road was an engine that had a record of disaster. It was a passenger engine of the most modern workmanship, and from a mechanical point of view had no superior. The Breman had an easy job in keeping

hair," affectionately said the engineer, turning a proud and pleased face to his passenger, after he had pushed the throttle back to its normal position. The engine might have been too fast for that particular run, but it wasn't any too fast for him, that was very evident, and if anyone had suggested taking her off and substituting a smaller machine that man would have been as much aggrieved as if one had suggested his separation from a near relative. Of recent years on some of the roads there has been a change in the handling of engines. Where in former years each engineer had his own locomotive, which he ran over a division of a hundred miles or so and then took a rest, now the runs have lengthened to 150 and 200 miles, and some of the engines have as many as three engineers. On still other roads there is a system which is known as pooling the engines. An engineer will have charge of a machine one day and perhaps he won't get aboard of her again for a month. A new engineer takes her back; still another brings her out again, and so it goes on. No one takes any special interest in the machine, therefore. Under the old system of one engineer to one engine the engineer will take so much interest in his charge that he spends hours of his own time whipping the locomotive into shape, anxious to bring out the best she can do, for she belongs to him, and his pride is aroused. A good engineer's reputation does not consist wholly in his ability to keep his schedule time, but much of it rests upon his being able to keep his engine in good running order. But the pooling scheme has done away with all this and no one can be held responsible for the poor working of an engine. The moment the engineer finishes his run he is glad to quit work—New York Sun.