

No. ==

AMERICAN CONSULATE,

Venice, Italy, September 3rd, 1917.

SUBJECT: TRANSMITTING REPORT ON BEAD MAKING IN  
MURANO AND VENICE, DATED AUGUST 30, 1917

THE HONORABLE

THE SECRETARY OF STATE,

WASHINGTON

SIR:

I have the honor to transmit herewith a report on  
"Bead Making in Murano and Venice", dated August 30, 1917,  
together with a number of sample exhibits illustrating  
and referred to in said report.

This report has been prepared in accordance with  
the Department's Instruction without serial number, dated  
July 14th, 1917, Department File N°. 165.184:2, Consular  
File N°. 865.6, received at this Consulate on August 9th,  
and acknowledged by card on that date. This instruction  
was given at the request of C.C. Lord and C°. of Long  
Beach, Cal. transmitted through the Bureau of Foreign  
and Domestic Commerce.

The attached report covers fully the processes for  
the manufacture of small beads as per Department's samples  
sent under separate cover. In order to fully cover all pro-  
cesses of bead making, including hand made beads, which is  
one of the historic industries of Venice and is still  
flourishing and of which I find no adequate or satisfactory  
report on file here, I am preparing a supplementary report  
on Venetian

on Venetian Hand Made Beads which will shortly be transmitted with sample exhibits.

The rare exhibit of glass rod miniatures, the work of Jacopo Franchini, transmitted with this report, is for the Department and not for the firm at whose request the report was made, as it would be very difficult to duplicate this exhibit.

It is respectfully requested that the exhibit be preserved in some national or other museum if this meets with the approval of the Department. *(To National Museum)*

For safety in transit this report is forwarded through the Embassy for transmission by diplomatic pouch.

I have the honor to be, Sir,

Your obedient servant,

*B. Harvey Carroll Jr.*  
American Consul.

File N°. 865.6

ENCLOSURES: Report in Triplicate on Bead Making in Murano and Venice and enclosures as therein noted .

A M E R I C A N   C O N S U L A R   S E R V I C E .

CONSULATE AT VENICE, ITALY.

BEAD MAKING AT MURANO AND VENICE.

Report Made in Compliance with the Department's Instruction without Serial Number, dated July 14, 1917 Department's File N°. 165.184:2. Consular File N° 865.6.

( This Instruction was given at the request of the firm of C.C.Lord and Company of Long Beach California transmitted through the Bureau of Foreign and Domestic Commerce.)

From B. Harvey Carroll Jr.,  
Venice, Italy,

American Consul.  
August 30, 1917.

Glass making in Venice is of very remote antiquity. By a law of Nov. 8, 1291 the authorities of Venice, to avoid the risk of fire, ordered the glass making industry to be transferred to the adjacent island of Murano, referring in the decree to the "ancient traditions of the populace there dedicated exclusively to glass making". Ever since Murano has been the most important center for hand made glass and glass bead manufacture in the world.

In recent years certain kinds of hand made beads that must be worked and ornamented individually over the blow pipe and certain processes in the manufacture of machine made beads such as stringing and the polishing and glazing of some types have been again transferred to Venice labor.

Most of the loose stringing of beads is carried on by cottage labor in Venice and the processes for the manufacture of bead articles, such as purses, curtains, flowers and  
design

design work are domiciled again in Venice, leaving in Murano the glass and bead foundries.

The island of Murano lies less than a mile distant over the lagoon north of the city of Venice. Its population is largely devoted to the various kinds of industries in glass, including bead making.

Until about 20 years ago there were a number of competing companies in bead making at Murano but at that time 1896, eleven companies consolidated forming the Società Veneziana Per l'Industria delle Conterie whose paid up Capital Stock is now Lire 4,500,000. (= \$ 868,500 at mint rate )

This Company enjoys a complete monopoly of the bead making industry, has been very prosperous and does a world exporting business on a very large scale, shipping to Africa, India, Oceania, Asiatic countries, Europe and the Americas. It makes the beads that are used as money by certain tribes in the Congo (Compare attached card with Congo money bead) and in German West Africa and ships many thousands of tons of bead ornaments to the savage as well as the civilized nations of the world.

The offices of the company are in a magnificent old palace at Murano, the Palazzo Trevisan which boasts certain frescos of Tiepolo. Nearby are the foundries and factories, covering many acres of ground. Before the outbreak of the European war this Company kept in storage more than two million kilos (Metric tons 2,000, pounds 4,409,245) of manufactured beads. At the present time less than one fourth of this quantity is in stock and production has greatly decreased owing to the difficulty in securing fuel and raw material. The company uses normally 8,000 tons of coal per year. Before the war coal cost them from ~~21~~ Lire to 28 Lire per metric



per metric ton. Now, buying in large quantities the lowest price is Lire 450.- per ton and the Government only allows them 200 tons per month. Soda potash (soda potassa) (Solvay type) the prime raw material of glass making cost before the war Lire 10.- to 12.- per quintal. It now costs Lire 120.- to 160.- per quintal. Nitre, or saltpeter, (Nitro) has increased from Lire 500.- to Lire 5,000.- per metric ton, potassium has increased from Lire 400.- to Lire 6,000 per metric ton, Minio, formerly cost 50.- Lire per quintal now costs 280 to 300.-, Zinc, Copper, Arsenic, Cobalt, all the different minerals used in coloring glass, Soda, Alum, Quartz and even sand have greatly increased in price. Even the sand for Venetian glass making is imported coming from Fountainebleu<sup>a</sup> in France. This very fine type of white sand is also to be found at Sorate near Rome, in Piemonte and in Norway. In former times sand was imported from Pola, Trapani and other places on the Adriatic coast.

The first process of making beads is making glass compounded of soda, sand, and various minerals according to the color desired. The yellows and oranges have a large admixture of lead for example which comes in the form of an orange colored powder, packed in kegs and known as Minio. This Minio is, I believe, oxide of lead, and comes in several grades according to the vividness of the color, ranging from deep orange to red. (The word is sometimes translated vermillion but vermillion is properly a mercuric sulphide usually obtained from cinnabar.) The Minio was formerly purchased from England and Germany but is now normally made in Italy, that used at Murano being supplied by Venice firms.

The fondant

The fondant for ordinary types of beads had formerly a base of Egyptian Natron ( native sodium carbonate ). Nitrate of Soda from Chili and crude Nitro ( Salpeter ) refined Carbonates of Soda, Sulphate of Soda, refined Nitre, Potash, Cryolite ( a fluoride of sodium and aluminium produced in Greenland, used for obtaining soda and alumina ) and especially the highly refined Soda Silvay used as a solvent for sand, ( formerly imported from France, now made also in Italy ) figure in the fondants required for the higher types of beads. Since the last years of the last century feldspar has been used as a solvent agent in a large scale. The first used came from Turin and England. The coloring materials are all mineral, including in recent years various oxides unknown to the glass makers of antiquity, especially oxides of Cobalt, Chromium and Uranium. The more important coloring materials are Minio; Manganese, Copper, ( from which a great variety of colors are obtained ) Iron, Zinc, Zaffara, ( a sort of mixture of which cobalt is the base, used for tinting glass blue ) Arsenic, Antimony, Silver and Gold.

Cobalt in its various forms gives wonderful and deep shades of blue and was a coloring agent known to the Egyptians as was also Copper. Silver was used by the ancients to give a wonderful yellow gold color but the master glass makers now know how to obtain the same shades without the use of silver. The first one to obtain a formula was a certain Giovanni Giacomuzzi. This maker also tried to produce the deep ruby or pigeon blood color for which gold is the only successful coloring agent and marketable shades have been produced but none that compare with the ruby glass of the old makers which

was

was colored with gold. This glass is known as Rubino (Cf. a sample cane of Rubino Glass that accompanies this report).

Most of the secrets of the trade lie in the color formulas which will naturally not be divulged and new colors and shades and combinations are constantly being formed so that Venetian beads run the entire chromatic scale.

The processes of bead making are often said to be three, to wit, making the glass, making the canes, making the beads out of the canes. But so simple a classification is not instructive.

A better division is obtained by following the processes of the industry itself as seen at Murano and I would divide them as follows: compounding the materials; fusing the materials into the fondant or molten glass; cupping the fondant to prepare the orifice that will run through every cane and every bead; pulling the fondant into long hollow tubes; cutting the tubes into canes of about one yard in length, sorting the canes according to diameter; clipping the assorted canes into bead lengths; fanning out the powdered glass; filling the orifices of the sharp edged beads with a composition of charcoal and lime; mixing the beads thus filled with a large quantity of sea sand; refusing in revolving crucibles to eliminate the sharp edges and round the beads; cooling; fanning out the sea sand; mechanical sorting of the beads for size; mechanical sorting for perfect perforation; (in some cases polishing or lucidation) stringing; (or in some cases mechanical threading on fine metal wires) sorting strung beads for color; packing for shipment.

This list of processes will cover the manufacture of all the smaller beads artificially produced in bulk and in fact

fact of all one color beads not hand made. ( Through these processes the beads are made which correspond to the samples sent through the Department ). Taking up these processes in their order it may be noted that all except the first are subject to inspection and have been in fact seen by Consul.

1). Compounding the materials. This is done according to formulas more or less secret out of the materials already enumerated and others such as Carbonate of Lime, Cream of Tartar and various minerals. At present the basement of the immense plant of the Società Veneziana etc. is used as a storage room where soda, potash, sand from Fontainebleau, Minio and other materials for composing the fondant are kept.

2). The glass is fused into the molten mass or fondant in immense crucibles, lined with fireproof tiling and clay, some of which hold 5 and 6 tons of molten glass. The fuel is Newpelson coal of which the normal annual consumption is 8,000. tons per year. (Cardiff and Pocahontas coal do not serve so well). The degree of heat obtained varies from 1000 to 1600 degrees Centigrade as the materials must be exposed to a heat of 1000 degrees before they fuse properly. The immense pots or crucibles are covered over, lined with fire clay, and have orifices or port holes through which can be seen the while glow of the melted glass which might be taken for boiling candy. ( These furnaces are built by Engineer Spregiani of Milan )

3). About the crucible are workmen with great tubes of iron like a section of gas pipe 12 or 15 feet in length called "Ferri da Canne" which they dip through the port holes  
into

into the molten fondant and take out a dough like mass which is then pounded on metal tables or anvils until it begins to change in color from white to red. Roughly rounded by this process, the dough like mass on the end of the rod is then opened by another workman with an instrument called a Borsetta that appears to be a giant pair of spring pincers and the fondant is scooped and pressed out as if it were a dumpling being prepared for an apple.

This scooping out creates the orifice or hole which ordinarily persists through all other processes until the beads are finished and complete. This cupped mass is again thrust into the oven and heated to white heat and almost the consistency of glue without being allowed to collapse or lose its cupped form. It is again taken out of the crucible and another workman having a similar iron rod but with a broad blunt end presses that end against the top of the fondant cup to which the heat causes it to adhere.

4). As soon as the second rod adheres the two men walk away from each other pulling out the melted glass between them just as candy is pulled or as a child pulls his chewing gum into a thread. Cross ties are laid at intervals over the floor and on these the rope of glass is supported. So ductile is the fondant that a mass the size of a loaf of bread can be stretched for a distance of about 300 yards. The floor of the factory is about the size of the Piazza of San Marco and an unbroken rope or thread of glass will form a loop or belt line like a mimic railway around the entire floor leaving the workmen and the crucibles in the center. Even  
when



= 8 =

when the fondant is pulled out to the thinness of a cambric needle it remains a pipe or tube the bowl of the cup growing ever smaller but always remaining hollow. This fact makes bead making in bulk possible.

5). As it cools this tube or pipe, (that often resembles an unbroken filament of vermicelli) changes from white to red and from red to the permanent color given it by its mineral coloring matter. The size of this tube will depend on three things:

- a) The fineness and character of the materials of which it is composed which will affect its ductility, especially the quality <sup>and quantity</sup> of soda used.
- b) The size of the cupped mass drawn out. A smaller mass makes a finer and thinner tube.
- c) The speed at which the two men walk away from each other in stringing out the molten mass. If they walk rapidly the tube will be smaller and thinner.

As large beads are made in precisely the same way as small ones the diameter of the beads will depend entirely on these three things, and especially on the last two, for out of the same fondant tubes of all sizes can be made. These tubes are, when cold, cut or broken into lengths of about one yard. These lengths are called "canne" (canes) and resemble straws or bamboo rods without joints and these "canne" are the material out of which the beads are made. In similar fashion rods that are not hollow canes can be made by merely omitting to make the cup in the fondant.

6). The canes are sorted into sheaves of the same size. This work is done by women and often by quite young girls, who work by the sense of touch, rapidly dividing canes that are apparently all of the same diameter into different

groups



groups between the fingers.

7). The sheaves are then taken to the clipping machines which resemble little guillotines. On a flat trough the canes, placed side by side, are automatically pulled ( but guided by hand ) under the little guillotine blade that, by the revolution of an electrically driven wheel, clips the canes into bits by biting off the ends. These bits are about the length of the diameter of the cane. These clipped cross sections have sharp edges. The powdered glass which is freely produced by the clipping is sifted and fanned out and the raw edged beads are ready for rounding and finishing.

8). The holes in the raw beads are filled with a composition of charcoal and ordinary lime after which the beads are intermixed in 4 or 5 times their weight and quantity of ordinary sand from the Adriatic Lido (beach) and the sand and stuffed beads are put into an egg shaped, covered crucible that revolves on an axis, tilted at about the same angle of inclination as the globe. This crucible revolves in the heart of a gas fed furnace at about 400 degrees of heat. The charcoal is consumed, the lime vanishes, after having served to "fix" the aperture, the edges of the beads become smooth and rounded, the sand grinds and polishes them and at the same time keeps them from coalescing with each other, and finally sand and beads together are dumped out into large shallow pans to cool.

9). When cold the sand is sifted and fanned away in a series of large, covered, wooden ventilators and the beads, clean and polished, pass through a funnel or hopper into a series of rocking cradles placed one above the other in a series of eight. The floors of these cradles are selves with

with gradated orifices or mesh bottoms and from these cradles the beads, neatly assorted as to size, pass through little hoppers into baskets set to receive them. Beads of the same color or fondant but of many different sizes are thus automatically assorted as to size. ( Assortment as to color is first made by hand while the beads are still in the cane.)

10). For the smaller varieties of beads still another sorting is necessary to determine if the holes have been perfectly preserved. For this purpose a cylinder of about 15 inches in diameter covered with thin wire filaments (like a wire brush) revolves over a tray of beads and the filaments catch the beads that have holes in them lifting them over <sup>on</sup> the principle of a water wheel scooping up water, and dropping them on the other side through a hopper into a box. The bead is now complete, tested as to color, tested as to size, tested as to perforation, associated with its fellows and equals and ready for stringing or for shipping unstrung. This completes the necessary processes for the making of one color beads ( as per Department's samples).

The necessity of a machine to sort the beads for perforation to detect and discard the imperfectly perforated beads was very great. In 1894 it was possible to make the ordinary small beads for about seventy centesimi per kilo. The threading was done by women, as at present, using a handful of needles ( 24 to 30 ) at a time and threading very rapidly. For the very small beads the string was about ten inches long and for the larger beads the string was about 18 inches long. A bundle consisted then of 480 strings and a good worker could string ten bundles per day at 12 centesimi per bundle.

bundle.

There was a constant controversy between the women and the companies because out of every hundred kilos the women used to bring back 20 kilos, or one fifth, claiming that they could not be strung and meaning that they could not be strung rapidly as the orifices were small or faulty and as the woman worked by the piece they interfered with her speed and diminished her pay.

Only about five per cent, of five kilos out of one hundred, were totally lacking in perforation and so the makers had a grievance as well as the women as such beads had to be remelted and remade and for such purpose had a value of only 5 centesimi per kilo and the makers were losing about 9 francs per hundred kilos on 15 kilos of beads that could have been strung but not rapidly.

Cavaliere Salvatore Arbib one of the manufacturers, conceived the idea of the sorting drum with the wire teeth and the machine, called a "tamburo", was made by Meyer and Sons of Birmingham, England. The teeth or threads of the sorting machines may be of various diameters so that the beads rejected by a coarse toothed machine may be picked up by a finer toothed tamburo. This machine was perfected in 1894. The first threading machine to thread the beads on fine wire was made by the same firm in the same year for the same man. The total cost of the experiments and the making of the two machines was about 5,000 pounds Sterling, (\$ 24,332.5)

To return to the processes:

11). Certain one color beads for America have the surfaces slightly ground by contact with emery paste or other grinding material or even sawdust. This process takes place outside

outside of the Murano factory and usually in Venice. It is called lucidation ("lucidazione")

12) Certain beads, ( sizes ranging from Class VIII. on attached sample card "D" to size "b" on attached sample card "F") are then strung by special machinery on thin wire filaments. The wires are suspended in glass tubes and the projecting curved end of the wire picks up beads from a revolving basin which forces them against the end of the wire. These wire strung beads are mostly exported to France for use in making the coarser grades of artificial flowers for funeral wreaths.

13) All small beads are ordinarily strung by hand. This is done in Venice by cottage labor of women and girls. It is not an unusual sight in the Castello section of Venice to see a group of women and girls sitting in the streets each with a pan of beads in her lap, threading and gossiping at the same time. The needles are about the length of knitting needles but much smaller in diameter with an eye for the thread at the lower end like an ordinary hand sewing needle. The worker takes a number of these needles and spreads them out like a fan or the tail of a peacock, holding them thus grouped in one hand and thrusting the ends into the pan of loose beads until they are covered for almost their full length when the beads are slipped down on the threads and the needles are again arranged to peck up more beads. A good worker can operate 24 needles at a time and some of the women boast that they can operate 48 needles at once.

14) The strands of beads are sometimes bunched by the women who threaded them and sometimes by girls at the Murano factory. Some classes of beads are bunched for weight and others

and others for number. Many of the small beads are sold by number. The beads on card "F" numbered with Arabic numerals will run about 20 to the inch. Such beads are sometimes referred to as "count beads" while those sold by weight are known to the English trade as "pound beads." The beads on ✓ card "D" Nos. 43 to 105 inclusive are usually sold as pound beads. No prices on beads are quoted in this report because prices have quadrupled and quintupled and are not now on a steady base. The bunched beads are sorted for size and color and in some cases according to country of destination and are stacked in shelf bins in the warehouse according to a chromatic scale. To look at the side of the warehouse is like looking at a rainbow where the shades insensibly melt into each other.

15) The bunches of loosely strung beads are usually packed for shipment in small packages ( one pound or one kilo) wrapped in manilla paper. The label shows catalog or list card classification of the merchandise and also bears the name of the purchaser printed when the purchaser is a regular client and buys in large quantities.

Sample card "F", attached to this report, shows a classification, both for size and for color, of the smallest sized beads on the market. The smallest sizes manufactured for commerce are shown on this card in the Roman numerals from I to VIII. The samples sent by the Department would be about Number V. and these samples correspond to the smallest sized beads ordinarily in mercantile demand. ( I have seen beads however hardly more than half the size of No. I) The same card "F" shows also a chromatic scale of colors, in normal times obtainable in any of the sizes from I to VIII., in one color beads in the numbers ranging from 341 to 602 inclusive, show-



ing 262 distinct shades. The number of possible shades is far greater if indeed it can be limited.

Even the smallest beads however may be made in more than one color and can in fact be made in a great variety of colors and patterns. The same sample card "F", Nos. 603 to 615, shows a dozen variegated patterns in small beads. Card "D" shows 63 variegated patterns any one of which might be made in the smallest sized beads.

The process is identically the same as for making the one color beads except that a distinct fondant must be made for each shade of color. Out of the base fondant is made the cup as described in N°. (3) above. The fondants of the other colors are superimposed on this to make the pattern, reheating the cup as often as necessary but never allowing it to lose its cup form. When all the colors are superimposed it is reheated almost to the point of liquefaction and then pulled into the tube as already described. The ductility of the medium causes the pattern ( as is the case with the orifice ) to be preserved even although the tube be pulled out to the diameter of a hyperdermic needle or to invisibility.

The different shades of fondant may be applied in complete coatings, like insulations on a wire, ( compare 791, 792, and 793 Sample Card "D" ) or in horizontal stripes applied to the base fondant much as a candy maker adds his stripes of peppermint and wintergreen in making stick candy.

Color Number 615 on card "F", the last sample on the card, has a base fondant of jet and a superimposed coat of crystal, although the beads are made in almost the smallest size. These variations are confined however to either complete superimposed coatings or to lines as no surface

figures



figures are possible because the pattern cup must be drawn into tubes. Rosetta Work of Franchini.

Cf. Card 6  
for sample  
rod.

It is of cognate interest, for use in hand-made beads, that, if the fondant is not cupped but is pulled out in a solid rod instead of into a tube or cane, ~~that~~ a vertical cross section of that rod ( not its surface) will reproduce any pattern desired. Indeed the pattern may be made with

Cf. Card 7  
for clipped  
sections of  
rods.

rods of cold glass so stacked that their ends form a mosaic. They are then fused to the point of ductility, but not of liquefaction, and even if drawn out to the thickness of a needle a cross section will show the complete pattern. Glass for mosaics ( used also for African and mosaic beads ) showing patterns of stars, flowers and geometric designs, is made in that way and each clipped segment of the rod shows on its face the pattern.

In the first half of the last century Jacopo Franchini, perhaps the most remarkable glass worker Murano has produced, by binding tiny straws of colored glass together into a rod 5 centimeters thick, formed at the end of the rod a miniature portrait design, or other design. This combination rod was then fused at a glass blow pipe and drawn out until a rod no larger than a knitting needle might be cut into cross sections each one of which would show a perfect portrait or perfect design. ( The Consul has in his private collection of Venetian glass articles specimens of this work including portraits of Cavour, of Victor Emanuel, of Franz Josef in 1848, of the inventor's sweetheart in a miniature smaller than a pin head, and a number of other designs including one of a gondola and one of the Rialto bridge. These specimens were preserved by Cavaliere Salvatore Arbib and are the same as those in

the Murano

Murano Museum.) In the museum there is a section of glass rod, less than one centimeter in diameter that shows three perfect portraits side by side or rather in clover leaf arrangement. All three of these can be covered by the head of an ordinary pin. Owing to his intense application to so painstaking a work Franchini died in a madhouse and nobody has since been found who can duplicate his work in glass although several attempts have been made.

By the courtesy of Cavaliere Arbib a small collection of Franchini's work is transmitted with this report to be preserved by the Government in such museum as it may designate. This collection includes small portraits in glass of Garibaldi, of King Victor Emanuel, of Count Cavour, and of the three together including the clover leaf triple portrait described above the smallest group of portraits in the world. The exhibit has also a portrait of Kaiser Franz Josef in the year he ascended the throne, of a lady said to be the sweetheart of Franchini, of the Rialto Bridge, of a gondola, of a cat, of a skull, and a number of flower and figure designs. The design originally ran the entire length of the glass rod and each disc clipped preserved it perfectly. Such discs can be used as mosaics in the making of hand made beads or combined with goldstone to make flat surface brooch designs, a sample of which is included in the collection above referred to.

Mosaic beads intended for African and other wild tribes are properly classed with hand made beads but as a small section of the "canna" is always or nearly always used as the base the description of their manufacture is included here. These beads are not round but sections of the canna from one half inch to two inches in length are clipped off the canna. These are then fused by glass

blow pipes at Bunsen burners and mosaic beads are pressed into the surface to give the desired pattern and fused to the point where they coalesce but without losing shape. These long beads with snake like mottlings and markings are then ground to a smooth surface, strung, bunched, and packed for shipments. Such beads are really individually hand made although they can be made to set patterns very quickly. Few of these beads go to America although they might easily become a fad there. Nothing but the canes for these beads are made at Murano and all the other work is done at the Venice plant of the society. (A card exhibit of these beads for Africa is attached to this report) ✓

Cf. Cards  
2, 3, & 5.

The foregoing covers all generic varieties of beads made at Murano. There are certain types of beads each individually hand made, ornamented and enamelled at the blow pipe showing surface patterns of roses and other flowers and designs that are made exclusively at Venice by expert workmen. These properly form the subject of a special report.

In the making of beads in bulk, the fondant is mixed, melted and molded by men and men do all the furnace work and the making of the canes. Men also sharpen the axes of the clipping machines, but the greater part of the detail work of bead making is done by women. Women operate the clipping machines, sort the beads, sort the canes, operate the machines that string the beads on wires, do the work of stringing on thread of and of bunching the beads, do most of the work of preparing the beads for shipment, work at the blow pipe in making and also grind the African beads, and do nearly all the work of manufacture of bead articles. They are paid by the piece and can increase their

wages

wages by expertness. At the Murano factory the Società normally employs about 1,000 families on bead making. A Woman's wages vary between one and six lire per day according to her skill and speed.

There accompanies this report single copies of cards "D" and "F" above referred to, several samples of unstrung small beads in envelopes, itemized samples of African beads and several samples of hand made Venetian beads. Samples of the last two varieties were purchased.

The best work on Venetian Glass Making including the Bead Making is by Angelo Santi Director of the Museum at Murano and of the journal La Voce di Murano, ( now no longer published, that contains some excellent historical articles on glass making.) Copies of Mr. Santi's book are no longer available except in libraries. It is entitled "Origine dell'Arte Vetraria in Venezia e Murano, Suo Rissorgimento e Progresso, Cenni Storici." ( Origin of the Glass-Making Art in Venice and Murano, Its Renaissance and Progress ). A very limited use of this book has been made in this report. All the processes of bead making are described from visits to the factory under the hospitable guidance of the management.

From the above named book much of the following information as to the historical origins of bead making is condensed.

"Margarete" or "conterie" were known to the Egyptians and there are in Murano and Venice several specimens of Egyptian mummy beads, some of them so small as to weigh only  $\frac{93}{100}$  of one grain, known to date from 1100 B.C. It is possible that the first Venetian makers came from Byzantium and mosaic makers are known to have been called to Venice when Byzantium fell.

The first Venetian beads seem to have been made by

= 10 =

artisans in rock crystal after which the glass makers of Murano imitated the beads from natural quartz by perfect counterparts in glass. These were for religious uses in prayers, were called "paternostri" and the glass makers who manufactured them had the special name of "Paternostrieri" and were afterwards known as "suppbalume" or glass blowers and "Margareteri" or bead makers.

Domenico Miotti and Chrystoforo Briani of Murano are credited with making the first blown beads of glass in the XIII. Century. These blown beads are said to have been taken by Marco Polo to placate the savages of America but perhaps the beads used by this famous Venetian traveller were only the "paternostri".

The beginning of the present Venetian bead industry seems to have been in the early part of the XV Century when German traders ordered the glass makers of Murano to make pipes or "canne" which were sent to Germany to be cut and afterward retransported to Venice for shipment to the Levant.

As the cutting of the canne into sections is the simplest of all operations connected with bead making the Consul is inclined to the opinion that all the work was done at Murano except for a brief period when a law prohibited the making of "paternostri" out of glass because it was wrong to imitate the natural crystal. This law was substituted by another in 1510 permitting the cutting of "paternostri" short and long out of the canne.

It is not known just when beads began to be rounded but the first were probably rounded one by one by being placed on a spit and exposed to the flame, just as we know that the early crucibles were very small and were gradually enlarged

SPIT



enlarged until they reached the present day dimensions of holding several tons.

A new variety of beads was made in 1860 by Lorenzo Graziati and afterward by Giuseppe Zecchin and others. This type is called "Macca" and is made by subjecting the tubes to enough pressure to give them facets so that they become quadrated or take a pentagon, hexagon or octagon form. This process is mostly used for jet beads. ( Compare Sample Card "D" Nos. 145, 146, and 147, last column ). A slight variation rules lines in the facets and this type is called "Chanell" ( Nos. 148, 149 and 150 same card ). Beads with the superimposed stripes of different colored fondants are often called "Rosetta" beads especially when the stripe is a fine one. ( Compare Card "D" Nos. 107, 109, 110, 111, 112, 113, 115, 116, 117, 118 , 121, 787, 788, 789, and 790 ). But the true Rosetta work in beads is shown in the Congo money bead.

There are many beautiful effects produced by clever compositions or superimposing of fondants, each of which is a special process that can not be entered into in detail in the limits of this report. Some of the famous combinations thus obtained are the "Chiaro di Luna" (Moonlight) "Iride" (Iris or opalescent) "Ceraspagna trasparente" (Transparent Spanish Wax an amber effect) and "Cristallo Argento" (Crystal - Silver). Tiffany in America is famous for producing these effects in glass.

The hand made beads, which are nearly all made from the canne, produce remarkable imitations of Amber, yellow and red, Lapis Lazuli, Coral in all shades, Verde Antique Agate, Onyx, and most of the semi precious stones.

The generic word for beads in Italian is "Conterie",

said by



said by Bussolin to be derived from the use of beads by savage tribes as counting money "moneta contante". Others hold the word to be derived from the Latin expression "Contigie muliebri" or women's adornments. The writer ventures the critical opinion that the word is derived from the fact that the "paternostri" the first beads were made to be counted in numbering prayers. Counting ones beads is a religious act and phrase that still persists and has doubtless given the Italian generic name "Conterie" things to be counted from the verb "contare" to count.

Perle or "Perle Veneziane" also covers most varieties of beads, an ancient name is "Margarete" and finally many varieties and classifications have distinct names some of which have been indicated.

This report has sought to indicate in detail all the processes necessary to the making of beads in bulk, and has included the processes for making beads for African tribes as well as an account of the work of Jacopo Franchini and a brief summary of the history of bead making at Murano.

A voluntary report is now in course of preparation, supplementary to this report describing the processes of bead making when the beads are made by hand, one at a time. This report will be referred to in that for an understanding of the preliminary processes and the two together will cover all the field of bead making in Venice and Murano.

Respectfully submitted,

*B. Harvey Carroll Jr.*  
American Consul.

AMERICAN CONSULAR SERVICE.  
CONSULATE AT VENICE, ITALY.

LIST OF ENCLOSURES FORWARDED IN REPORT ON  
BEAD MAKING IN MURANO AND VENICE.  
DATED AUGUST 30 1917.

From B. Harvey Carroll Jr. American Consul.  
Venice, Italy, August 30, 1917.

Report in triplicate on Bead Making in Murano and Venice.

Sample Card "D" of the "Società Veneziana per l'Industria delle Conterie" of which only a single copy could be obtained.

Sample Card "G" of the same Society, not referred to in the report but corresponding in many respects to Card "D" and showing some new varieties of machine made beads.

Sample Card "F" of the same Society, often referred to in the report, showing sizes and colors of small beads such as those referred to in the Department's inquiry. Two copies of this card are transmitted.

Small Envelope containing samples of beads corresponding to those sent by Department and described in report.

*To Mr. C. M. ...*  
Sample Card 1. Congo Money Bead, to be retained by the Department.

Sample Cards 2,3,4 and 5, Ornamental Beads for African Tribes.

Sample Card 6, Composite Solid Glass Rod used in ornamenting African Beads.

Sample Card 7, with attached small envelope showing sections of "Murino" work used in ornamenting African beads.

*To Mr. C. M. ...*  
Box containing a number of sample cards showing work of Jacopo Franchini, to be retained by Department.

*All samples sent to Dept. through C, except the  
one marked for Nat. C. Museum.*

October 15, 1917.

The Secretary of State presents his compliments to the Secretary of the Smithsonian Institution and transmits, in an accompanying pasteboard box, for the use of the National Museum, a small collection of Venetian glass articles, consisting of miniature portraits, pictures of flowers and other artistic designs by Jacopo Franchini, a former glass worker of Murano, near Venice, Italy. These articles have been presented by B. Harvey Carroll, Junior, American Consul at Venice. The Secretary of State also encloses an excerpt of so much of the Consul's report of August 30, 1917, on "Bead Making in Murano and Venice", as relates to the above named articles.

165.184/3

2 enclosures:

Excerpt of a report of August 30, 1917, from Venice Italy; pasteboard box containing articles mentioned, under separate cover.

165.184/3

O AW/EMM

the signed original  
incd.

WILBUR J. CARR