

absinthe, violet ink and curacao), and the color of the image on the screen will be in turn red, yellow and blue. In conclusion let us mention the experiment that the author designates the revolution of the earth (Fig. 5).

After eating an egg à la coque, carefully preserve, without breaking it, the small piece of shell that has been removed from the egg in order to open it. Moisten the rim of a plate with a little water, place the piece of shell thereon, and, by an imperceptible motion of the wrist, tilt the plate in giving it a proper oscillatory motion. The shell will be seen to revolve rapidly while moving around the plate, thus exactly recalling the double motion of the earth.—*Le Genie Civil*.

SINKING OF THE UTOPIA AT GIBRALTAR.

THE sinking of the steamship Utopia in the Bay of Gibraltar, by collision with H. M. S. Anson, causing the loss of over 560 lives, is one of the most terrible disasters. It occurred on Tuesday, March 17, at 7 o'clock in the evening. The Utopia, belonging to the Anchor line, was an iron screw steamer of 2,731 gross tons, built at Port Glasgow in 1874, and was owned by Messrs. Henderson Brothers, of Glasgow. She was engaged for this voyage to convey Italian emigrants from Trieste, Naples, and other Italian ports to New York. When she left Naples there were 813 emigrants on board, of whom 661 were men, 85 women, and 67 children. Of the whole number 783 came from the southern provinces of Italy, while 21 were citizens of Trieste. The crew and officers numbered 50. Captain M'Keague was in command.

The vessel was seen before dark in the evening steaming toward the anchorage. When abreast of the ironclad Anson, flag-ship of Rear-Admiral Jones, of the Chaguel Squadron, lying at anchor off Ragged Staff, at the south end of the town, near the parade and public garden, the Utopia was seen to stagger as if unable to make headway against the strong current running out at the time. In a moment the fierce gale combined with this current swept the ill-fated vessel across the bows of the Anson, which is a twin-screw first-class armor-clad, with a formidable ram. This ram cut bodily into the steamer, and she then drifted before the wind and sea until the rapid inrush of water made her begin to settle down, which happened five minutes after the first shock.

Boats were at once lowered from the Anson and other vessels of the British squadron, as well as from the Swedish war ship Freya and the cable ship Amber, while the ironclads turned their electric search lights toward the wreck to assist the rescuers in their difficult task; for by this time the daylight was almost gone. One boat, the pinnace, of H. M. S. Immortalite, was dashed on a rock by the force of the sea, and two of her seamen were drowned. The sea was running so high that the boats could not approach the wreck with any hope of taking off those on board, and were compelled to lie to leeward, picking up the people as they were swept off the decks. As the Utopia's bows began to sink, those on board the wreck rushed forward, struggling with each other for life and fighting their way up the fore-rigging. Twenty minutes later the fore-castle disappeared beneath the surface, carrying down the crowds of unfortunate beings who had not dared to jump off, and had failed to take refuge in the rigging.

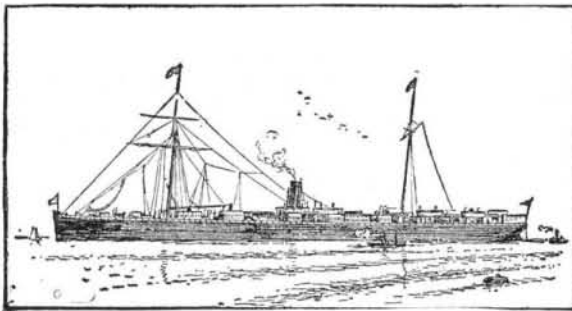
The wind and rain were so blinding that scarcely anything could be seen beyond a confused struggling mass of living beings mixed up with wreckage. Those who had succeeded in taking refuge in the main rigging were rescued several hours later, but so exhausted that they could not get into the boats, and it was necessary for the rescuers to clamber up the shrouds in order to pass the poor creatures down into the boats. Twenty-four of the Utopia's crew were saved, includ-

vessels whereby they may be prevented from sinking. Our engravings and particulars are from the *Illustrated London News*.

WHALE CATCHING AT POINT BARROW.

By JOHN MURDOCH.

ALL through the latter part of the winter the seal hunters, who are every day tending their nets; along the shore from Cape Smyth to Point Barrow, have been watching and studying the ice. Running along nearly parallel to the shore and about a thousand yards off is a bar on which the water is not more than two or three fathoms deep. On this the heavy pack ice, coming in with the autumn gales, usually grounds, piling itself up into a wall of rugged masses of ice, while inshore the sea freezes over smooth and level.



THE UTOPIA, ANCHOR LINE STEAMSHIP.

Outside of this is the rough pack, broken masses of ice piled up in irregular heaps like the craggy fragments on a frost-riven mountain top, but interspersed with undulating fields of ice, many seasons old, and thick enough to resist the pressure when the ice fields come together before the winds and currents. Occasionally, too, the grounding of heavy masses of ice—there are no true icebergs in this part of the Arctic Ocean—affords sheltered spaces where fields of "new ice" can form undisturbed by the movements of the pack.

Through January, February, and March these ice fields remain motionless, or are only crushed closer together and pressed harder upon the land by the prevailing westerly gales; but in April the pack gradually begins to loosen, and when the long-wished-for east wind blows, cracks open six or seven miles from the shore, extending often for miles, parallel to the land. These cracks or "leads," as they are called, seldom remain the same for many days, but open and close as the wind changes, now spreading clear of all obstructions for hundreds of yards or even for a mile in width, now filled with loose ice, floating with the current.

It is in these leads of open water that the whales work their way to their unknown breeding grounds in the northeast, passing by Point Barrow chiefly during the months of May and June, and it is during this season of migration that they are hunted by the Eskimos.

The chase of the whale is of great importance to these people. The capture of one of these monsters means meat in abundance; blubber for the lamps, and for trade with the Eskimos whom they meet in the summer; whalebone to purchase ammunition; tools and luxuries from the ships; and the choicest morsel that an Eskimo knows, the "black skin" or epidermis of the whale. Consequently, the successful whaler is the best man in the village, and soon grows rich and influential.

But to return to the seal hunters and their observations of the ice. From long experience, the Eskimos are able to judge pretty accurately where the "leads"

implement widen out the narrow defiles in the road, and smooth off the roughest places. Men sometimes go out on purpose to work a few hours on the road, using ice picks or "whale spades" (something like a heavy broad chisel, mounted on a long pole, used for cutting the blubber off a whale), which they have obtained from the white men. It is a pretty rough path, however, at the best.

By the middle of April all the hunters have returned from the winter deer hunt, and the business of getting ready for whaling is taken seriously in hand. The frames of the great skin boats must be taken down from the scaffolds where they have rested all winter, and carefully overhauled and repaired, while every article of wood that will be used in whaling, from the timbers of the boat to the shafts of the spears and harpoons, must be scraped perfectly clean, in honor of the noble quarry. Gear must be looked to, and the skin covers for the boats repaired and soaked in the sea, through holes in the ice cut close to the shore, till they are soft enough to stretch over the framework.

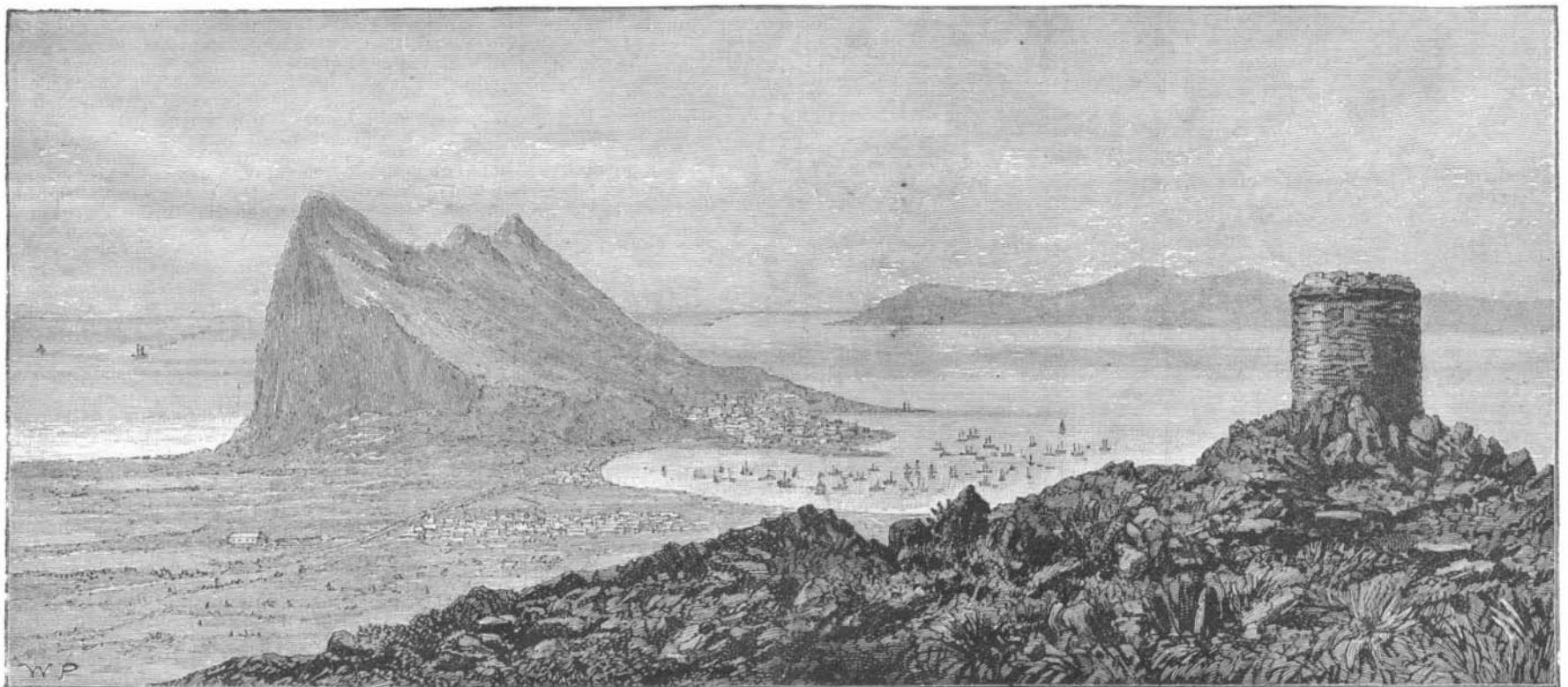
Meanwhile, a careful watch is kept from the village cliff for the dark cloud to seaward which indicates open water; and if the much talked of east wind does not speedily begin to blow, the most skillful of the wizards or medicine men get out on the bluff, and with magic songs and beating of drums do their best to make it come.

It is not every man in the village who owns a *umiak* that fits it out for whaling, as it requires a good deal of property to procure the necessary outfit. About eight or ten boats from each village make up the usual fleet. The crews—eight or ten men to a boat—are made up during the winter.

The owner of the boat—who is always the captain and steersman—sometimes hires his crew outright, paying them with tobacco or cartridges or other goods, and sometimes allows them a share in the profits, but, I believe, always feeds them while the boat is "in commission." When enough men for a full crew cannot be secured, women and even half grown lads take their places in the boat. One man is selected for harpooner and posted in the bow, and usually another, amidships, has charge of a whaler's bomb gun, for firing an explosive lance into the whale, for most of the rich Eskimo whalers now own these guns.

Now, as to the instruments used for the capture of the whale. Instead of harpooning the whale, or "fastening" to him, as the white whalers say, and keeping the end of the line fast in the boat, which the whale is made to drag about till the crew can manage to haul up and lance him to death, there is but a short line attached to each harpoon, to the end of which are fastened two floats made of whole sealskins, inflated, which are thrown overboard as soon as the harpoon is fixed in the whale. Each boat carries four or five harpoons, and several boats crowd round and endeavor to attach these floats to the whale every time he comes to the surface, until he can dive no longer, and lies upon the water ready for the death stroke. Some of the harpoons are regular whalers' "irons," but they still always use their own ingenious harpoons, in which the head, made of bone or walrus ivory, with a point of stone or metal set into it, is alone fastened to the line, and is contrived so as to "unship" from the shaft as soon as it is thrust into the whale, and to turn at right angles to the line, like a toggle, under the skin. To kill the whale after he is harpooned, they used in old times long lances, with beautifully flaked flint heads, as broad as one's hand; but now they all have regular steel whale lances, and as I have said before, most of them own bomb guns.

Some of the boats are carried out over the ice to the place where they are to be launched before the "lead" opens, and, as soon as open water is reported by the scouts, all start. There is a great deal of ceremony and superstition connected with the whale fishery. The



VIEW OF GIBRALTAR FROM THE "QUEEN OF SPAIN'S CHAIR," SHOWING WHERE THE UTOPIA FOUNDERED.

ing the captain, ship's doctor, two officers, one engineer and one steward. Of the passengers and emigrants only 292 were saved; there were seventeen passengers in addition to the 813 emigrants on board.

The Bay of Gibraltar is notoriously a bad harbor, affording no shelter from the most violent wind and sea. This lamentable disaster shows the great necessity for new inventions and appliances for saving life on ship board and also the need of improvements in

will first open in the spring, and, when they have concluded where the boats will be launched, they set to work to select the best path for dragging out the boats through the rough ice field. They soon make a regular beaten trail, winding in and out among the hummocks, taking advantage of all the smooth fields of ice that they can, and, from time to time as they pass back and forth from their seal nets, they chip off projecting corners of ice with their ice picks, and with the saue

captain and harpooner of each boat wear special trappings, and streak their faces with black lead, as, indeed, is often done on festive occasions. Long before the time for whaling, all those who intend to command whaling boats during the coming season assemble, with all their gear, in the public room and hold a solemn ceremony, with drumming and singing, to insure good luck. Charms and amulets of many kinds are carried in the boats. They believe that the whales are

supernaturally sensitive. If the women should sew while the boats are out, or the men hammer on wood, the whales, they say, would leave the region in disgust.

Let us see, now, how the boats are carried out over the path I have described. The boat is firmly lashed on a flat sledge, to which a team of dogs is attached, while the men and women hold on to the sides of the boat, pushing and guiding. Hearing, one day in May, 1882, that one of the Cape Smyth boats was starting for the edge of the ice, two of us set out over the trail, and overtook the party about two miles from the shore, where they were resting, having sent the dogs ahead in charge of two women, with another sledge loaded with all sorts of gear—rifles, spears, and so on.

The party consisted of five men and two women. The captain of the boat and the harpooner wore on their heads filets of the light colored skin of the mountain sheep, from which dangled on each side a little image of a whale, rudely flaked from rock crystal or jasper. The captain's head dress was fringed with the incisor teeth of the mountain sheep, and the harpooner had another stone whale on his breast.

One of the women was decorated with a stripe of black lead diagonally across her face. In the boat, for charms, were two wolves' skulls, the dried skin of a raven, a seal's vertebra, and several bunches of eagle's feathers.

They say the skin of the golden eagle—"the great bird"—or a bunch of hairs from the tip of the tail of a red fox, bring great luck. In the boat were also five or six inflated seal skins, which, when we came up, they were using for seats on the ice.

One of the women soon came back with the dogs, the seal skin floats were tossed into the boat, the dogs hitched up, and we started ahead, the woman leading the dogs, and the men shoving alongside. When we came up with the first sledge, the dogs were unhitched from the boat and sent ahead with a load of gear for another stage, and so on.

On smooth ice the boat travels easily and rapidly; but where it is broken it is hard shoving and rough scrambling for the men, while occasional stops have to be made to chisel out projecting pieces of ice and widen narrow places in the path. Then the dogs get tangled up from time to time, and have to be kicked apart, so that their progress on the whole is slow.

When they reach the open water the boat is launched and the gear put on board, and the sledges drawn up out of the way. Everything is put in readiness for chasing the whales, and the boats begin patrolling the open water. The harpoon, with the floats attached, rests in a crotch of ivory lashed to the bow of the boat, and everybody is on the alert. Sails and oars are never used in the boat when whaling, but the boat is propelled by paddles alone.

Thus they spend the months of May and June, eating and sleeping when they can, for the daylight now lasts through the twenty-four hours, occasionally hauling the boat up to the edge of the ice for a rest. Somebody, however, is always on the watch for whales or seals or ducks, which last now and then at this season pass by in thousands on their way to the north.

When the "leads" close, the boats are hauled up safely on the ice, and all hands come home till an east wind and "water sky" warn them of a fresh chance for whaling.

Let us suppose that there is good open water, and that a couple of boats are hauled up on the edge of the land floe, their crews resting and gossiping, perhaps waiting for the return of the women who have been sent home to the village for food. Suddenly a faint puffing sigh is heard, and a little puff of vapor is seen over toward the edge of the ice. It is a whale "blowing."

The men all spring to their feet and quickly run the boats off into the water, and scrambling on board, grasp their paddles and are off in the direction of the "blow." If they are lucky enough to reach the whale before he escapes, the harpooner, standing up, thrusts the heavy harpoon into him with both hands, and quickly recovers the pole, to be used again. The nearest boat rushes in; other boats, seeing what is going on, come up and join in the attack until the whale is captured. Sometimes, indeed, an opportunity occurs for a successful shot with the bomb gun as soon as the whale is struck, and the contest is ended at once. But the attack is not always so successful. Sometimes the whale escapes into the loose ice before the boats reach him; sometimes the harpooner is clumsy, or the harpoon does not hold. Sometimes, too, the whale escapes before enough floats can be attached to him to hamper him, and carries off the harpoons, floats and all. Even if the whale is killed, he sometimes sinks before he can be towed to the edge of the ice, where the "cutting in" is to be done.

When the "lead" of open water is narrow, the natives who own bomb guns patrol the edge of the ice, watching an opportunity to shoot the whales as they pass. It was when engaged in this kind of hunting that a young acquaintance of ours at Cape Smyth came near losing his life. A man near him, handling his bomb gun carelessly—the Eskimos are all frightfully reckless with fire arms—discharged it by accident, sending the bomb into the ice under his feet, where it exploded, shaking him up like a small earthquake.

When the whale is killed, it is towed, as I have said, to the edge of the solid floe, and the work of cutting him up begins. By long-established custom, universal among the Eskimos, the skin, blubber, and flesh of a whale belong to the whole community, no matter who killed it; but, at Point Barrow, the whalebone must be equally divided among all the boats that were in sight when the whale was killed.

They have none of the appliances used by civilized whalers for easily and rapidly stripping off all the blubber, but hack away at everything in reach, getting off all they can before the carcass sinks. The news soon reaches the villages that a whale has been killed, and there are very few households that do not send a representative to the scene of action as speedily as they can, with sledges and dogs to bring away their share of the spoils. As may be supposed, there is a lively scramble round the carcass. Some on the ice, some crowding the boats, they cluster round the whale like flies round a honey pot. Leaning over the edge of the boats, careless of the water, they hack and cut and slash with whale spades and knives, each trying to get the most he can. So far as I have ever heard, this is a

perfectly good-natured scramble, and no one ever thinks of stealing from another's pile on the ice. The blubber, meat, "blackskin," and whalebone are soon carried home to the village. The blubber is not tried out, but is packed away in bags made of whole seal skins, and, with the meat, is stowed away in little underground chambers, of which there are many in the villages.

The "blackskin" is eaten fresh, and is seldom if ever cooked. This curious dainty is the epidermis or cuticle of the whale. It is about an inch thick, and looks, for all the world, like black India rubber; it is not so tough, however. Civilized whalers are nearly as fond of it as the Eskimos, but are not in the habit of eating it raw. When nicely fried in the fresh, sweet oil of the "try pots," when they are "boiling out" the blubber of a whale, for instance, it is very palatable, tasting much like fried pigs' feet. It is also good hoiled and "soused" with vinegar and spices. The Eskimos are fond, too, of the tough white gum round the roots of the whalebone.

The jawbones of the whale are cut out and preserved. From these and from the ribs are sawed out strips of bone for shoeing the runners of the sledges. In fact, everything that can be cut off from the whale, before the carcass sinks or is carried off by the current, serves some useful purpose.

The most favorable time for whaling is when there is a continuous "lead" of open water, not more than a couple of hundred yards wide, with a solid pack of ice beyond it. Then the whales must pass up within sight or hearing of the boats. When the open water is very wide, the whales may pass at a distance unnoticed, or so far off that it is impossible for a boat to overtake them.

If there is much loose ice, the crafty animals take advantage of it, and come up to breathe at little holes among the floes where a boat cannot reach them.

As the season advances, the whales grow scarcer, and the whalers relax their vigilance and pay more attention to the capture of seals, which they shoot through the head when they rise near the boat, securing them with light harpoons before they have time to sink. At this season, also, the whale boats sometimes capture walrus and white whales.

At length several days pass without a whale being seen, and one by one the crews give up looking for them and bring home their boats, until by the first of July the whaling is over for the year, the boats are all in, and everybody is preparing to leave the village for the summer excursions.—*Popular Science Monthly*.

DOUBLE VIOLETS.

THERE are few hardy flowers better worthy of good culture than the various fine forms of double violets. A bunch of the double Neapolitan or Marie Louise in the depth of winter is very acceptable. Blue flowers are always scarce at that time of year, and there is nothing that can equal the violet in its refreshing perfume. Success in violet culture, and more especially as regards the production of winter blooms, depends mainly on the culture that the plants get through the summer months. Allowing them to grow in thick beds or in shady positions will not do, for it is not enough that a free growth be made; the crowns must be exposed sufficiently to sun and air to allow of their becoming plump and well matured by the autumn.

Although a little shade from the hot summer sun is undoubtedly beneficial to violets, I would much rather grow them in full exposure to it than in such secluded positions as I have often seen chosen for this flower. With abundance of moisture at the roots and frequent overhead sprinklings in parching weather, the hot sunshine will not injure, but, on the contrary, will endow the crowns and foliage with a substance that is not obtainable in any other way. The best of all positions is undoubtedly that from which the sun passes away shortly after midday, and if such a place can be had, I would advise the various forms of double violet to be grown there. Thus situated they get as much sun as they really need, and they escape its burning influence during several of the most trying hours of the day. For many hardy flowers that acutely feel the effects of a parching atmosphere an east aspect is decidedly the most favorable, for the reason above mentioned. The ground for violets should be well stirred, and if of a heavy nature it should be roughly dug in February, so as to allow of the action of wind and frost on it for several weeks previous to planting. A liberal allowance of manure is necessary, but this should not be of a rank nature, but if possible be a year old, the clearings out of old hot beds, especially when made of manure and leaves, being very suitable. The middle of March is in ordinary seasons the best time for planting, and in light soils the beginning of the month will not be too early, as violets acutely feel the influence of parching weather, and it is, therefore, the more necessary that the plants get good root hold by the time they are liable to be subjected to a hot sun and parching atmosphere. In dividing the old stools, about three crowns should be left to each plant, and these if put out about 6 inches apart will with good attention make nice little specimens by the autumn. For blooming in winter in frames, I do not care to have very large plants, as they are more liable to suffer from damp by reason of the crowded condition of the foliage. By growing a greater number and not putting them in the frame too thickly, air can better circulate among the crowns, and naturally they get more light. It is not the number but the quality of the crowns that has to be considered in the individual plants. If, however, the plants are to remain to bloom in the open, it does not matter how large they are; indeed, I think the bigger the better, as the opening buds get more shelter from the foliage in the early days of spring, when biting winds and frosty nights are sure to have to be endured. It does not matter if the plants at blooming time become a solid mass of foliage in spring, so long as each one has ample space when making its growth and ripening its crowns. Red spider is the worst enemy that violets have, and sprinklings of soot round the plants are recommended to keep it off. I would, however, much rather rely on plenty of good food and moisture to keep it at bay. This insect always fights shy of well nourished foliage, and I doubt if ever violets are much troubled with it when under the influence of liberal culture. But the attention in watering must be continuous during the hot, dry weather that we generally get in the summer season. A few days' dryness at the roots with a burning sun

acting on the foliage will suffice to bring on an attack of spider, and then it cannot be got rid of for that season at least. The great thing is to prevent its appearance, and this I am sure can be done in a general way. It must be remembered that growing violets in inclosed gardens is attended with rather more difficulty than in open fields where they are cultivated for market. It is not often that the plants are attacked by spider under field culture, owing to the greater amount of air they get as compared with what they can enjoy in the confined precincts of a garden. The atmosphere in a walled in garden becomes much more rarefied than where there is nothing to obstruct the summer breeze, and this parched air must be counteracted by means of copious waterings and daily overhead sprinklings in a dry, hot time.

In very hot weather, such as is often experienced in July and August, it is much better to water toward the close of the day, as thus the soil gets well moistened before a burning sun can again act upon it. Watering in the evenings is one way of economizing labor, as a much less quantity is required than if used at a period of the day when evaporation is rapid. For the same reason the plants should be well sprinkled when the heat of the sun has passed away from them, as thus the surface of the ground remains through the night in a moist condition.

A cool, grateful atmosphere, which wonderfully refreshes and strengthens, and fills the leaves with sap, and better enables them to withstand the desiccating influence of a parching summer's day, is created. Whenever double violets are grown it is of the highest importance that they get a good share of sun in early autumn. It is in September and the beginning of October that the plants finish their growth and that the ripening of the crown takes place.

The influence of the autumn sun in a very direct manner is absolutely necessary for plants that are to bloom early in the winter, for it may be taken for granted that all who shelter the plants in frames wish to begin gathering at as early a date as possible. The autumn warmth not only plumps up the crowns, but induces the formation of bloom buds much earlier than when the plants are in a great measure secluded from its influence, and it is these early buds that furnish the blooms that expand at a time when they are so valuable.

This is especially the case with the double kinds, which must have the crowns well matured, or the blooms will be lacking in size and the symmetry and doubleness that render them so beautiful. The fine white Comte de Brazza, for instance, unmistakably shows the effects of good or indifferent culture. The blooms that are produced by insufficiently fed and matured plants come semi-double and by no means pure in color. In fact, this double violet is not worth frame room unless it is thoroughly well cultivated. When at its highest point of development it is certainly one of the fairest hardy flowers we have.

In ordinary seasons double violets will give a supply of flowers through the winter if merely sheltered in frames and covered in frosty weather, but in a period of hard frost, such as we have lately experienced, the amount of blooms produced under such conditions will be small. What they require is a gentle stimulus to keep them moving when the outdoor temperature remains for some time at a low point. A very gentle bottom heat, such as is afforded by leaves with a little manure with them, will give this. The best lot of double Marie Louise violets I ever saw were grown in this way, the blooms being remarkably large and excellent in color.

If a bed of this description is made up in the latter end of October, it will retain enough warmth through the winter to gently stimulate root action, and this is all that is needful. Anything approaching a forcing temperature must be avoided, for violets are impatient of artificial warmth (unless it is of the mildest description), which causes the leaves to become drawn and the flowers to be poor in color and deficient in fragrance. If the beds are made up in the beginning of November, they will retain a slight amount of warmth through the dead of the winter, just enough to keep up root action and promote the expansion of the flower buds. In this way and aided by a good covering, steady progress will be made even in a lengthened period of cold sunless weather; whereas in quite cold frames the plants will remain almost at a standstill. The great enemy of violets in frames is damp, and it is difficult in some winters to preserve the plants from its injurious effects. A free circulation of air during the daytime when the weather is mild is the only way to keep the foliage and blooms in good condition. The most difficult thing to contend with is fog, which makes its presence felt even in well heated structures, which are kept at an even temperature through the winter months. When fog cannot be expelled it must be kept out as far as possible; therefore, no air should be admitted on misty days, and plenty of covering should be put on the glass at night, which will keep fog from entering through the laps. With attention to cleanliness, keeping the plants free from decayed leaves, and judicious ventilation, the evil effects of damp will not be felt to any serious extent.

A very good and simple method of getting violets in winter is to grow them where they are to remain, just putting the frames over them on the approach of winter. It stands to reason that the blooms will come more freely and plentifully in this way than if the roots are disturbed late in the autumn, and I have often wondered that this easy method should not more often be resorted to. Probably the best of all ways to get good double violet blooms in the depth of winter is to pot up the plants in October and at the beginning of November; put them in a light airy glass house, where they get the treatment that is accorded to the general run of cool-house plants at that season of the year, near the glass and secure from damp. The blooms of the double Neapolitan, Marie Louise, and Comte de Brazza come very fine indeed. But the best of all the doubles in my opinion is the Parma, which is compact of growth and very free flowering. I have always got more flowers from it than from any other double variety. One advantage of growing violets in pots is that they can be employed in the house, and every one appreciates a nice plant with fresh healthy foliage and a dozen handsome fragrant flowers. I have invariably found that violets grown in this way are more highly valued for indoor decoration in the winter season than many other things that demand a lot of trouble and