CHAPTER-2

Charcutierie

Introduction: Charcuterie (from either the French *chair cuite* = cooked meat, or the French *cuiseur de chair* = cook of meat) is the branch of cooking devoted to prepared meat products such as sausage primarily from pork. The practice goes back to ancient times and can involve the chemical preservation of meats; it is also a means of using up various meat scraps. Hams, for instance, whether smoked, air-cured, salted, or treated by chemical means, are examples of charcuterie.

The French word for a person who prepares *charcuterie* is *charcutier*, and that is generally translated into English as "pork butcher." This has led to the mistaken belief that charcuterie can only involve pork. The word refers to the products, particularly (but not limited to) pork specialties such as pâtés, roulades, galantines, crépinettes, etc., which are made and sold in a delicatessen-style shop, also called a charcuterie."

SAUSAGE

A simple definition of sausage would be *'the coarse or finely comminuted (*Comminuted means diced, ground, chopped, emulsified or otherwise reduced to minute particles by mechanical means) *meat product prepared from one or more kind of meat or meat by-products, containing various amounts of water, usually seasoned and frequently cured.'*

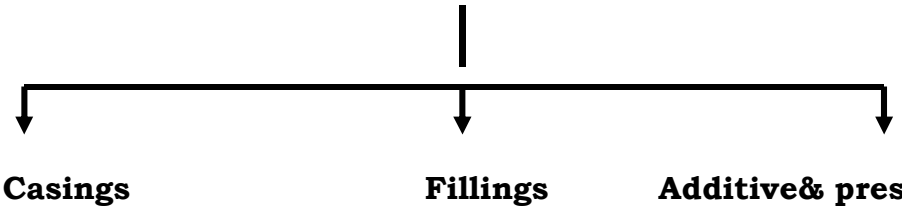
A **sausage** is a food usually made from ground meat, often pork, beef or veal, along with salt, spices and other flavouring and preserving agents filed into a casing traditionally made from intestine, but sometimes synthetic. Sausage making is a traditional food preservation technique. Sausages may be preserved by curing, drying (often in association with fermentation or culturing, which can contribute to preservation), smoking or freezing.

Types of Sausages:

There are five types/varieties of sausages that are available in the commercial market.

a) Fresh sausage: They are made from meats that have not been previously cured. They must be refrigerated and thoroughly cooked before eating (Brokwurst)
b) Cooked sausage: They are made with fresh meats, and then fully cooked. They are either eaten immediately after cooking or must be refrigerated (Mortadella)
c) Cooked-smoked sausage: They are cooked and then smoked or smoke-cooked. They are eaten hot or cold, but need to be refrigerated. (Bologna, Frankfurters, Berliners)
d) Fresh-smoked sausage: They are fresh sausages that are smoked. They should be refrigerated and cooked thoroughly before eating. (Kielbasa – the Polish sausage, Mettwurst)
e) Dry/semi dry sausage: They are cured sausages that are fermented and dried. They are generally eaten cold and will keep for a long time. (Salami)

Parts of sausage



- Natural -
  - ✓ From animal body parts →Lean meat →Water
  - ✓ Collagen →Pork fat →Curing Agent
  - ✓ Fibrous cellulose →Variety meat →Curing accelerator
  - ✓ Protein lined cellulose →Sensory enhancers

- Artificial - Plastic & Polymer →Extenders & binders casings

THE CASING

Their primary function is that of a holder for the meat mixture. They also have a major effect on the mouth feel (if edible) and appearance. The variety of casings available are:

a. **Natural Casings** - These are made from the intestines of animals such as hogs, pigs, wild boar, cattle and sheep. The intestines are flushed clean, especially from the inside and soaked in a solution of chlorine for disinfecting them. Sinews, blood vessels and fat clinging to the insides of the casing must be removed. Natural casings should not be over handled as they may puncture. They should be refrigerated at all times.

Caul fat, a membrane like lining of the stomach, is also used as a casing to make the flat sausages, *crepinette*. The membrane is networked like a spider web, with streaks of fat. Caul fat is ideal to wrap items of uneven sizes like the *loukanika* (patty like Greek sausage) and the crepinette.

Advantages:

- They are semi porous and permit deeper smoke penetration.
- Natural casings absorb flavors and release fats better
- Generally, they hold their shape better and do not burst during cooking.
- Natural casings are edible and need not be peeled before eating
- They have a natural color and have a better appearance.

Hogs casings are the most commonly used. Sheep casings are the highest quality available. Natural casings need to be protected from extreme variations in temperature. The ideal storage temperature is 40-45°F

b. Collagen Casings:

These are edible casings. They are made from the hye of cattle. Collagen is obtained from the *corium layer* that is situated just under the skin of the

animal. The fat, flesh and hair are removed from the hide and it is spit into two layers by special equipment. The hair side of the hide is used in the leather industry. The flesh side (corium) is used to make collagen casings. The material is first ground, and then swelled in an acidic medium. It is then sieved, filtered and finally extruded into casings.

Advantages:

- They can be manufactured in the sizes that you require. Their consistent diameter means that they are uniform and aid portion control.
- They are also stronger and are preferred while using machines in the commercial manufacture of sausages.
- They are ideal for smoking of sausages and require no special pre preparation and storage.
- They are clean.

c. Fibrous Cellulose Casings:

These are by - products of the food processing industry. Cellulose and fiber is extracted from the husk, skin, peels, pips and seeds of the fruit and vegetables during the processing stage. These are processed further to make casings. These types of casings are also referred to as *peelable cellulose*. The fiber adds to the strength of the casing and enables them to handle high temperatures.

d. Protein lined fibrous cellulose casings:

A protein lining is often added to the inside of the above type of casing. These casings are ideal for the dried sausages. The protein lining causes the casing to shrink as the meat is cooked or dried so that it retains the shape of the sausage. Used mainly for dry or semi-dry sausages. They need to be soaked in water before stuffing, as the protein tends to stiffen during storage. This makes it easier to peel off the casing when the finished product is sliced.

e. Plastic casings: They have recently become popular. They are cheaper, stronger and uniform in size. However, they need to be removed before the product is served.

THE FILLING

Meat Component: A variety of meats are used in the sausage making industry. Each type provides a particular flavor, texture and color in the product.

Lean meats make up the largest proportion of the meat component providing the dominant character of the product. The color, flavor, texture and appearance of the product are determined by these meats. Pork is by far the most common and popular meat used in sausage making. Beef is also becoming popular of late, because of its excellent binding properties as well as its deep red color. Veal, lamb and poultry are also being used in certain products.

Pork fat adds to the taste, flavor and the texture of the forcemeat. Jowl fat is obtained from the cheek of the animal. Normally, not more than 30% of the forcemeat is fat.

Variety meats are the offal of the carcass and can be added into the forcemeat in the production of sausage. Variety meats used include heart, kidney, tripe, liver and tongue. These meats have a low binding power.

TYPES OF FILLINGS / FORCEMEATS USED FOR SAUSAGES

There are primarily four types of fillings that are used in the production of sausages.

1. **Coarse minced forcemeat –** This forcemeat contains tender and lean meat as well as fat in the mixture. The ratio is normally *3 parts of meat to one part of fat*. The mixture is *coarsely ground* and the proportion gives optimum quality. *Only good grade of meat and fat* is used, as the mixture is easily identifiable. Salami is a good example of this type of a filling.

2. **Cutter pulverized forcemeat –** All types of sausage containing finely ground forcemeat including frankfurters and cocktail sausages come under this group. *5 parts of meat and 3 parts of fat are the normal ratio*. *Second grades*

of meat can be utilized, as they are not identifiable, being ground into a *fine mixture*. Meats from older carcasses can also be used.

3. **Combination forcemeats –** are a mixture of the above two types. *One part of coarse forcemeat and two parts of cutter pulverized forcemeat* are normally use. Pepperoni and chippolatas are examples of sausages that use this type of a forcemeat. Both good and inferior quality of meat can be used. This makes it more commercially viable as well.

4. **Chunky forcemeat –** In this type of a filling, the *meat and fat are left in chunks*. *Three parts of meat to 1 part of fat are used*. This type of a filling is used for the spicy South American sausages like the chorizo, which have predominant Portuguese and Spanish influence. The meat and the fat are dried before the are filled into the casing.

Once the forcemeat is prepared, it is ready for filling into the casing. It may be done manually or, a sausage filler may be used. A sausage filler is a machine something like a mincing machine, which has a nozzle with changeable diameters. The rolled up casing is fitted onto the nozzle and the machine is started. The casing then un - rolls as it fills up. A stapling machine cum stapler then separates the sausages into links and seals the ends. Heat treatment is used in the sealing process.

Besides meat, which is the traditional filling, nowadays a host of other ingredients are also used. Poultry seafood, vegetables, lentils and soybean are being introduced.

ADDITIVES AND PRESERVATIVES: Non meat ingredients are food item, which are added to the filling before stuffing. They enhance the flavor and the color, slow or prevent bacteria growth, act as a preservative and increase the volume and bulk of the mixture.

a. Water is usually added to the sausage mixture during the blending stage. It improved the mixing and helps to extract the proteins from the meat. It is used in all sausage mixtures. Chilled water or ice also helps to reduce temperature of the forcemeat to prevent proteins in meat from coagulating while grinding.

b. Curing Agents are necessary to inhibit the growth of bacteria (especially *clostridium botulinum* – an anaerobic bacteria which can cause death) and improve the shelf life. They also help to improve, fix and retain the color of the forcemeat. The two common curing agents are sodium nitrate and nitrite. Nitrite is used in cured, cooked or smoked products. Nitrate is used in dried sausages.

c. Curing Accelerators such as ascorbic acid, sodium erythorbate and citric acid are used in cured, cooked and fermented products. As their name suggests, they speed up the curing process.

d. Sensory Enhancers are a variety of items that are used to enhance the flavor, smell, color, feel and mouth feel. Salt is used in all sausage products for the enhancement of flavor and as an aid in the extraction of protein from the meats.

Sweeteners (both nutritive and non-nutritive) are often added to the forcemeat. Non nutritive sweeteners such as saccharin and sorbitol add sweetness and aid in peeling. Nutritive sweeteners such as cane or beet sugar, dextrose and corn syrup are also used.

Flavorings for sausage include spices, plant, vegetable and milk protein, yeast extract and even mustard flour. These add flavor, taste, increase the volume and act as binders.

Smoke contributes to the taste and flavor of the product. MSG and nucleotides and other flavor enhancers are often used in mass production of sausage but are not widely used or common.

Other sensory enhancers include bacterial cultures, enzymes, phosphates and acidulants. They serve a variety of purposes including flavoring, softening of the tissues, juice retention and are used only in the mass commercial production of sausages and not in the hotel kitchens.

e. Stability enhancers are used in sausage making to protect the flavor of the product, to slow down mold growth and to extend and bind the product.

f. Extenders and binders are usually either animal based, fermentation based and cereal grain based. Gelatin, stock and non – fat dry milk are the animal based ones used most often in the kitchen.

SOME FAMOUS SAUSAGES:

French (*Saucisse*):

- CREPINETTE: C**répinette** is a small, flattened sausage, sometimes referred to as a sausage parcel. It is similar in shape to a sausage patty, circular, and flattened. It is made from minced or ground pork, turkey, veal, lamb or chicken, and can even be made from truffles. Crépinettes are wrapped in caul fat, rather than wrapped in a casing. It is usually cooked with an outer coating of bread and sautéed in butter.

English Sausages (Bangers):

- CAMBRIDGE: An English sausage made from pork and flavored with herbs and spices, sage, nutmeg and cayenne pepper.

- HAGGIS is a Scottish sausage served on festive occasions. It is made from the offal of sheep and oats. It is stuffed into the inner lining of the stomach - the thymus and needs prolonged slow cooking.

German (Wurst):

- BIERSCHENKEN a German sausage containing ham or ham fat + peppercorns and pistachio

- BLACKPUDDING/BLOOD SAUSAGE: There are many versions of this sausage or pudding, made out of pigs blood. The British one has oatmeal. The German version is called *Blutwurst* and the French one is known as *Boudin Noir.* The Spanish call it *Morcilla*, the Irish *Drisheen* and the Italians, *Biroldo.* They are usually sliced and sold.

- BOCKWURST: A delicately flavored, highly perishable German white sausage consisting of fresh pork and veal, chopped chives parsley, egg and milk.

- FRANKFURTER: An ancestor of the hot dog, it is made of lean pork and is very finely ground. Vienna sausage is a small cocktail frankfurter

Italian:

- BOLOGNA: There are a number of versions of this popular Italian sausage. It usually has a mixture of smoked pork and beef. The English version is called *Polony*.

- MORTADELLA a bland Italian sausage from Bologna, made of pork and flavored with pepper, pistachio or coriander. Ready to eat, it is served sliced

- PEPPERONI an Italian sausage made of pork and beef, very spicy.

- SALAMI there is a vast range of salami sausage available. These include:
  Birnenformige, Edel, Land and Netz from Germany
  Alesandre, Calabrese, Cotto, Felinetti, Genoa, Napoli,Milano, Easter Nola,andToscana from Italy

Arles from France. All are made of uncooked meat, which may be pork, beef or a mixture of the two and variously flavored. Salami may be air dried or smoked or both. It is ready to eat, thinly sliced and eaten cold. However, chopped and sliced salami finds its way into many Italian dishes.

- ZAMPONE an Italian sausage from Modena, where the meat is stuffed into the skin of the leg of pig trotters.

Spain:

- CHORIZO Made from small pieces of chopped port, fat and peppers which give it its characteristic colour and flavour, garlic, ginger and other spices and herbs.

FORCEMEATS – TYPES PREPARATION USES

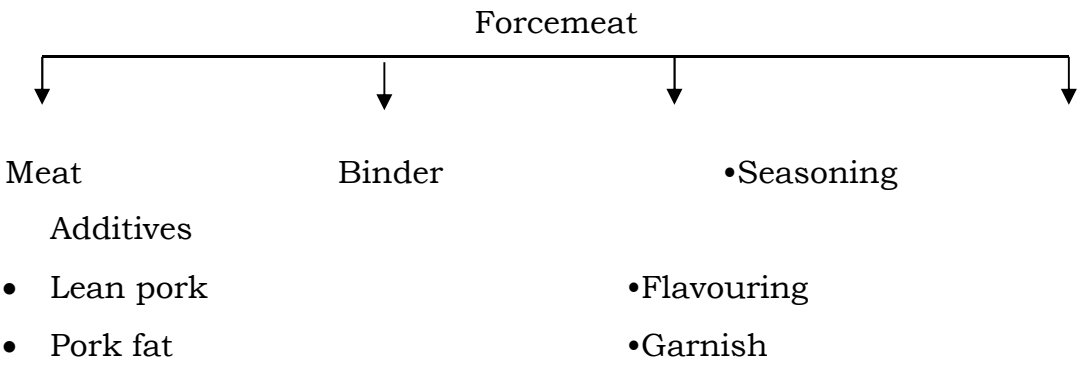
Forcemeat: (*Farce* = Stuffing) Forcemeat is a mixture of ground, lean meat, game, poultry, fish or vegetables emulsified with fat and seasoned.

The emulsification can be accomplished by either by grinding, sieving, or pureeing the ingredients. The emulsification may either be smooth or coarse, depending on the desired consistency of the final product.

Forcemeats are used in the production of numerous items found in charcuterie, such items include quenelles, sausages, pâtés, terrines, roulades, and galantines.

- Pate French for 'Paste'.
- Terrine from Latin 'Terra' meaning 'earth'.
- Galantine from French 'Galat' mening gorgeous or 'Galine' meaning chicken.
- Ballotine from Italian 'Balla' mening 'ball'
- Quenelle from French 'Knodel' meaning 'dumpling'
- Roulade form French 'rouler' meaning 'to roll'
- Mousse / Mousseline French meaning 'Froth'.

Composition of the Forcemeat:



a. The dominant meat or basic meat constitutes 40% of the meat component from which all fat, bones, skin, sinews and gristle must be removed.

b. Lean pork contributes to bulk and flavour and is app 30% of the component.

c. Pork fat gives richness and smoothness to the product and has binding qualities. It constitutes 30% of the meat.

d. Binding agents are needed to lighten the farce and give it a finer texture. These are typically used in making of poultry, fish and vegetable farce. Game, veal and pork have their own binding qualities from the proteins of the meat. Binding can be made up of egg yolks, fresh bread soaked in milk, cream, thickened béchamel (Panada), beurre manie or even cooked rice.

e. Seasoning is in the form of salt. Roughly 20gms salt/ kg of mixture is a guideline. Sometime MSG is also added.

f. Flavourings are in the form of herbs (thyme, dill etc) and spices (clove, mace, nutmeg, cinnamon etc).

g. Garnish can be a central garnish such as a lamb fillet in the lamb farce which provides a visual focal point when the farce is sliced or a garnish can be interspersed such as pistachio, crushed peppercorns, diced truffle, gherkins, olives etc

h. Additives are used to enhance colour, increase shelf life, contribute to taste and prevent / delay the fat from going rancid. These include nitrates and nitrites of sodium and potassium, BHT and BHA etc.

Types of Forcemeat:

- ✓ **Campagne / Country style forcemeat:** The farce has a dense, coarse, texture, a characteristic which resulted from the lack of sophisticated equipment in the early days and was chopped with two knives. Today this is usually a combination of coarsely ground farce and a smooth ground farce so that chunks of meat are visible in the mass of the mixture. It is highly seasoned commonly with onion, garlic, black pepper, juniper berries, bay leaf and nutmeg.

- ✓ **Straight / Basic forcemeats** are produced by progressively grinding equal parts pork and pork fat with a third, dominant meat, which can be pork or another meat such as veal, duck, rabbit etc. Poultry and fish are normally not used. It is more refined, having a finer, less dense texture. The flavourings used are shallots, wine, brandy and allspice.

- ✓ **Gratin forecemeat** is the name given to forcemeats that are prepared with pre-cooked meats i.e. light searing or browning (hence the name gratin) or complete cooking before grinding. The density of the forcemeat is slightly lighter than straight forcemeat because of loss of binding power due to cooking. To compensate extra eggs are added.

- ✓ **Mousseline style forcemeats** are prepared sing lean white or light meats and fish. Chicken, rabbit, shellfish, sole and trimmed lean pork fillet is ideal to use for this type of forcemeats. The most distinctive feature is the type of fat used i.e. cream combined with the processing of the components to an ultra fine consistency resulting in an extremely light and smooth product. Flavourings used are shallots, white wine and ground white pepper.

- ✓ **5/4/3 Emulsion forcemeat:** The name is derived from the ratio of components of forcemeats – 5 parts meat, 4 parts fat & 3 parts ice. It is used extensively in making sausages like frankfurters, bologna etc. This can be made from almost any kind of meat. However fish is not considered suitable. It is a commercial mixture and a perfectly smooth paste. Seasoning and flavourings vary from one manufacturer to other. Pork jowl fat is common fat used and processing of the components of the forcemeat with ice results in a very strong emulsion of meat and fat. A variety of binders can be used.

Steps in making basic forcemeat –

a. Gather mise-en-place (dominant meat, ratio, seasoning, garnish etc)

b. Marination (to impart flavour)
c. Grinding (Use cold / chilled equipments to grind, progressively from larger discs to finer ones, refrigeration after each grinding)
d. Pass through a sieve to remove any trace of sinew, gristle or skin.
e. Mixing (Adding flavours and binding)
f. Taste test (To check seasoning as cold intensifies flavours)
g. Cooking as desired.

The binders include eggs, non-fat dry milk powder, cream and panadas. A panada can be made from starchy ingredients which aid in the binding process; these include well-cooked potatoes which have been pureed, milk soaked bread, or thick béchamel.

Uses of forcemeat: Forcemeat is the major component in preparation of various charcutiere products such as pates, terrines, mousse, quennels, mousselines, galantines, steaks etc.

BRINES, CURES & MARINADES

Marinades: A marinade is a seasoned liquid with various aromatics in which meat, poultry, game and even vegetables are steeped. The function of a marinade is to add flavor and taste to the food, to act as a tenderizer and break down the connective tissue (done by the acids in the marinade) and to act as a preservative. Marinades are made up of the following components:

- Acid – The marinade liquid contains an acidic content with ingredients such as vinegar, lemon juice, wine or enzymatic pineapple juice or papaya paste/juice.
- Oil – It could be olive oil, salad oil, peanut oil or even plain veg
- etable oil. Flavoured oils such as garlic oil, herb oil or chilli oil can also be used. The oil in the marinade helps to prevent moisture loss.
- Aromatics – Ingredients such as herbs, spices or proprietary sauces.
- Seasoning – Primarily salt, sea salt, black salt, rock salt and grain salt.

The length or time for marination depends on several factors:

- The type of food ingredients – beef takes longer time to marinade than chicken. Also cuts are important….tenderloin needs little marination time as compared to rump.
- The temperature of marination – Best at room temperature but for certain dishes if overnight or longer marination is required it is to be done in refrigerator.
- The size of meat

Marination should be done in non corrosive containers such as glass or stainless steel and avoid plastic or aluminum.

Types of Marinade –

a) Cooked Marinade: A cooked marinade, because it is heated, allows the aromats to release their full flavor. A cooked marinade is best stored under refrigeration. Such a cooked marinade is used in German meat preparation sauerbaaten. E.g.

Carrots	100 gms	Rosemary	a pinch
Shallots	50 gms	Bayleaf	1-2
Peppercorns	10-12	Water	1 litre
Cloves	2-3	White wine	500 ml
Parsley stalk	4-5	Vinegar	50 ml
Thyme	a pinch	Oil	100 ml

Combine all ingredients except oil and simmer for an hour. Cool & add oil.

b) Uncooked Marinade: Uncooked marinades should be prepared for instant use. If necessary, these should also be refrigerated.

Cures: Curing is a process of surrounding meat, fish or poultry with salt. The salt contains curing agents and is called ***curing salts***. Curing is a method of preservation and the process dehydrates the meat and thereby preserves it. The salt is the most important part of the composition. It inhibits the growth of the bacteria, yeasts and molds. Salt also add flavor. Common salt (NaCl) makes up 94% of curing salts. The other 6% are the curing agents which include:

- Nitrates and Nitrites of Sodium and Potassium. These control the growth of botulinum
- Salt Petre which is a nitrite and reacts with the pigment in meat and gives it a pink color. Notice the color of Ham.
- Sugar will reduce the strong flavor of salt, lowers the PH variance, and it add flavor and taste
- BHT and BHA are two anti oxidants which retard the onset of rancidity of fat. If the food to be cured has a high fat content (bacon), these are required.
- Sodium Erythorbate is also a preservative
- MSG is a flavor enhancer.
- Spices and herbs which contribute to the taste and the flavor.

Types of cures:

a) ***Dry cures*** are those which are applied directly to the food. Dry curing is a prolonged process and the cure needs to penetrate into the food. The thickness and the weight of the food needs to be considered. When ready, the excess cure is rinsed off.

b) A Wet Cure is when the curing salts are added to a brine solution. The process is much shorter as due to osmosis, the penetration is much faster.

Brines: A wet cure is also called a 'brine', although brine literally means a salt solution. Brining is a process similar to marination in which meat is soaked in brine before cooking. Brining makes cooked meat moister by hydrating the cells of its muscle tissue before cooking, via the process of osmosis, and by allowing the cells to hold on to the water while they are cooked, via the process of denaturation. The brine surrounding the cells has a higher concentration of salt than the fluid within the cells, but the cell fluid has a higher concentration of other solutes. This leads salt ions to diffuse into the cell, whilst the solutes in the cells cannot diffuse through the cell membranes into the brine. The increased salinity of the cell fluid causes the cell to absorb water from the brine via osmosis. The salt introduced into the cell also denatures its proteins. The proteins coagulate, forming a matrix that traps water molecules and holds them during cooking. This prevents the meat from dehydrating. Brining is also a method of curing and preservation and can be achieved by any of the following methods:

- Steeping - In steeping, the food item is immersed in the brine solution for a period of time, turning over occasionally to ensure even brining.

- Injection - Injection involves a brine pump wherein the brine is injected directly into the muscle fiber thereby reducing the time it takes to achieve curing/salting.

- Spraying - Spray brining is when the brine solution is sprayed by injection at several points in the muscle at the same time. This method is even faster than the injection method.

The PH of the Brine : The alkalinity/acidity factor of meat that is to be salted is of extreme importance in obtaining a good result. The ph factor is highly influenced by the carbohydrate in the meat. If the ph (acid) is low, it is good for salted meats such as ham and bacon. They have less tendency to develop bacteria which cause the spoilage of meat. Meat with a relatively high ph (alkaline) is ideal for cooked salted meats such as sausages, cooked ham, pate and galantine. They retain the soft pink color that is ideal for presentation. Meat having a relatively high acidity will take on a darker color.

The Water: It is the main ingredient. Water has great importance in the composition of the brine. For optimum results, water should be very clear, free of pollution and low mineral content. Hard waster should be avoided and is not recommended in the making of brine solutions.

The Salt Petre (KNO_3): The old brine formula consisted of salted water aromated with herbs and spices. However, the presentation and the appearance was not appetizing and the meat rather difficult to slice and kept breaking into small pieces. In order to avoid these inconveniences, it was found that the addition of a small proportion of salt petre in the brine would solve these problems. The meat changed from an ugly grey - brown to a pleasant pink color. It also held well together so that it could be sliced properly.

The Aroma and Spicing of the Brine: Brine should never have a strong or bad odor. On the contrary, it should give a pleasant smell and an appetizing aroma to the meat.

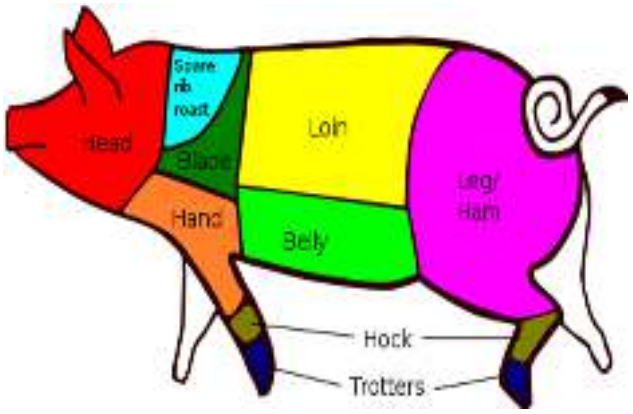
Storage of Brine: Brine should be stored in non corrosive containers such as steel, enamel, glass. Avoid aluminum and plastic. Fix a tap to the base of a brine container so that it can be drained easily. The strictest rules of hygiene must be applied to ensure that bacteria growth is minimised. Do not use bare hands and put pre washed meats into the brine. Brine can be used up to 4 times.

Method of Mixing the Brine:

- Heat the water to boiling point, but it is not necessary to keep it boiling.
- Add all ingredients except the spices and the herbs.
- Skim the top of the liquid.
- Stir frequently to cool down the brine and dissolve the ingredients.
- Strain through a tammy.
- Tie the aromats in a sachet and add to the brine the next day.
- Start to use 24 hours later
- Add old brine, if available to the new one.
- Check the density with the salinometer / brinometer
- Skim the white scum which forms on the top from time to time.

HAM, BACON & GAMMON

Ham, bacon and gammon, all are obtained from pig. Hence to differentiate between all three it is important to first understand the cuts of pork. There are different systems of naming for cuts in America, Britain and France. Ham and bacon are made from fresh pork by curing with salt (pickling) and/or smoking.



Legs/Hams - Although any cut of pork can be cured, technically speaking only the back leg is entitled to be called a ham. Legs, when used fresh, are usually cut bone-in for roasting, or leg steaks can be cut from the bone. Three common cuts of the leg include the rump (upper portion), center, and shank (lower portion). When the entire hind leg is salt cured and smoked, it is termed as ham. When pieces are portioned out and then salt cured and smoked, it is called **gammon.**

- Bayonne ham: It is air-dried salted ham prepared from pigs reared in Bayonne, a city in France
- Black Forest ham: A German ham, which is seasoned, dry cured and then smoked over sawdust and wood shavings form fir tree.
- Westphalia ham: German ham from pigs that are fed on corn. The meat is dry cured and smoked with branches of juniper berry tree.
- Parma ham or Prosciutto: A popular ham from Parma region in Italy and can be cured or cooked. Parma ham has a unique flavor because the pigs are fed with whey leftover after making Parmesan cheese.
- Serrano ham: Ham from Spain from special white pigs. These hams are slightly sweet in taste due to very less amount of salt used in curing process.
- San Daniele: Similar to Parma ham but with less salt.

Bacon is a cured meat prepared from a pig. It is first cured using large quantities of salt, either in a brine or in a dry packing; the result is **fresh bacon** (also **green bacon**). Fresh bacon may then be further dried for weeks or months (usually in cold air), boiled, or smoked. Fresh and dried bacon must be cooked before eating. Boiled bacon is ready to eat, as is some smoked bacon, but either may be cooked further before eating. Bacon may be eaten smoked, boiled, fried, baked, or grilled, or used as a minor ingredient to flavor dishes. Bacon is also used for barding and larding roasts, especially game birds.

Bacon is prepared from several different cuts of meat. Rashers (slices) differ depending on the primal cut from which they are prepared:

- **Side bacon**, or **streaky bacon**, comes from pork belly. It is very fatty with long layers of fat running parallel to the rind. This is the most common form of bacon in the United States. *Pancetta* is Italian streaky bacon, smoked or *aqua* (unsmoked), with a strong flavor. It is generally rolled up into cylinders after curing. In America unsmoked streaky bacon is often referred to as side pork.
- **Middle bacon**, from the side of the animal, is intermediate in cost, fat content, and flavor between streaky bacon and back bacon.
- **Back bacon** (called Irish bacon or Canadian bacon in the United States) comes from the loin in the middle of the back of the pig. It is a very lean, meaty cut of bacon, with less fat compared to other cuts. It has a ham-like texture. Most bacon consumed in the United Kingdom is back bacon.
- **Cottage bacon** is thinly sliced lean pork meat from a shoulder cut that is typically oval shaped and meaty. It is cured and then sliced into round pieces for baking or frying.
- **Jowl bacon** is cured and smoked cheeks of pork.
- **Collar bacon** is taken from the back of a pig near the head.
- **Hock**, from the hog ankle joint between the ham and the foot.
- **Picnic bacon** is from the picnic cut, which includes the shoulder beneath the blade. It is fairly lean, but tougher than most pork cuts.

GALANTINES

Galantine, by classical definition, is de-boned poultry, including rabbit, and sometimes game, which is stuffed with forcemeat. The term 'galantine' comes from the French word '*Galant*' which refers to the elegant nature of the presentation of the product and which means gorgeous or beautiful. Some books refer to the origin of the dish to the term 'geline or galine' which was the old French term for chicken which was the preferred meat that was used for galantine.

Chilled and glistening, the galantine contains flavourful forcemeat often with abstract or concentric patterned with fruits, nuts and even truffle at times. Cylindrical in shape, it has a natural casing of the skin of the poultry that was used. It is coated with aspic jelly to enhance its eye appeal. Galantines are always served cold either as an entrée or as a part of the cold meat platter on the buffet. Sometimes, they can also be served as an appetizer with a plate garnish of a salad.

Making of galantines – Classically, full sized birds (capons) weighing between 1.2 to 1.5 kgs are used for preparing chicken galantine. The preparation of galantine is divided into four stages:

- Pre-preparation: In the first stage it is necessary to de-bone the meat that is being used. This must be done with precision to maintain the quality and yield of the mat and also to retain appearance of the skin. The meat is then seasoned lightly and a sprinkling of gelatin acts as the binder.
- Assembly: To assemble the galantine, the forcemeat must be placed / spread over the meat carefully and then the garnish placed neatly. The garnish may be either a central garnish (hard boiled egg or an inlay of different strips of meat) or it may be a dispersed garnish consisting of bits and pieces of nuts, olives, capers, brunoise of vegetable. The placing and rolling must be done carefully and with precision. If not the result will be a poorly formed galantine and will have an uneven texture.
- Cooking: The rolling is done with the help of muslin cloth or aluminum foil and is then secured. The correct cooking method used for galantine is

poaching. The stock can be made from the bones of the carcass obtained when deboning. Boiling will lead to a coarser texture and drier meat. It is important to monitor the temperature of the stock and the galantine itself with the help of a meat thermometer. The cooking time will depend upon the type of meat used as well as on the quantity that is being poached. The temperature of the stock should not exceed 190°F. Once the internal temperature of the galantine has reached approximately 160-170°F the cooking can stop. Allow the galantine to cool in the stock itself, preferable overnight.

- Presentation: Traditionally, the galantine will be covered with aspic jelly. This can be used as a center piece on the buffet or on the cold meat platter. Alternately, it can be slices unadorned and served as an appetizer with cubes of aspic jelly and a salad. The aspic can be prepared out of the poaching liquid or made separately with stock.

BALLOTINE

The terms galantine and ballotine are often confused. Both are similarly prepared but they are cooked and served differently. The ballotine is also boneless meat stuffed and rolled in to a ballot or bundle. Like the galantine, they are also poached, but may also be baked or braised in their skins and served hot as entrees

The ballotine can be considered the smaller relative of the galantine. A ballotine is prepared from a boneless leg of poultry and is stuffed with forcemeat.

The ballotine is an excellent method for using the leg portions of poultry when the breast portions have been used for other purpose. The legs of the poultry are removed leaving the skin and the meat intact. Forcemeat is stuffed into the pocked that forms when the leg bone is removed.

Although the ballotine is baked or braised or even roasted, they are usually served cold after coating with aspic.

ROULADE

The only criteria for a food item to be called roulade is that it should be rolled.

The term roulade can be applied to contemporary products prepared in a manner similar to a galantine yet do not fully satisfy the definition of a classical galantine.

An example of a roulade can be a flank steak that has been pounded, spread with a sausage paste and then rolled like a swiss roll, secured and cooked. Or, it could be a large fillet of fish, flattened lightly and spread with a tuna / salmon paste and then rolled and secured. Roulades can be poached, baked braised or even roasted and can be served hot but usually are presented cold. The varieties of roulades are unlimited.

PATÉ

Pâté is a mixture of cooked ground meat and fat minced into a spreadable paste. Common additions include vegetables, herbs, spices, and either wine or brandy (often cognac or armagnac). Pâté can be served either hot or cold, but it is considered to develop its fullest flavor after a few days of chilling.

- ***Paté en croute*** (paste in crust): The term refers to forcemeat baked in a crust, usually in a rectangular mould, something like a loaf tin. In French it is called Simply defined, a paté is a paste of finely chopped or pounded or pureed seasoned meat, which generally is liver.

Among the wide variety of ingredients used in the making of a paté are liver, a variety of meats, truffle and seasoning. Goose and duck liver, bring a characteristic flavor to the paté. Chicken livers are the most common these days but sheep and calf liver are often used as well. Truffle will make the paté special. Patés can be prepared in advance, stored and then used as and when required.

Making of Paté:

1. For the crust, a dough must be prepared.

Paté dough:

Flour	1 kg
Butter	150 gm
Margarine	200 gm
Baking powder	15 gm
Water	250 ml (approx.)
Vinegar	25 ml
Eggs	3no.
Salt	2 tsp

- Sift the flour and the baking powder.
- Rub the shortening and the butter into the flour
- Combine and add the remaining ingredients into the flour.
- Mix until the dough is formed and knead till smooth.
- Shape the dough into a flat rectangle. Refrigerate overnight.

Note: paté dough can also be made out of yeast and brioche dough.

2. The *Farce* for Paté:

The meats used in a paté are first marinated and at times pre cooked. The livers must be handled carefully and the gall bladder, veins and blood clots if any must be removed. Ideally, the livers must be soaked in milk for 24 hours (refrigerated). They are then drained and seasoned. Sometimes, a small quantity of bread crumbs is added to the farce to lighten the mixture. Non fat dry milk (powder) could also be used. It adds a creamy texture to the mixture. A meat glaze or aspic could also be substituted as a binder and will contribute a rich gelatinous quality to the farce. For that extra fragrance, a small quantity of wine or brandy could be added at the last minute before combining and processing.

3. Assembling the paté:

- Lightly oil the mould.
- Roll the dough and line the mould leaving an overhang on the four sides.
- Carefully press the dough into the corners of the mould.
- Refrigerate the lined mould for at least an hour.
- Fill the mould with the prepared farce ½ inch short of the top edge.
- The forcemeat should be placed in the mould in several layers. Use a palette knife to press into place. This will reduce the risk of air pockets in the finished product. There may be a central or dispersed garnish.
- Fold the overhanging dough over the top of the mould and the seal.
- Carefully cut two small holes from the top and provide chimneys for the excess steam to escape during the cooking.

4. Cooking the Paté: The cooking takes place in two stages

- Browning stage: Cover the surface with foil and place the mould in a pre-heated 475°F oven for approximately 10 minutes. Remove from the oven and allow to rest for 15 minutes. The surface should show hints of brown.
- Cooking stage: Uncover the pate and lightly egg wash the top of the pate. Place in a pre heated 375°F oven until an internal temperature of 170°F has been reached. Temperature can be taken through the chimney. Make sure the thermometer reaches the center of the paté.

5. Finishing the Paté:

The paté is not complete when removed from the oven. It must now be filled with aspic. First, allow the paté to cool to room temperature. This will allow for the fat and the juices to be re absorbed into the meat. Through the chimneys, carefully pour in good quality aspic. The aspic will slowly be absorbed into the meat and will fill the sides (where the meat has shrunk), and any crevice and air pockets that might have formed. Allow the paté to chill overnight before removal and slicing.

- **Pate de Foie Gras**

Foie Gras, if literally translated, means 'fat liver'. The geese is placed in pens and given plenty to eat. The feed consists of beetroot, artichokes, carrots, corn, cooked potatoes, maize, oats and beans along with plenty of fresh water. This specially crafted diet contains a high quantity of vitamins and at times the bird needs to be force fed. After 2 to 3 weeks, the goose liver swells slowly and when the farmer/breeder thinks it is sufficiently ready, the bird is killed and the liver removed.

Once the goose livers have been selected, they are sent to the manufacturers of foie gras and in some special cases, directly to chefs who make their own foie gras. Generally, foie gras can be bought either fresh or tinned/canned.

In the processing of foie gras, the bile is first removed and the livers are then carefully sorted and graded. Some livers may be ideal for steaming and others for baking. Those which are suitable for light steaming, would quickly become dry if they are cooked in the oven. The color, texture and firmness are also important.

The network of nerves are removed from the livers which are then put to soak in water and are then drained and seasoned. The livers are stuffed with truffle and then steamed or baked in the oven. Livers of lesser quality or the wrong color (the right color is shell pink) are pulverised into a mousse and can be used as a meat spread for sandwiches. The livers can be packed in tins or in earthen jars.

The delicate nature of Foie Gras necessitates particular care in serving. It should be served cold and at the beginning of the meal with a crisp white wine. Reisling, Champagne, White Burgundy or even a Bordeaux of good vintage is ideal. Red wine should definitely be avoided as it will detract from the taste instead of sharpening it.

Foie gras can be garnished with aspic jelly and with nothing else. Foie gras is best presented on the plate in the shape of shells, scooped out of the jar/can/terrine with a teaspoon. It can also be served in slices. Certain types of foie gras are surrounded by a layer of white fat. The connoisseur will remove this, knowing that it has been used only to ensure its perfection and to preserve it.

Foie gras was made traditionally in the region of Alsace in the town of Strasbourg in Eastern France. In fact, the correct name should read Pate de 'Foie Gras de Strasbourg'. Legally, all foie gras from the region must contain a maximum 75% goose liver and a minimum 5% truffle, to be accorded the name. Like Champagne and other wines, an appellation or controlling body governs the production, manufacture, sales, pricing and marketing of the Foie Gras.

- **Commercial Pate**: In French or Belgian cuisine, pâté may be baked in a crust as pie or loaf, in which case it is called *pâté en croûte* or baked in a terrine (or other mold), in which case it is known as *pâté en terrine*.

In Netherlands, Finland, Germany, Hungary, Sweden, and Austria, some liver pâtés are shaped as a soft, often spreadable sausage, called leverworst (Dutch) or Leberwurst (German). In the United States these are sometimes called "liverwurst".

Others are spreadable as most French or Belgian pâté; these types are more popular in the UK. In Poland *pasztet* is made from poultry, fish, venison, ham, or pork with eggs, flour, bread crumbs, and a varied range of additions, such as pepper, tomato sauce, mushrooms, spices, vegetables, ginger, nutmeg, cheese, or sugar.

- **Pate Maison**: Pate prepared as per 'house recipe'.

TERRINE

Terrines are the close cousins of the paté. The terrine vessel is an oblong earthern ware mould. As mentioned earlier, this was the original vessel that was use and this is how terrine got its name. However, nowadays, enamel, cast iron, clay, porcelain and china vessels are common. Since the terrine takes its name from the vessel and not the mixture used, the variety is limitless. The forcemeat used in a terrine is usually uncooked and is slightly coarser compared to a paté. Various force Meats can be used and layered one over the other. Line the mold with strips of pork fat or bacon. Care should be taken that the variety of forcemeats used complement each other. The binding used in a forcemeat for a terrine is normally eggs or gelatin.

TRUFFLE

Truffle is known by several names such as Black Diamond and Children of the God. The truffle is a fungus fruit that matures underground. However, not all underground fungi are truffle. The real story of the growth of truffle is a strange one. The truffle is the fruit of a widely spreading system of colorless, microscopic branching threads that penetrate the soil for distances that are measurable in yards. These threads known as *hyphae*, touch the furtherest tips of the roots of trees and shrubs. The interaction of roots and hyphae forms a compound structure part plant and part fungus. However, this cannot further develop without vitamins and minerals. When the hyphae have absorbed enough material from the soil and plant, they proceed to develop fruit. The fruit which develops from a knot of hyphae is called a truffle.

Nowadays, specially trained dogs and hogs are used to detect truffle. Truffles vary in color from a smooth white surface to a dark brown or black.

They are usually round, although some may resemble ginger. The interior of the truffle has elaborate chambers. The flavor of the truffle can vary considerably. Some have a touch of garlic in its flavor.

In France, the region of Perigord less than 50 miles from the Bordeaux region is well known for its crop of truffle. In Italy, Piedmont in the Umbria region produces almost the entire crop of Italian white truffle. Geographically, truffle will occur near the wine growing regions. Surprisingly, a good year for wine means a bad year for truffle and vice verca.

The composition of truffle is 72% water, 8-10% protein, 4% fat, 13-15% carbohydrates and 2-5% mineral traces.

Contrary to popular belief, the white truffle, unlike its black cousin should never be cooked as it may loose its fragrance if subjected to heat. Fresh truffle should be firm to touch and not spongy. They impart a distinct aroma when fresh. Because of their exorbitant prices, their usage in the kitchen and the garde manger is fairly limited.

Truffles are used to produce truffle oil and truffle vodka which are used in cooking.

Varieties:

- "Black truffle" or "black Périgord truffle" (*Tuber melanosporum*)
- The "white truffle" or "*Alba madonna*" (*Tuber magnatum*) comes from the Langhe area of the Piedmont region in northern Italy
- The black summer or burgundy truffle (*Tuber aestivum/uncinatum*) is found across Europe and is prized for its culinary value.

MOUSSE & MOUSSELINE

Mousse

A mousse can be defined as a mixture of cooked ingredients, pureed and held together with gelatin, velouté sauce, mayonnaise or aspic jelly, then enriched with cream and sometimes flavoured with wine. The mousse is always served cold often attractively moulded.

A mousse is made with cooked meat, fish, poultry and with vegetables. The method of preparation is the same for all recipes whatever the ingredients used. The ingredients are first pureed then mixed with a binding agent like gelatin. The cream and seasoning are blended in mousse is often served on the cold buffet and at times for luncheon.

A dessert mousse is a form of dessert typically made from egg (classically no cream, only egg yolks, egg whites, sugar, and chocolate or other flavorings), usually in combination with other flavors such as chocolate or puréed fruit.

Basic Mousse:

Cooked meat	450gms(Chicken, fish, rabbit or vegetables)
Reduced aspic jelly	200ml
Thick béchamel / veloute	60gms
Double cream	150ml
Salt and pepper	to taste

- Dice the meat and process to a fine paste in the blender.
- Add the béchamel / veloute, aspic and the seasoning
- Fold in the whipped cream
- Spoon in to the moulds and chill
- The moulds could be coated with aspic jelly.

Mousseline

Mousseline is made out of a combination of uncooked meat that are pureed and bound with egg white and sometimes cream. They are set by cooking. Normally the forcemeat for a mousseline is made out of fish. The raw fish is

processed along with egg white to a fine paste. Seasoning and a little cream can be incorporated towards the end of the processing. The mixture may be flavoured with herbs like dill and parsley. It is then spooned out in moulds like a timbale and then covered and steamed until the mixture has set. Mousseline can be served hot or cold. Mousseline is a good way of using fish trimmings and can be used as an accompaniment of the main course or as a part of buffet presentation.

Mousse	Mousseline
Prepared from cooked meats and binding agents like béchamel / veloute or aspic.	Prepared from raw meats that are cooked after preparing the forcemeat bound with egg white and cream.
Usually bigger in size and individual portions need to be cut out of the mousse	Smaller individual portion size moulds.
Generally served chilled.	Can be served hot or cold
Chicken, fish, rabbit or vegetables are generally used as major ingredients.	White fish is considered most suitable.
They are denser and firmer in texture than mousselines.	They are light because of less dense because of incorporation of egg whites and cream.

CHAUDFROID

Meaning of Chaudfroid: Literally means 'hot-cold'. The name refers to the fact that the sauce is cooked and is applied hot abut then chilled and served cold. The high gelatin content of the sauce makes it possible to apply it to an item while still warm and flowing. As the sauce cools, it gels and adheres to the product.

Making of chaudfroid & Precautions:

a. The classical method – this calls for the use of béchamel or veloute. This is reduced with a stock, suitable for the product that needs to be coated. This reduction is then fortified with suitable aspic jelly and cream.
b. The contemporary method – A modern variation of the sauce is prepared with roux.

Application of chaudfroid –

a. Items to be coated should be well chilled, else the chaudfroid will run off before cooling.
b. The surface of the food to be coated should be smooth and trimmed of any rough edges.
c. Surface grease must be removed before coating.
d. The item to be coated should be dabbed dry.
e. Tempering the chaudfroid – This involves bringing the temperature of the sauce, either by heating or cooling, to a point that will allow the best and easiest coating. Gelling takes place at around 85°F. Normally, the closer the temperature of sauce is maintained without it getting too thick, the more evenly it will coat. In an ideal situation, 2 to 3 coats are sufficient for a smooth glistening finish.
f. There are two ways to apply chaudfroid sauce. It can be either ladled onto the product or the item to be coated can be dipped into it. The ladling is suitable for large joints or pieces of meat. Smaller items or uneven shaped items are more evenly coated by dipping.
g. Trimming - The item should be cut away from the pan with the help of a palette knife dipped in hot water being run around the base of the product.
h. The chaudfroid can be decorated tastefully with a variety of food items such as capers, caviar, chives, olives and a single coat of well tempered aspic jelly can protect the surface of chaudfroid from getting dull or dry looking on the buffet.

Chaudfroid can be cooled and stored. Reheat gelled chaudfroid over a hot water bath.

Collees – Collees are chaudfroid sauces using mayonnaise, sour cream, heavy cream or a combination of these as their base. Collees are often used with fish and other light items. Combine three parts of mayonnaise, sour cream or heavy cream with one part of storng aspic jelly. Use like chaudfroid.

Types of chaudfroid: Chaudfroid can be made in a variety of colours. Only natural ingredients must be used to obtain the colours using basic colours. For a brown colour, replace cream with reduced jus. A green chaudfroid can be made by using spinach puree. Red chaudfroid cam be made by using paprika and tomato puree. Saffron, bell peppers etc can be used to obtain a variety of colours.

Uses of chaud froid:

1. Protection of the item from the air while it sits on the buffet.
2. The sauce acts as a background or a canvas on which to decorate.
3. The chaudfroid is an adornment (decoration) itself.
4. The sauce can compliment the flavour of the coated item.

ASPIC & GELEE

A **Gelee** or jelly in English is a gelatinous meat or fish stock.

A gelee becomes an **aspic jelly** when it is clarified. The word **aspic** is used to refer to a combination of old meats, fish, vegetable of eggs which are set in an aspic jelly in a decorative mould. When thoroughly chilled, the arrangement is de-moulded onto a service platter and perhaps surrounded with aspic jelly croutons.

Aspic jelly must always be crystal clear and of light golden (amber) colour. Wine can be added when the aspic jelly is still liquid. This ensures the full aroma of flavour of wine is preserved. Wines used can be port, madeira, sherry, marsala and crisp white wines.

Making of Aspic and Gelee

The classical method of preparing an aspic jelly is to make a stock with the addition of more collagen rich products. In particular, these would include pork skin, calves feet, knuckle joints and shank bones. First stock is prepared and then it is reduced and clarified.

A quicker method is to add commercial gelatin to a ready consommé

There are commercial powders available that must be processed as per manufacturer's instructions. They however will not give true flavour of aspic jelly. They are quick and easy to prepare.

Uses of Aspic and Gelee: Setting aspic with meat, vegetables etc and cut into fancy shapes can add to the cold buffet presentation. It is also used to coat various galantines, terrines etc to improve the appearance and to keep it fresh for a longer period of time.

PARFAITS

This is a French term that means 'perfect'. In culinary usage, it refers to two distinct and different products. One is a frozen mousse like dessert served in a tall glass. The other is a savoury terrine, which by its delicacy is almost near to perfection. A savoury parfait makes use of vegetables, fish, shell fish or poultry. It is distinguished by its very fine texture and is made of a puree of the ingredients that is lightened by egg whites and cream, which is then moulded and poached.

QUENELLS

The word quenells usually refers to 'dumplings'. The farce may vary but a fish pureed with light spices, herbs and seasonings bound with egg or béchamel is used. Tow tablespoons dipped in hot water are used to shape the quenells. They are then poached in fish stock for few minutes to cook. The stock is then used to prepare sauce like fish veloute to accompany quenells. They can be

served as fish course on the menu. They are also used as garnish e.g. in 'veloute dame blanche soup'.

Recipe: Sole / cod quennels

Minced shallots	30 gms
Cod / Sole	450 gms
Unsalted butter	100 gms
Egg whites	4 nos
Cream	200ml
Thick béchamel	100 gms
Salt and pepper	to taste
Fish stock	400 ml
White wine	a dash

- Place the fish and the shallots in a food processor. Puree roughly.
- Add the béchamel and cream, along with eggs and process until the mixture is smooth.
- Add seasoning and butter.
- Dip two spoons in hot water and then shape the quennels.
- Poach in fish stock flavoured with wine.
- When cooked, drain on absorbent paper and serve with an appropriate sauce.

Although food holds the spotlight in all buffet presentations and the objective of buffet planning must be to achieve visual beauty both in the artistic presentation of each item of edible food and in the arrangement of the many dishes on the buffet table. Nothing heightens the beauty of the buffet more than an outstanding center piece (*piece monte*) made of ice, tallow or other such materials. The term non-edible is used to indicate that the center piece is not meant for consumption along with the rest of the food on the buffet.

The guest should be able to identify the theme of the buffet at a glance by observing the non-edible decorations. They are divided into:

Non-Edible Displays

Artistic displays

- Ice carvings
- Tallow displays
- Butter / margarine sculptures
- Salt carvings or *saltillage*
- Sugar craft or *pastillage*
- Chocolate mouldings
- Fruit and vegetable carving

Food displays

Bread displays

Cheese & wine display

Pasta display

Spice display

Aspic cut outs

Suckling pig, roast turkeyetc

1. Ice carvings

The ice sculpture is the focal point of any buffet. Ice can be carved in any shape, size or figure that fits the theme or occasion. The essentials for ice carving are:

- A block of ice on which carving is to be done –
  May be clear or opaque ice – (it is the purity of water and also the method of making ice, which usually entraps air molecules and turns the ice opaque) or even coloured ice if required.
- A graph template – A clear drawing that indicates the sculpting outline and texture. One can draw equidistant blocks on it as in a graph to simplify the task.

- A pair of ice tongs for handling moving ends of the ice.
- An ice shaver with three to six prongs used to curve out the details and do the small cutting on the ice.

- An ice pick, used to split the block into smaller pieces.
- A hand saw, used to remove large cuts of ice or to make rough outlines.

- Chisels ranging in size from ½ to 2 inches.
- An electric chain saw, when working with this type of saw it is important to have the saw grounded to prevent accidents.
- A good pair of gloves which have metal finger tips to prevent accidents.
- Salt

The best temperature for ice carving is 28°F or less. An ice block will melt at the rate of ½ inch to 1 inch per hour at room temperature. Protective clothing and gloves are must for ice carving. The chef must take regular breaks during work. Mark the ice to scale with the template using threads or coloured ice markers. Then following the template step wise to create the sculpture. Nowadays, 3D models can be used as template to get better overall effect. One should be very careful while working with ice. Once broken it is difficult to join. If a small piece of ice breaks off, dip each broken edge into salt and press pieces back together for a few minutes(the length of time will depend on the size and weight of the broken piece).

Display of ice carving on the buffet:

- The carved ice block should be placed in a specially constructed metal pan, then wooden blocks wider than the base should be placed and then the carving and it should rest securely on top of the block.
- Colored lights and specially designed display units provide a dramatic effect.
- Coloured ice or a combination of clear and opaque ice can be used.
- In an equatorial or temperate climate like ours, a special refrigerated wall cabinet is required for display.

2. Tallow work: To prepare tallow displays, following ratios can be used:

1/3 beeswax

1/3 paraffin

1/3 beef fat

Render beef (lamb or pork) fat and strain through multiple layers of cheese cloth. Set aside. Melt beeswax and paraffin over medium heat. Combine all the ingredients and stir well. Allow to cool to room temperature. The quantity of fat can be increased if a more pliable and workable mixture is needed especially if the working area is cool i.e. below 65°F. This is then used to make a display as desired. This can be manipulated in various shapes like clay.

The person making the tallow display should have a photograph or model of the piece to be made that should correspond to the theme of the buffet. A wooden base is used. Then a rough structure is made out of metal, aluminium foil or styrofoam. It is then covered with tallow and given final shape. The display prepared should be covered in transparent wrap when not in use as it accumulates the dust.

3. Butter and Margarine Carvings: Many a times margarine is used instead of butter because of higher melting point and being easy to handle than butter. Similar to tallow, an outline is made out of stiff material such as a wire piece, aluminium foil, strips of wood etc. This armature is then covered with butter / margarine and given final shape. Ideally the work should be carried out in cool environment. These sculptures have the advantage over ice carving as they can be reused. However they should be protected from dirt.

4. Saltillage–To create sculptures first a good solid metal armature is needed to support the weight of the sculpture. Cover the armature with aluminium foil to create desired shape. Cover the base so formed with a thin layer of salt dough. Dry. Repeat and dry again.

Finish details on the third layer of the dough. Dry and paint with brown cornstarch or dust with herbs and spices.

Basic salt dough for sculptures can be prepared as following:

3/4 cup cold water

2 cup flour

1 cups salt

This can be kneaded to make a soft pliable dough. Use colours if required and mould. This may be air dried or even dried in a warm oven.

5. Sugar craft or Pastillage

Sugar sculpture is the art of producing artistic centerpieces entirely composed of sugar and sugar derivatives. Sugar showpieces can be composed of several different types of sugar elements. All begin with cooking sugar, and possibly an acidic agent and/or non-sucrose sugar product to avoid unwanted crystallization, to the hard crack stage, around 300 °F (149 °C). When all components are completed, they are welded together using a gas torch. The sugar is melted, and then joined together.

Isomalt is widely used for the production of sugar-free candy, especially hard-boiled candy, because it resists crystallisation much better than the standard combinations of sucrose and corn syrup. It is used in sugar sculpture for the same reason.

Elements of sugar craft -

a) Pulled sugar**:** The sugar has been cooked, the now-liquid sugar is poured onto a silicone rubber mat (e.g., Silpat). Any coloring is now added. The sugar is then folded repeatedly into itself, until the sugar is, while still flexible, cool enough to handle. The sugar is then stretched out and then folded on itself repeatedly. This process incorporates air into the sugar, and gives it a bright lustery sheen. The sugar can then be sculpted by hand into various shapes, made into ribbons, or blown.

b) Blown sugar**:** In blown sugar, a portion of pulled sugar is placed on a rubber pump which is tipped with either wood or metal. Pumps are most commonly hand pumps. While being blown, the sugar can be shaped, often into animals or flowers. Blown sugar cannot be quickly cooled by dipping it in water, so chefs must use fans to cool the sugar, all the while rotating it, so that it does not come out of shape. This technique is very useful in making balloons for wedding cakes.

c) Cast sugar**:** In this technique, sugar is poured into molds. This technique produces more sturdy pieces than pulled and blown sugar, and is almost always used for the base and structural elements of showpieces.

d) **Pastillage -** Pastillage is a strengthened paste which is recommended for creating structures such as buildings, models, ornaments, boxes and cards etc. as it is very strong and hard when dry. Pastillage is a packaged sugar compound similar to gum paste. However, pastillage can be created using confectioner's sugar, water and gelatin. This compound dries out quickly, so sugar artists must move fast when sculpting with pastillage. When the pastillage has dried, it becomes brittle, however, if further sculpting needs to be done with this compound, sugar artists can use sanders and grinders to shape it.

6. Chocolate mouldings

- Tempering: A chocolatier must know how to temper chocolate properly for different applications or temper for chocolate for desired characteristics. Chocolate contains cocoa butter which crystallizes during the heat treatment of melting and tempering chocolate. The crystal formation in chocolate can affect many different attributes to the chocolate - mouthfeel, snap of the chocolate, the color, dull or shiny.
- Molding: Molding is a design technique used in making chocolate pieces that are of a certain shape by taking liquid chocolate and pouring it into

a mold and letting it harden. One can even use a simple straw as a mould to prepare a chocolate straw.

- **Sculpting:** Sculpting is a type of three-dimensional artwork, and in the case of a chocolatier, involves using only chocolate to create the piece of artwork. Sculpting may involve using molds and pieces of chocolate, and decorating the piece with designs in chocolate. Modeling chocolate is a chocolate paste made by melting chocolate and combining it with corn syrup and/or a simple syrup. This also involves techniques like colouring the chocolate using spray gun and edible colours. Decorate the sculpture with chocolate shavings, chocolate curls and using pattern transfer sheets on chocolates.

7. Fruit and Vegetable carving –

The origin of this art is believed to be in oriental belt. Vegetable carving is the art of carving vegetables to form beautiful objects, such as flowers or birds. This involves a practiced hand and a set of sharp carving tools – knives and cutters to prepare shapes.

The natural composition of fruit or vegetable may be used to its best to give colour and texture to the carving. E.g. A melon has a dark green skin, then a lighter coloured thick skin below it and then the red pulp. The three natural layers of fruit may be used to add texture and colour to the carving. Alternately, a lot of small flowers made up of onions, leeks, carrots, cucumbers etc may be made, inserted in a satay stick and put in a flower vase made of carrot or radish. The possibilities are endless.