

The Making of a New City of Galveston

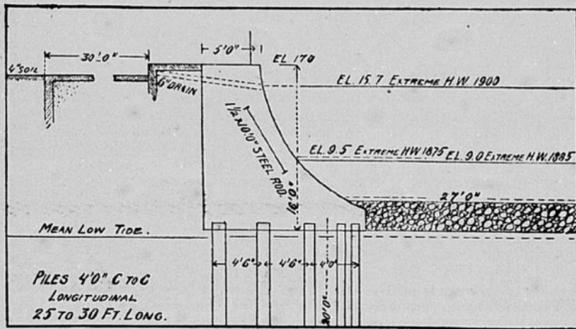
How the Water Gateway of the Southwest Is to Be Protected From the Ravages of Storm and Tide.

GALVESTON will within the next three years be in a position to bid defiance to the worst storm and tidal wave which the Gulf of Mexico can kick up. The 17-foot sea wall facing the gulf side of the city has been about completed, and the work of raising the grade of the city to the level of the top of this barrier is to begin, according to the terms of the contract, within the next 60 days. The board appointed by the governor has awarded the contract for this work. The plan which the contractors propose is to construct a canal 20 feet deep from the bay inside and about 200 feet from the sea wall. They estimate that it will take 11,000,000 cubic yards of filling to raise the city to the level of the sea wall. This gigantic engineering feat will, when completed, take its place as one of the nine wonders of the world, and will cost the county under the contract price of 18½ cents per cubic yard nearly \$2,000,000, for which the city will issue bonds.

At the time of the awful catastrophe of September, 1900, when the city was almost wiped out of existence and 6,000 residents perished, the prediction was quite generally made that the city would never be rebuilt; that the thriving metropolis had received a blow from which she would never recover. Industrious newspaper men and magazine writers under such captions as "The Solving of Galveston's Problem," "The Lessons of Galveston's Flood," etc., told how Galveston's site might be abandoned for a safer location. La Porte, the only elevated point on the Texas coast, being 35 to 40 feet above the mean sea level, was picked out as the probable location of the new Galveston. Twelve members of the rivers and harbor committee of congress, with Chairman Theodore F. Burton, of Ohio, at its head, inspected La Porte. A ship canal was projected

channel in the inner harbor was \$300,000; for repairing the jetties \$750,000. In the fall of 1901 a board of engineers was appointed to study the problem and report on the best method for protecting the city. This board reported in April, 1902, and work was soon after begun on the sea wall. This wall is built of concrete and is to protect the east and south sides of the city, with a levee to protect the city on the west. The work on the sea wall and levee has progressed far enough to permit the beginning of the work of raising the grade of the city. The sea wall is 3½ miles long with its top 17 feet above mean low water. This wall is founded on piles and protected from undermining by sheet piling and riprap. The sea face of the wall is curved so that its upper portion is vertical and its rear face is to be filled behind by an embankment, the top of which will be paved with brick for a width of 35 feet and planted with Bermuda grass for a further distance of 60 feet. The levee portion of the protective barriers of the city is to be 300 feet wide with side slopes of one foot in 2½ feet, and is intended to be built upon. In brief, the city will be surrounded on three sides by a structure whose top is higher than the high water in 1900. The fourth or unprotected side is that facing Galveston bay, and here the city is higher than the highest water ever recorded previous to 1900. The diagram produced herewith shows a transverse section of the sea wall and is self-explanatory.

The total cost of the work undertaken will be \$3,505,040, of which sum \$1,294,755 was for sea wall. Special machinery was made for the building of the sea wall, and by the end of last year the work was being actively prosecuted. During this year this work has been practically completed. Galveston now lies behind a massive stone wall, but gradually as the skill of engineers is exerted,



TRANSVERSE SECTION OF THE GALVESTON SEA WALL.

which was to be 25 miles long and from 20 to 22 feet deep. Over eight miles of the canal had been completed at that time and the construction was being pushed. It was proposed to establish a dry dock and naval station at La Porte which would cost from \$8,000,000 to \$10,000,000.

But Galveston refused to be pushed off the island, or be run out of business by a little thing like the Gulf of Mexico. Something of the Chicago spirit possessed her. If Holland's 1,000 spare miles of territory, much of it below the sea level, and which supports 1,000,000 souls, could be protected by 100 miles of dikes along the Zuyder Zee, surely Galveston's few miles, five to 17 feet above the level of the sea, need not be abandoned because once in its history the water had risen to a height of 15 feet and the wind, the fiercest known to annals, had blown 120 miles per hour. The protection of Holland, the elevation of large portions of Chicago, and of nearly the whole of Sacramento, Cal., proved that the Galveston problem was merely one of engineering detail.

Never for a single hour, even during the darkest period of the awful storm, has Galveston entertained the thought that the city would be wholly or in part abandoned. Eight days after the storm vessels were loading at the wharves. The local papers never missed an issue, although for a few days their editions were single sheets, the size of hand bills, run off on job presses. The banks opened for business on the third day. Merchants ordered new stocks of goods as soon as the telegraph lines were opened. It had been said that the rebuilding of the railroad bridge would take two months, but in 12 days trains were running regularly into the city.

Galveston is the natural water gateway to the southwest. The city is built on a narrow strip of sand 30 miles long and one to three miles wide. It has been well said that the city was born of geography and commerce and that she cannot die while there are a great west and ships that go to sea. The economic causes which made Galveston the fourth general export port of the country still exist. The year's business following the storm showed substantial increase over the year preceding. Cotton received to August 31, 1901, was \$2,177,983; that received to August 31, 1900, was \$1,710,263. The grain exports for 1900-01 were 14,010,378 bushels, that for the year before the storm, 1899-00, were 13,531,839 bushels. At least \$5,000,000 has been spent in repairs and restoration of the city since the storm of 1900.

But the all-absorbing problem has been the protection of the city from further inundation. In 1902 \$1,715,217 were spent for permanent protective improvements. The appropriation made by congress for deepening and widening the

city will rise up, up, up until her streets are on a level with the broad flat top of the sea wall. Future generations will listen with absorbed attention to the stories of how Galveston used to be flooded by the encroaching waters of the gulf, of how in the terrible storm of 1900 the city was nearly swept from its foundations and washed into the bay, but they will never see Galveston's streets rushing rivers of water; they will never know the horrors of the catastrophe of 1900. A new Galveston—a monument to the triumph of man over nature and nature's elements. This new Galveston, rising grandly and confidently above the ruins which the raging waters of the gulf left behind them, was not so much as dreamed of before the eventful year of 1900. Frequently the city had previous to that year been under water, but her people had simply waited for the waves to roll by, and then went on doing more and more business, as the great southwest developed her inexhaustible resources. But when the 15-foot tidal wave swept in upon the city the inhabitants awoke to a sense of the danger which confronted them, and the prophecy made over 70 years ago came true.

Stephen M. Austin, the Virginia pioneer, who led the first American colony into Texas, rode across the coast plain a few feet above the level of Galveston, and saw far inland a stranded schooner. The vessel had been carried there by some great storm wave of the gulf and had been left a strange and hopeless wreck upon the prairie. "Some day," said the founder of Texas, "the elements which did that will sweep over this coast again." And they did. There was no meteorological station in those days to record the height of the water and the velocity of the wind, but the waves which bore upon their crest the great schooner far inland and then abandoned it to the lonely stretches of the prairie waste may have been as high and mighty as those that rolled on Galveston in 1900. If that thriving commercial city resting so dangerously near to the level of the waters of the bay could only have realized the full meaning of Austin's prophecy, perhaps years ago, the building of the sea wall and the raising of the grade of the city would have been undertaken. If it had been seen what would have been saved? Six thousand precious lives, and property valued at \$17,000,000, enough treasure to cover the cost of the present improvements five times over. But it is true always and everywhere that individuals and cities and nations provide adequately against catastrophes only after a crowning disaster has fallen. Then treasure boxes are opened and energies set in motion which bring about some such transforming scene as that which is being enacted at Galveston.

Fancy Masque Ball Costumes



A Bat. Directoire. Spanish Dancer.



Bre on Grl. Norwegian Peasant. Vivandiera. Ribbons.

THE season of masquerade dances is with us again, and many a young woman is wondering of what she can make an acceptable costume, and one that will be just a little out of the ordinary. We are not going to attempt to explain just how all the dainty costumes pictured by the artist may be made, for there is no need of explanation, the pictures tell their own story. It is safe to say that from those pictured may be found some which will be so far above the average as to stamp the wearer as a girl of originality and genius. See that of a bat, for instance. Is it not unique enough to suit the most exacting, and can you not imagine how charming it would be when made of gauzy black material that need by no means be expensive. The ribbon girl is another charming costume, that is far away from the ordinary, and is not difficult of construction, nor necessarily expensive. To prove that all of these are late and up-to-date we need only say that our artist sketched them from costumes made for the present New York season, and that each and every one of them will be worn before the beginning of Lent.

Gossip of the Winter Fashions

THIS summer saw the lace collar, that was so very wide we had to call it a cape. Too universal, it seemed everywhere, and its original use altogether too popular to be desirable. But there were other possibilities awaiting the lace cape. I saw yesterday a lovely evening coat of pale blue cloth, of which the entire top was formed by a lace cape, the lace, needless to say, dyed the precise pale blue of the cloth. Here is a tip, thought I, for some one with a lace tippet. She can give it to her dressmaker, and instruct her how to contrive with it and some creamy white cloth a most delectable coat. It must be explained that the lace top must be lined with a layer or two of chiffon, under which there should be a warm woollen interlining, and then, of course, the satin that lines the whole coat. There is, on the whole, no more popular idea than the cream cloth coat, especially for theaters.

The sequin smiles, thinking how the sartorial seers have in the past prophesied its doom, for the sequin flourishes



A GOV'N OF VELOURS MOUSS-LINE.

undaunted. It knew it was indispensable all the time; and whereas once it was just the black or the silver sequin, we now have the saucy thing in every color of the rainbow and in all sorts of substances. The robe cannot exist without sequin, and the world of women cannot exist without the robe. The robe has been woman's best solace for the dilatory sins of the dressmaker. With a robe and a maid of average abilities a frock may be called up as if by the wand of a fairy godmother, and no unsophisticated simplicity of a hasty pudding recipe would this be, but something filmy and sparkling and becoming. The eternally useful black frock, for example, is almost always fashioned from the sequined robe. I saw recently an altogether good black sequined robe, in which the embroideries enclosed appliques of black Chantilly lace, whilst the bodice pieces were delightfully complete and ample and such a frock could be fitted to slip on over a black foundation or a white foundation, or over a foundation of

white with color between—emerald green, for instance—or sapphire blue, or vivid cerise, or mauve.

A chic whim across the "silver streak" consists in elaborately braiding coats with braids of the same color as the cloth; this identical braiding is fascinating, and looks so well with fur facings. The short sac coat of a moloch-colored cloth costume I have seen was much braided over with identical braids and faced back with musquash moleskin, the relieving note being found in a waistcoat of scarlet velvet studded with tiny gold buttons. There is infinite charm in this effect of vivid color, gilt studded and just almost out of sight, as it were, or, as one might say, overshadowed, as was this, with furry fronts.

The note of gold that a year of two back invaded everything is getting rampant again, and when it reappears in such attractive whims as bulion embroideries, or tiny gilt buttons, or the galons that border toques and enrich coats, we can but give it a smiling welcome. A tailory toque of fluffy cloth (matching one's tailor costume or the blouse therewith worn) bordered with gold galon, and finished with a cockade of the same, is the nicest notion of the moment for morning wear, and the universal whim just now in Paris. Such a hat of emerald-green fluffy cloth with a knitted waistcoat of emerald green looked awfully nice the other day with a black coat and skirt of severe build. The severe build of tailoring is going to reassert itself, so all the tailory authorities declare, and these cheery, vivid red and green and pink, and blue and white knitted waistcoats seemed to have just timed themselves to the event. If we once again exploit the severe tailor-made, we shall have something better than ever before, something with such a cheery waistcoat, and fitting immaculately, and fashioned of most pleasing cloths and tweeds. We shall supplant with a perfect mould the fascinations of the picturesque tailoring, and who shall say the perfect mould is not as becoming as the picturesque—at least, where that which is within be shapely or can be rendered shapely?

But I can never see why we should be either only severe or only picturesque; why cannot the two styles co-exist, fulfilling their separate ends—the elegantly severe tailor-made for certain uses and the elegantly picturesque frock for social occasions. A frock of velours mousseline that I saw the other day that had a lace pelerine bodice pleaded most eloquently the cause of the picturesque; indeed, so persuasive are these picturesque costumes, I cannot see how we are going to part with them for the gowns of stiffened and aggressive richness that formerly co-existed with the plain tailor-made. We cherish hopes that Fashion will make a new departure, persuading these two extremes to dwell together to the end that we may enjoy both. But about that picturesque frock, with the lace pelerine. What a nice notion it was! So suggestive a pelerine like that might be fitted over any last season's frock and the lace might be either exactly the color of the material or else its ordinary cream or twine tone.

AGRICULTURAL HINTS

THE WATER HEMLOCK.

This Plant, Commonly Known as Wild Parsnips, Is Fatal to Man and Animals.

Every year the newspapers tell us of children being poisoned by eating wild parsnips. On investigation it is found that the "wild parsnips" eaten were not wild parsnips at all, but water hemlock, known botanically as *Cicuta maculata*. This plant is known by a variety of names, dependent on the locality where found. Some of these names are, wild hemlock, spotted parsley, snake-weed, beaver poison, musquash root, muskrat weed, cowbane, spotted cowbane, children's bane. It is a smooth,



WATER HEMLOCK.

erect perennial, three to eight feet high, with a rigid, hollow stem, numerous branches, finely-dissected leaves, white flowers, and a cluster of spindle-shaped roots, which vary in length from one and one-half to three inches, and are very characteristic of the plant. It grows commonly in swamps and damp soils from the Atlantic states to Iowa and Minnesota, and less commonly in Nebraska and New Mexico.

This is one of the most poisonous plants in the United States, being rapidly fatal to both man and animals. The roots are especially dangerous, because the taste, being aromatic and to some people suggestive of horse-radish, parsnips, artichokes, or sweet cicely, lead children to eat them. Cattle sometimes eat the tubers when they are washed out of the ground by freshets. The loss to stock from eating this plant is quite considerable. The prominent symptoms of the poisoning are colicky pains, vomiting, staggering, unconsciousness and frightful convulsions, ending in death.—Farmer's Review.

CATCHY ADVERTISING.

Suggestions for Farmers and Breeders Who Have Learned to Value Publicity.

Farmers and breeders are rapidly becoming advertisers on the same scale as merchants and manufacturers. They are learning that where they have surplus products to throw upon the market the best way to get the right customer is through the use of advertising space in reputable papers that circulate among the people they wish to reach. In fact, the farmer and stock raiser is as much of a manufacturer as the builder of self-binders and as much of a merchant as the storekeeper who sells him his clothes. The same elements of success enter into agriculture as in commerce, although possibly in varying degrees, and one of those elements is advertising.

The farmer and breeder, however, are still new at advertising. They have yet to learn by experience that the best advertising is that which produces the best results, and that results are gauged, first, by the circulation of the paper, and, second, by the attractive character of the advertisement. The farmer who is placing advertising should insist on knowing what he is paying for—how many copies of his advertisement are to be distributed. He should, furthermore, follow the example of the merchant in the makeup of his announcement. He should have something to sell, and tell what it is in unmistakable language. He should picture how his advertisement will look in print, so as to make it attractive in every way, and write the copy just as he wants it printed. The publishers are always eager to help their patrons make their announcements attractive and effective, both for the sale of the advertiser and for the improvement of the paper. Farmers who are advertisers will do well to remember these suggestions.—Twentieth Century Farmer.

Shipping Eggs in Winter.

Shipping eggs in winter requires careful packing. Eggs are liable to become frozen in the crates when the cold is intense, although the crates may be made tight and the eggs inclosed in paper partitions. There is no remedy for the drawbacks, and the only safe plan is to keep the eggs until the weather moderates. Sawdust is sometimes used in the crates to fill up the spaces and prevent the ingress of cold air, but it only adds to the weight. If one has the time to bestow, the eggs may be wrapped in wadding, and placed in the paper partitions; but the merchants who receive them may object to the extra labor imposed upon them of removing the covering from the eggs after arrival.—Farm and Fireside.

BABY BEEF PRODUCTION.

Gain Largely Depends on Age of the Animal and the Way in Which It Is Fed.

Feeders of baby beef, who keep their animals up to their work, are known to make a gain of over two pounds daily for 12 months. This gain depends upon the age of the animal and the manner in which it is fed. A matter that should not be overlooked by the farmer is the appropriate food for each animal; he should aim to increase the weight by making the animal as fat as possible, as fat is more easily produced on an animal than either lean meat or bone. It has been shown that to increase the excess of either fat or lean on an animal depends upon the age. The natural inclination of a yearling animal is growth, and the system demands materials containing but a small portion of fat producing qualities, but as growth adds to weight, the more rapid the growth the greater the increase in weight, which, of course, accounts for the quick gains made by young animals as compared with those approaching maturity, and which fact gives rise to the claim that baby beef is the cheaper form of the two. To know the breeds and how to use them; to be aware of the fact that some breeds assimilate more food and give off less waste than others, and to learn how to convert food into a salable product quickly and economically is what each one must study out for himself. Have a pair of scales, weigh frequently and note the ratio of increase in weight. By so doing one can cover the causes of failure and correct mistakes. The time is coming when the farmer will not be satisfied with less than a pound a day from birth for his farrows and weathers up to one year old. In approaching maturity gains are not so great, but previous to that animals for the block should be pushed. Finally, breeds that gain weight in the high-priced portions of the carcass must be given preference, and feeders must know that they are breeding for definite results. Baby beef must have the fat in the right place.—Agricultural Epitomist.

GOOD TONICS FOR HOGS.

The Kind of Mixture That Should Be Accessible to Them All the Year Around.

It is necessary to keep constantly accessible to all hogs, both pigs and old hogs, some material that supplies lime and salt to aid in bone-building, as an appetizer, and to remove flutestinal parasites. This mixture should be kept in a strong box protected from rain, and quantity and frequency with which pigs will visit and eat of the mixture will often be surprising. The following is the mixture that we use:

- Charcoal, one and one-half bushels.
- Common salt, four pounds.
- Hard wood ashes, ten pounds.
- Slacked lime, four pounds.

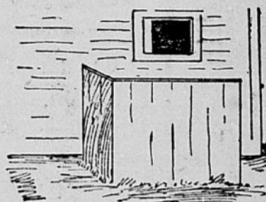
Another thing which is good for the pig is a variety of feeds. Pigs do better on a variety than on any single feed. This fact is scarcely ever disputed by the farmer, but is often enough ignored to give it some emphasis. Just how much better the pig will do if fed a variety, we will let the pig himself testify; for whatever other mean thing a pig will do he will not tell a lie about his feed.

Fresh water, shade in summer, grain food when on grass, and dry bed free from dust, shelter in winter, and above all, when confined, have the area sufficiently large so that it will not become foul with droppings and mud bugs. These are essential for successful hog-raising.—Arkansas Bulletin.

HIDING MANURE PILE.

Simple and Inexpensive Way of Hiding Objectionable Sights of Any Kind from View.

The manure from the horse or cow must be thrown out in a pile beneath the stable window, often to be an eye-



SCREEN FOR MANURE PILE.

sore to the owner, neighbors or passer-by. A way to hide the small manure heap is here illustrated. A tight fence of boards on two sides, the boards painted like the stable, and the unsightly manure heap is hidden from view.—Orange Judd Farmer.

POULTRY YARD NOTES.

To treat fowls for health is better than to dose them for disease.

Season soft food with salt. It sharpens appetite and aids digestion.

A handful of sunflower seed now and then adds luster to the plumage.

Hens will pay well for table scraps. It is wasteful to feed them to mongrel dogs and cats.

Litter in which there is tough, wiry hay is not safe to put on the scratching floor. If eaten it causes crop-bound conditions.

Much time is wasted on farms in winter by the men folk, that might be made profitable by caring for the poultry and producing winter eggs.

To renew the vitality of a flock it is not necessary to cross-breed and make them mongrels. Better get males of a different strain or family of the same variety.—Farm Journal.