## PROGRESS Pages 9 to 16. Pages 9 to 16.

### ST. JOHN, N. B., SATURDAY, JULY 18, 1896.

## DEPTH OF THE HEAVENS.

#### WORK OF PHOTOGRAPHY IN RE-VEALING THEM.

With the Largest Telescopes it is Possible te Gather rays of Light That Left Their Source Long Before the Pyramids of Egypt Were Built.

In the recent progress which has been made in the study of the heavens, the photographic plate has played a most important purt. Says a writer in the N. Y. Sun. Indeed, the facilities which the resources of photography have placed at the disposal of the astronomer are every day increasing. The older methods of observation are in many cases gradually being displaced by the more accurate and far more comprehensive methods which the camera offers. It has been asserted, and I do not think that the truth of the assertion will be questioned, that the alvance in the astronomers' art, which is due to the introduction of the photographic plate into the observatory, is not less far reaching in its effects than the advance which was insugrated when G.Ideo first turned his newly made telescope to the sky, and thus wonderfully augemented the spacepenetrating power of human vision.

Almost the first feature which will strike the observer who is examining a good photograph of the silereal depthy is that though they may be hardly any part of the area presented which is quite f ee from stars, yet that they are distributed with very great irregu'arity. In some regions the stars are aggregated in countless myriads; indeed, in many parts of the heavens they lie so closely packed that the individual points can hardly be distinguished separately. Ordinary observation, even with the unaided eye, prepares us in a masure for this striking irregularily in stellar dis'ribution.

Who has not often dwelt with admiration on that glorious stellar girdle which we a period of not less than 9,000 years in its know as the Milky Way. It is a mighty journey to the earth. The consequences zone of stars surrounding our solar system. of such a ca'culation are indeed Indeed, a just estimate of the relation of the sun to other bodies in the scheme of the universe would regard our great luminary merely as one of similar stars aggregated in countless myriads to form the Milky Way. From the peculiar nature of the stars in the Galaxy, as this system is often called, it is quite obvious that these wonderful starry clusters have some bond of connection between their component parts due probably to a common origin. To rea'ize the splendor of the Milky Way we have to remember that minute as the stars of which it is composed may seem from where we are situated, yet each one of those stars is in truth shining with the independent brilliancy of a sun. It might have been thought that it would be quite impossible for an object so vast and so bright as our sun to display no greater splendor than that teeble twinkle which is all that reaches us from one of the stars in the Milky Way. Here, however, the question of distance is of paramount importance. It the sun which shines in our skies were to be withdrawn from our neighborhood into the depth of space, if it were to be carried to a distance as remote as is that of many of the stars which we see around us, our great luminary would have lost all its preeminent splendor, and would have dwindled to the relative insignificance of a small star not nearly so bright as many of those stars which shine over our heads every night I do not, indeed, say that each and every one of the stars in the Milky Way is as large as our sun ; no one who understood the evidence would have the hardihood to affirm so v ntic a proposition. At the same time I should add that I do not know any groun is on which such a statement could be certainly contradicted if any one did affirm it. The probability seems to be that, though many of the stars in the Milky way may resemble our sun in lustre or dimensions, yet there are in that marvellous group suns lesser aud greater in nearly as many grades of magnitudes as there are objects in the Galaxy itself. The problem of determining the distance of a star from the earth is one which taxes the highest resources of the observing astronomer. Of all the millions of the celestial host there are hardly 100 stars whose distances have been measured with accuracy by those surveying operations by which alone this problem can be accurately solved. We are, however, not quite destitute of methods by which we can in some degree estimate the remoteness of other

intrinsically as bright as the stars which can just be seen with the eye, must be at least 100 times as remote.

It should also be observed that a star as bright as Sirius would still be visible to the unaided eye, though, of course, only as a very small point, if it were translated to a distance ten times as great as that at which it is now situated; it Sirius were at a distance 100 fo'd greater than that at which it now lies it would still be found within the range of a telescope of moderate power. Indeed, if Sirius were at a distance 1,000 as great as that by which it is at present separated from us, it would still not have passed beyond the ken of our mightiest telescopes. We have thus sound reasons for our belief that some of the stars which we can see through our great telescopes are at least 1,000 times as remote as Sirius.

Recent researches made by Dr. Gill and Dr. Eikins at the Cape of Good Hope have demonstrated what the distance of Sirius amounts to. It has been shown that the 1 ays from Sirius, travelling as they do with the stupendous speed of light, namely, at the rate of 180,000 miles each second, nevertheless require not less than nine years to traverse the distance between that star and our system. In other words, when we are looking at Sirius tonight we do not see that star as it is at present, but we see it as it was nine years ago. The light which reaches our eyes tonight must, in fact, have left the star nine years before. We have already shown that there is good reason for the belief that there are stars which are still visible in our great telescopes, notwithstanding that they are 1,000 times further from us than the brilliant Sirius. It follows by a line of reasoning, which it seems impossible to question, that the light of such a star must have occupied

momentous. It is plain that we do not see such stars as they are to night, but as

seem just on the verge of visibility, it is less on the earth are familiar would seem plain that those stars, assuming that they as nothing in comparison with the vicissitudes of climate in a planet belonging to a system of several suns. It would seem that occasionally the planet must come so near to one or other of the attracting suns that if any life had existed on such a planet it would necessarily be scorched to destruction.

Besides these globular clusters, the heavens contain many other associations ot stars arranged in striking groups. We may mention, for instance, the famous cluster in Perseus, an object of indescrib able beauty, which, fortunately, lies within the reach of telescopes of comparative-ly moderate power. There are also many clusters so distant that the stars are hardly to be discerned separately, in which case the object looks like a nebula, and the resolution of the nebu a, as it is calledthat is, the perception of the isolated stars of which the nebulous-looking object is formed-becomes a probl m which can only be solved by the very highest telescope power.

It has been conj ctured that these dim and distant clusters may be associations of stars v ry like that Milky Way which is relatively quite close to the solor system. It may, indeed, be the case that a sidereal group like the Milky Way would, if trans-ferred to an extreme'y remote part of the universe, present much the same sppearance in our telescopes as one of these nebulous clusters does at present.

Magnificent as are all the sidercal systems displayed to our observation, we ought still remember that there is a limit to our vision. Even the largest and most brilliant of suns might be so remote as to be entirely beyond the ken of the greatest of telescopes and the most sensi ive of photographic plates. Doubtless stars exist in profusion elsewhere than in those parts of space which alone come within range of our instruments. As space is boundless, it follows that the regions through which our telescopes have hitherto conveyed our vision must be as nothing in comparison with the realms whose contents must ever remain utterly unknown. Innumerable as may seem the stars whose existence is already manifest, there is every reason to believe that they do not amount to one-millionth part of the stars which occupy the impenetrable depths of Robert Ball. the firmament.

A ROYAL BRIDE'S OUTFIT.

Princess Maud's Wedding Gown

# Infants' Wear Department.

WE HAVE CONSTANTLY ON HAND A LARGE ASSORTMENT OF

Infants' Embroidered Robes, \$2.10 to \$8.15. Infants' Day Slips, 83c to \$3 50. Infants' Night Slips, 50c. to \$1.00. Infants' Cotton Skirts, 45c. to \$1.75. Infants' Flannel Shirts, \$1.15, and \$1.35. Infants' Foot Blankets, \$1.35, and \$1.45. Infants' Knitted Bands, 8 in, 55c.; 9 in, 602. Infants' Flannel Binds, 5 in, 22c. ; 6 in, 27c. Infants' Muslin Shirts, 22c. and 303. Infants' Cushmare Shirts, long sleeves, 50c and 70c.

Children's White Lawn and Nainsook Dresses, 70c. to \$3 60 Children's Colored Cotton Dresses, 48c. to \$1 90. Children's White Cotton Skirts, 39c. to \$1.05.

Infants' Silk Shirts, short sleeves, 532. In'ants' Embroidered Flannel Squares, \$1.45 to \$2.00. Infants' Silk Bibs, 503. to \$1.00. Infants' Muslin Bibs, 16c. to 60c. Infants' Wool Bootees, Assorted Prices. Infan's' Wool Jackets, 85c. to \$1.45, Infants' Cream Cashmere Cloaks, \$1.65 to 8.00. Infants' Silk and Muslin Hoods, Assorted Prices. Infants' Biskets, untrimmed or trimmed to order, Assorted Prices.

Children's White Muslin Aprons, 37c. to \$1 05 Children's Silk Shirts, short sleeves, 57c. to 80c. Children's Silk Shirts, long sleeves, 75c. to \$1.00.

Manchester Robertson & Allison, Stohn

upon the sides of the velvet zouave. There is a bind of the embroidery round the waist, passing through a gold buckle and a collar of folded velvet, with a line of embroidery at the top. The skirt is plain, not full, and beautifully hung, which features are indeed characteristic of all the skirts in the trousseau.

An afte noon dress is of black brocade in a small and graceful floral design. A yoke of tucked chiffon, black, is set in by a deep embroidery of jet beads and sequins taking the lines of a corselet. The body part is of black chiffon, worked in broken tapering lines of jet. The deep stin waistband is finished at the side by a rosette bow, with tall rabbit-ear end coming well up to the bust. A second black broche gown, with geranium-leaf pattern, has a blouse bedice of white satin under paillettes in a very delicate tracery, touch-

and ed at intervals with sparkling steel, which, with the black, has a brilliant effect. There English feminine curiosity is feasting is a collar to match and a deep pointed

i'ar designs in gold and gems are applique | the decolletage is bordered with scallops | of creamy chiffon over glace silk is edged above the lisse sleeves.

wi'h braces of pale green velvet. A ball may be rendered impervious to water and full mousseline de soie wrought with black gown of pale blue moire velours is ri hly never wear out. worked in silver and turquoises, and has | And then there are very elegant wraps, chiffon.

of black velvet prettily embroidered in jst. | with deep frills of soft creamy lace. The sleeves are full puffs of black chiffon. The sleeves are of shirred chiffon. A black broche dress, with small scrol's and the back is arranged in a Watteau fold. lightly traced, has a low corsage with a Of matinees in silk and muslin, frilled and white satin sash tied in a bow at the back. trimmed with lace and ribbons, there are Round the top is a berthe of black lisse, numbers. The under linen is all of the en broidered in graduated scrolls, done in finest description, trimmed with real lace jet cabochous, surrounded by fine beads so and marked with an 'M' and a crown in disposed as to thicken in shoulder straps satin stitch. The handkerchiefs are likewise marked. The stockings are of finest

One of the most elaborate ball dresses | silk-black for ordinary wear, but in delicin the royal trousseau is a delicate hue of ate open work for evening in all colors. primrote satin with the bolice draped in There are quantities of gloves. The day bud-green net worked over in groups of gloves have four buttons, as a rule, and the little natural-looking green currants mount- greatest number of evening gloves are ed on silver. This drapery is drawn into twelve-button mousquetaires of white kid, a deep-folded satin waistband, and the which are the court gloves There are, of sleeves are to correspond. On the full course, delicate shades to match dresses. demi trained skirt a panel of the embroid- and heavy ones for driving and hard wear.

er d green net is in roduced and is fin- The shoes and s'ippers are in proportion ished off at the foot with a large fancy bow. to the gowns, of dainty colors, elaborate An evening dress of geranium pink taffets, work, and good, serviceable material, but has the bodice drapery encrusted with of English make. Great attention has pearls, silver and coral, and is finished been given to the walking shoes, that they

the skirt cut in tabs over a flounce of blue | particularly a full seal cape, hned with black and cherry broche, and chinchilla

they were when our earth was 9,000 years younger. The light from such stars which is now entering our eyes at the close of this unparalelled journey had occupied all that long interval in crossing the abyss which intervenes between the solar system and the awful stellar depths. This vast time has been required for the journey, notwithstanding the fact that the light speeds on its way with a velocity which would carry it seven times a ound the earth in a second. Indeed the stars might have totally ceased to exist for the past 9,000 years and we should still find them shining in their places. Not until all the light which was on its way to earth at the time of the star's extinction had entered our eyes would the tidings of that extinction have become known to us. We are looking at such stars as they existed long before the earliest period to which any records of human history extend.

We can illustrate the same subject another way. Suppose that there ware astronomers in those remote stars, and that they were equipped with telescopes enormously more powerful than any telescopes which we have ever constructed. Supposing that notwithstanding the vast distance at which they lie they had the means of scrutinizing carefully the features of the earth. In what condition would our globe be presented from their point of view? These distant observers would not see any traces of the cities and the nations that now exist. Britain would appear to them as a forest inhabited by a few savages, and North America would be the home of the bison and the red man. They would look down on an Egypt in which the pyra- silver and brilliants. The short sleeves mids had not yet been built, and they might survey the cites of Babylon and Nineveh long ere these famous cities had been reared.

we have spoken there are of course others seemingly as numerous as the sands on the sea shore. No spectacle which the heavens display is more impressive to the beholder than that of a globular cluster, in half long, and fastens at the left side with which thousands of stars are beheld pack- bows of chiffon and trails of the snowy ed closely together within the limits of his field of view. Each of those stars is itself a sun, the whole forming a dense group of associated suns. Indescribable, indeed, must be the glory which would shine upon a planet which was situated in such a system. It seems, however, impossible that planets in association with thousands of suns, such as are found in a

Trousseau

upon the preliminary accounts of Princess belt, wrought all over with steel and jet is quite as great as that three years ago, to Princess May. It is announced with ostentatious patriotism that the orders for tributed mostly among British firms, and yet in the same breath the trousseau is described as beautiful, stylish, and dainty, even to the shoes. Ireland has furnished linen, lace, and poplins; Scotland, warm wraps and wool stuffs, while England and London have done the rest.

Official details of the royal outfit are all that are obtainable. These naturally are technical and colorless. However, the following descriptions of gowns and bonnets, shoes and stockings, gloves, handkerchiefs, and lingerie to be worn by the royal bride, are sure to interest womankind.

Following the fashion set by her Mabeen made at Spitalfield's, and is "marvelbusly beautiful" in texture and appearance.

It is of white satin, ivory in ton?, with a silvery sheen. The bodice is cut low, as is the custom at royal weddings, the square decolletage being trimmed with folds of mousseline de soie and trails of orange blossoms, jessamine, myrtle flowers, with here and there a dark green-leaf peeping through. Below, the satin on the bodice is drawn downward, across the figure back and front, terminating on the left side in a deep cein'ure delicately embroidered in

are arranged in snowy frills of chiffon with lines of the bridal flowers drawn down between them. The skirt is plain of the Besides those sidereal objects of which lustrous satin, with a ruche of chiffon, orange blossoms, myrtle, and jessamine around the hem. The train is cut in one with the skirt, about four yards and oneflowers passing through them. The bridal veil of old lace will be worn off the face, as all English royal brides wear it. Ornaments will be included among the many orders which the bride is entitled to wear. The going-away gown will depend upon the weather of the wedding day. Probably

Maud's trousseau, and the interest evinced sequins with delicate lines and curves. The sleeves are full on the shoulders and upon the occasion of her brother's marriage have long tapering points of white satin inserted at the cuffs, wrought with steel and jet and outlined with lines of steel. the present wedding outfit have been dis- | Another visiting dress is of pale pinkymauve striped chine and glace silk, the stripe of satin a shade or two paler than the silk. The bodice is simply fashioned with a soft fichu, so arranged that it looks as if careless'y placed around the shoulders. It is of needle-run Alencon lace, studded over with brilliants and deep

and pale amethysts. Similiar jewelled lace ornaments the cuffs and neck. A handsome gown of shot black and green silk, with black pinspots upon it, has sleeves and chemisette of plain lighter green silk, veiled in bl ck mousseline de sole, a waistcoat of rich cream colored brocade and a tiny vest of soft black chiffon, and a collar jesty and adopted by her daughters and of the same. There are tabbed epaulets of granddaughters, the wedding dress has the silk, edged with green sequin passementerie. A high belt of black satin com-

> pletes the costume. For a summer dress there is a grass lawn with a design in forget-me-not blue woven into it, with white feathery silken lines connecting the flowers. This is made over blue silk, the skirt finished at the bottom with a ruche of blue and white shot chine silk. The front of the bodice is of pleated pale-blue chiffon, with wide bands of guipure embroidery drawn up over it. while the waistband and neckband are of shot blue and white chine ribbon.

Blouses there are many. The most elaborate is of pile blue glace silk flowered with pink rose buds. This has a vest of fine white French lace and a black satin belt. A large collar is tabbed and has points of lace inserted in it. The sleeves are shirred from wrist to elbow, and have one single puff at the top. A second blouse of pale-pink shot silk in two shades of this color. It is smply made with a box pleat down the centre of the front. This has a unique collar. It is the only one that is frilled and high at the back, while plain in the front. This also has the Empire belt of black satin. A severely plain navy blue surah and a black surah, relieved with Irish crochet, arranged in a series of Vanrow Valenciennes lace. Several of these

UNGAR in this line and drawn to a great distance ten times as other planets equally beholden to the in cream satin skirt, are finished at the cuffs with five rows drawn to a great distance ten times as great. It would still remain visible to us by the help of a small telescope. If the star were with frawn to a distance 100 times as great it would still gen-erally remain within the ken of a large telescope. When, theretore, our large telescopes reveal millions of stars, which mentioned a full pl be convinced. UNGAR'S LAUNDRY and DYE WORKS 38 to 22 Waterloo Street. We pay expressage one way.

A demi-toilet gown for the theatre is of rose pink Roman satin. The bodice is throughout with the finest Russian sable. fastened invisibly at the side and crossed is a present from her mother. It is a comat intervals by diagonal lines of delicate fort to be able to say in conclusion-in black lace insertion, as also are the long sleaves. Another is a clear wear anything short of a whole convervatsky-blue fancy sik gown, na rowly striped ory upon the head-that the bats of the white, with a brocaded line in floral design. royal bride are described as "severaly This is arranged with tulle and lace. To plain.' be worn with a satin broche skirt, is a

fancy Irish poplin in a pale shade of maize, with faint lines of black. The back is stretched across the figure in one piece and caught into a black satin neck and waistband, fastening with a choux. Black lace trims the shoulders, and at each side of the arms is a jetted piece of black velvet, shaped to simulate the fronts of an Eton jacket. A broad pleat down the front is studded with three small cut jet but'ons. Princess Maud is an active participant in sports and all outdoor amusements, so she has a cycling costume of fawn-colored Venetian cloth. The skirt is not very wide but is arranged in plats at the back to divide and fall each side of the saddle. It is lined with silk serge, and at the hem are little pockets with flaps to button over, which, when riding in windy weather, will hold tiny bigs of shot to keep the skirt in place. A little single-breasted coat is fastened with three fancy white and brown bone buttons, and the lapels and col'ar are cut like those of a habit bodice with det chable collar and lapels of unbleached linen over them. The ba que is close fitting and is rounded away from the buttons in front, and has crescent-shaped pockets. A yachting costume of navy blue serge has a short coat bodice with pearl buttons, and a roll white cloth coll ir and belt which is fastened with a gold buckle. A pink cambric blouse arranged with narrow Valenciennes lace is worn with this. There are two riding habi's. One is a very dark, almost black, rough-surfaced cloth. The skirt is an ordinary perfect-fitting saddle garment. The basque is rather long, coat shaped and close fitting. It is single breasted, fastened with three buttons, and showing about a quarter of an inch of snow white drill inside the lapels and a couple of pearl buttons of a white drill wais'coat below the pile tan melton cloth, perfect fitting at the escaped. back with seams all s'rapped. It is semifitting in front, and so made that it can be worn either closed with a fly front or open to show a pretty waistcoat. The lapels are like those on a man's covert coat, and the collar is faced with velvet a shade or two darker in tone than the cloth. The sleeves are put in flat on the shoulder. The whole coat is the English ideal of what a lady's dress in the saddle ought to be. There are additional white drill waistcoats, single breasted, fastened with pearl buttons and having little flecks of blue or pink npon

globular cluster, could possess climatic ding should be stormy, a travelling cosconditions of sufficient constancy to meet | blue and pink shot silk. The bodice has a more fit ed for use than for ornament. The way, for doing all things. tume of pale brown Venetian cloth will be the requirements of organic life. deep folded belt of black satin falling in a cotton blouses are more fully trimmed in worn for the going-away gown. The skirt For the development of life practical proportion to their requirements than the little bow at the left side, and pointed rehas the seams strapped, but is otherwise We have the correct mestability of climate would seem to essential. vers of black satin, edged with grass lawn quite plain. The coat is double-breasted, others. They were made with box-pleat-Such conditions could, so far as we know, ed fronts, formed of embroidery, the pleats | tight-fitting at the back, with the seams guipure. The vest and collar are of blue thod for Cleaning and stars, even though their distances be so only be secured in a system like our own, bordered on each side with a frill of narstrapped, and the basque a little full and and white chine silk flowered with pink which is controlled by a single sun around great as to eluce entirely all the more dirnot very long. It is fastened in front with Dyeing, and the proof is which the several planets revolve. In such roses. With this will be worn a burnt ect methods of measurement. Suppose bone buttons, has a brown velvet collar, models are of fine grass lawn, the centre a case there would be no disturbances to straw toque, with puckered brim, into pleat, collars, and cuffs being of fancy emand cloth faced lapels, one of which has a that a star was just bright enough to be the regular motion of each planet, shown in the work. Try buttonhole worked in it. The sleeves are which are tucked clusters of shaded pink broidered grass lawn. visible to the unaided eye, and then sup- except those trifling ones which Among the evening dresses may be put in with flat pleats on the shoulders and pose that particular star were to be with arise from the attraction of the roses. At the back is a full pink and

collar. A royal purp'e velvet cape, lined these days when it is the English fashion to

#### MYTHS OF HISTORY.

#### Modern Research has Wrecked Many Cherished Stories.

The path of recent historical restarch is strewn with the wrecks of discredited myths, but of all these the wreck of the once cherished story of William Tell. Gessler and the apple is the most conspicuous. In 1760 a German book was published casting doubts on the narrative, and this book was publicly burned by the hangman of the canton Uri. It is now proven beyond any doubt that neither Tell nor Gessler had any existence, and the story of William Tell is now forbidden to be inserted in Swiss school books. Among many other myths once accepted as fact the following are conspicuous: The pass of Thermopylae was defended, not by three hundred Spartans, but by seven thousand Greeks. Nero did not chant the "Burning of Troy" during the confligration in Rome, and he did not murder his mother. Constantine the Great was great only as a scoundrel. The priest at the guillotine did not say to Louis XVI.: "Son of St Louis, ascend to Heaven !" and the king did not die with dignity, for he struggled with his executioners and screamed for help and mercy. The Spanish Armada wis not scattered by the winds of Heaven. The winds changed four times in its favor and saved it each time from destruction. In fact, if the wind had not gone right round to the south just after the battle of Gravelines, it is highly imbuttons of the coat. The second suit is of probable that a single ship would have

> There is But One.....

Way, and that is the right It the weather upon the day of the waddykes down the full front and sleeves, are it will be of pale blue-gray canvas over