

THE ORIGIN AND DEVELOPMENT OF SHOUGUANG SEA SALT

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Abstract: shouguang lies in the middle of shandong peninsula, in ancient times, it belongs to the area of sushashi tribe which is active in here. the ancestor of shouguang people and the tribe of sushashi together auspicate the "making salt boiling the sea water", shouguang city is the area which are made the salt by using the labour, it is one of the cradleland for chinese salt career, the history of making the salt is about before 4100 years. the halid resource is rich under the ground of the shouguang city, with the merit of storing is low, concentration is high and it is easy to exploitation, the shouguang city is the keystone area in manufacturing the chinese sea salt, in the initial stages of wester zhou, opening out the salt is beneficial to the people, until the times of spring & autumn and warring state, the premier of Qi state, Guanzhong firstly inaugurate the saling salt and iron, that made the Qi state stronger, the Qi state became the captain in all the states, the manufacture of salt got the development quickly, in the shennongshi times, the "making salt boiling the sea water" appear in shouguang city, henceforth, the cooking salt, boiling salt began to exist, insulating the salt appeared in the Qing dynasty, developing in qianlong times, it is popular in guangxu times. after coming into existence the new china, the making salt craft was becoming fullblown with the extending of new, deep, long craft.

Key word: sea salt, production, origin, development

The salt include sea salt, well salt, mineral salt and so on, the sea salt is the earliest production, according to the recordation of "chinese salt files" the chinese salt production is the earliest in the world, the shandong province is the earliest in producing the salt of ancients.

It is said, in B.C 26 century, the captain of the tribe sushashi auspicated the "making salt boiling the sea", the specific method is that putting the sea water into pot, then burning the light to add the heat, until the sea water concentrating into dry brick and getting the salt. comparing with this day, the method is simple and easy to do it, but it would spend more time and no efficiency, but at that time, it is the advanced method, it is the key inventor for the mankind to agriculture culture. depending on the "making salt boiling the sea", sushashi is looked upon the ancestor of making salt, so he is respected by the

people. according to the files of history sushashi is the first inventor for boiling the salt from the sea water, from that time, the brilliant history of making salt began to appear in the world.

The shouguang city is near to bo sea, it is lies in the south of laizhou bay, it is the range of sushashi tribe acting, from this, the ancestor of shouguang had grasped the technology of "making salt boiling sea", but it scarce to be recorded in the history files, the earliest record of making salt history could be improved in the files "shangshu yugong", it is said that the sea shore is full of the field, more pools were being boiled the salt. in the earlier xia dynasty of B.C 21 century, the salt which is produced in shouguang had been acting as the best gift for the highest governor, it been improved that the grasping the technology of making the salt should be before B.C 21 century, from the files "shangshu yugong", we can get the

history of making the salt should be before more than 4100 years. in the earlier B.C 11 century, the jiangshang, the premier of xizhou governed the Qi state, baseing on the theory "the people is less when the rice is less", the production of the salt began to be beneficial to the state. the salt factories area of shangzhou period were discovered in norther shouguang, the discover can be fully proved the salt production is fullbrown. until the period of chunqiu, guangzhong is as the premier of the Qi state, the premier began to make a rule that is the salt is saled by the special government. he make a policy, that is the salt is produced by the people and collected, shipped and saled by the government, his method is the first at that time, the mothod made the troops and state stronger, at last, his policy helped the Qi empire build the strongest state in chinese history, hence, the salt became the main aspect for the income of state. the salt line is been noticeable by the government, because of these, the production of salting line had been flourish. from the record of "salt line files of shandong provice", the capacity of Qi sate in producing the salt is up to 1253tons, most of them were produced by the north sea of Qingzhou, the location is in the shouguang city. until the han dynasty, the production of sea salt mostly are changed from boiling into decoction, the main difference for the boiling salt and decoction is the decoction must to be making the haloid at first, the using the tray to concentrate it, but the boiling salt is directly heated by the light. the method of shower haloid is that the beach is firstly been made, then making the sea water is full of the beach, when calming, the briny liquid is left, when the weather is fine, distributing some ashes, it can obsord some left briny liquid. besides these, in the higher places of the beach, building a height more than one unite of length, it is called hard after pressuring, building small walls about the hard, digging a scoop under the wall, then digging a deep hole under the scoop. after the noon, gathering the ashes together which spread the beach, putting it into the hard, washing it using the sea water, the water drifting into the hole is the haloid. the haloid which is been getting in this method, we can check its thickness or thin using this method, the ordinary checking method is putting the small stone into the haloid, if the samll stone go down, that is proved the haloid

is thin, if the samll stone is drift along the haloid water, that is proved the concentration isn't complete, only the small stone is on the haloid water, it means the haloid is been finished, then it can been putting into the tray to be boiled, otherwise, it will spend more faggot.

The pot which is used for boilding the salt, it is called hard pot in han dynasty, the pot is round in style, it is divided into iron made and copper made. the pot made iron is three feet in diameter, it is one feet and two inches in the deep, its weight can up to 1000kg. the pot made copper in about 1.4 meter in diameter, and about 0.14 meter in deep, its weight can up to 101.5kg. putting the pot on the hearth, the pot is besieged by the around reed, then reinforcing the pot with hard earth, under the pot, the cooking range are lined, if the pot is iron made, the holes of the cooking range is more than the pot made copper, at the same time, all the cooking holes are lit to boil the sea salt, the light is called one set, using the set light, salt can be produced about 6 pots in quantity, the salt weight of every pot is about 100 weight, on the next morning, boardcasting the the ashes on the beach, because the remainder haloid don't completely disappear, it is more valid to absorb the haloid, then putting it into hard pot to ge the haloid, using this method, it is better haloid to be gotten. so the ashes is the better if the timer is longer, you must grasp the the time when spreading the ashed to get the haloid, if the weather is dry, the haloid water perhaps is sorbed into the ground, the ashes isn't more to be sticked, if the weather is rainy, the haloid water is filtered, the absorbed haloid in low in concentration, so the time is suited for absorbing the haloid. the made salt in this method is like fannings, it is called the tiny salt, it is suited for our cooking.

After the Ming dynasty, the method of producing salt is been changed the caldron extractive. the caldron is made from iron, its style is round, the sizes are different, Generally speaking, the ordinary caldron is 1.2meter in diameter and 0.37meter in the deep. the method of distilling the salt is chosing a flat ground to make in into a field, outside the field, digging a canal to fetch in the sea water. spreading the ashes in the field, dipping the chanal water to douse, in spring, the time of dousing is about one or two days, then the briny liquid imputting the ashes, in autumen, it only spend three or four days, when the ashes

is becoming black and saturated, it is called the black ashes. gathering the black ashes into piles, flooding with water, after storing up then becoming the haloid, the haloid is stocked in the haloid well. the method of checking the concentration of haloid, that is the bean which is heated is used during the course, when the bean is dropping down, it means there isn't haloid, when the bean is in the middle of the water, it means the haloid is about half in it, if the bean is on the float, it means the haloid is about 80% in it. you can use the egg to check the haloid concentration, the egg will be dropping down when the haloid is thin, the haloid is completed, the egg will be floating on the liquid surface. when the haloid water is fixed with rain water, then the haloid water is briny upward, and the haloid water is thin downward, only the egg floats on the haloid water surface, that means the rain water disappears. when the weather snows in winter, the briny liquid takes a fade, the liquid boiled doesn't become the salt any more. The people which use the caldron to begin to boil down the salt, in winter, the salt can be boiled down, the finished haloid of one caldron will spend one day and night, the capacity of every caldron is about 2 bales, in this method, we can get the salt of 320 weight. some people is low in efficiency, it will spend them two days on producing one caldron's salt, getting the salt about more than 100 weight.

Shining upon the salt starts from the Qing dynasty, developing in the Qianlong times, it prevails in Guangxu times, the method of sun-baked salt is choosing a briny well which is full of briny water, after working it, then becoming the well. the well is around, there is a wooden pole, tamping the reel, in order to prevent it from weeping, the perimeter of the mouth of the well is over 10 meters, its depth is about 6 meters, the acreage of the base of the well is half than the acreage of the mouth of the well. beside the well, working the circle and pool by refitting the ground. the circle is rectangle, the pool is a square. the water in the well is imputed into the circle to make an insolation, then putting them into the pool to make a rime then becoming the salt. the manufacture of the circle and pool have passed the several working procedure: it is called the flooding soaked into the water, it is called the "zhong", then mill it in roller, it is called the pressure, then high pressure compression, it is called the "pai". after

irritating, zhong, pressure and pai, it can up to the level up, solid condition, the pool is finished. subsequently, tying the basket with a cord, bailing out the water into the circle, after being torrid, then becoming into haloid, irrigating the haloid into the pool, after insolation in the sun, then becoming the white salt grain, after collecting it, forming a hill outside, then covering them in order not to be damp. so the produce of shining upon the salt have been finished. the salt produced with this method is middle level in quality, it is suited for the edible salt.

Upon the Qianlong times, developing this method to shine upon the salt. digging a well on the salt ground near the sea, the perimeter of mouth of the well is about twelve dekameters, its depth is about 4 feet, around the base of well is underlay of straw, it can prevent the water from leaking. excavating five circles beside the well and four pools outside the circle, the acreage of every pool is one unite of area, the depth of the pool is one feet, putting the well water into the first circle, after one day in the sun, shifting the second circle, then the third, the fourth and the fifth. diving into a small stone to check the level of the haloid, if the haloid is up to the level, dipping the haloid water into the pool, if the weather is funny for five or six days. the salt will be finished, if the weather is a little sunless, it will take more days to complete the salt course. the most harvest of every pool is 2000 half a kilogramme, the least capacity is 1000 half a kilogramme. on the 20th, march of every year is the initial day to shine upon the salt, until the 20th in June, the course will be finished. in the spring, so course perhaps will be worked about eight or nine times, or ten times. the method of shinning upon the salt divided into shinning upon the salt on the ford or on the well shore, the completed salt from tide is called the ford salt, the completed salt from well water is called the well shore. the ford is larger than the well shore. some well shores can be divided into eight circles and twenty pools, some can be divided into eight circles and sixteen pools. before shinning upon the salt, working the circle and making the pools, then digging the pool to get the haloid water, more haloid to be shinned upon into the salt. every year, the time of producing the salt is from on the 2th feb to 20th in June. the other time is the time of managing the salt circles and shores, during this course, control the circle and pool, then let the

worker to add the salt water.

The method of shining upon the salt is divided into ford and well shore in people state. shinning upon the salt in ford is near the sea, woking ford nesr the sea, digging the ditch near the sea, the depth of the ditch is about 3 or 4 meters, its width is more than 10 meters, drawing into the sea salt to the pool when rising tide. then inducting the sea water into the ford, or inducting the sea water into the shore in waterweel, in the circle, they are shined upon into the thick haloid, in the pool they are crystallized into the salt. this method are taken when producing the salt in the north of the shouguang city.

Shining upon the salt on the well shore is to choose the flat to build the circle and make the pool, on top of the flat, digging up the well to take out the haloid water. before the spring sunny, working the circle and pool, in order to make it become stronger. if the pool is aleak, then adding to the new mantlerock, if the well water can't be sun-baked, then letting some salary earner to dig up it. even some old bestrow need to be retrodden. then, letting two people irrigate salt well water into the pool, after three or four days, shinning upon the salt water into the haloid, putting into the pool where the salt is produced. shining upon the haloid water into the salt. after five days, the salt grain looks as big as the bean. the colour is white. if the haloid water isn't clear, it need to be cleared. in order not to produce the black and thin salt. the time of shining upon the salt is divided into three times during whole year, from on the 2th, feb to the 20th, June is the spring term of insolation ; in august or septemper is the autumn term of insolation; after on the 1st, october, engaging the worker to work the shore and add the salt water.

After coming into existence the new china, we face the spring of producing the salt, from 1951 to 1969, our country put the emphasis on the development of sea water, coming into being four main area which produce the salt, that is changlu, liaoning, shandong and jiangsu. the base course of arts and crafts is sea water-deriving salt water-making haloid-crystallization-gathering the salt-making the lump of crute salt. after new china, the technology of producing of sea salt got the great development based on the before experience, instantly introducing new result, new technology, new materials into our course of producing the salt, lightening the

labour intensity of the worker greatly, improving the production efficiency, like popularizing the mechanisation and applying them to the practice, generalizing the use of the technology of plastic membrane , plastic membrane are on the base and so on. in recent years, the before method of using the reel to prevent water from leaking have been insteaded of the use of plastic membrane. the key technology is to add one thick plastic cannulation on the top of the salt dump which are covered with plastic membrane, like a chimney, forming the current of the air, it effectively solved the questions of evaporation of vapour between the salt dump and plastic membrane. for so many new arts and crafts and new technology, we can't say correctly who is the inventor, it is from the long-time exploration and accumulation of labour worker and salt industry worker, it is the fructification of sweat and wisdom of the labour people.