SCIENCE AND ARTS.

(From Chambers's Journal.)

The progress of railways in India exceeds all anticipation. The line of 1000 miles from Calcutta to Delhi, for which government gives the land, is advancing at each extremity. One hundred and twenty-five miles from Calcutta to Ranegungee are open ; and another seventy-five miles, to Rajamahal, will soon be ready. The 400 miles from Delhi to Allahabad are to be finished in 1857. To travel between those two cities at present takes four days and nights, and costs L.25 ; but by rail, it will be a journey of twenty-four hours, at a charge of L.6. The whole line is to be completed in 1859. As in England, so in India—the greatest revenue was expected from transport of merchandise ; but the pasenger-traffic turns out to be by far the more profitable. The Hindoos appreciate cheap and rapid travelling, as well as ourselves ; and the railways seems likely, more than any other European innovation, to break down distinction of caste, that curse of Eastern society. The 'upper ten-thousand,' as the Americans call them, wished to have trains exclusively to themselves ; but the directors persist in despatching first, second, and third class carriages all in the same train.

The veteran Humboldt has written to the Astronomical Society 'On Certain Appearance connected with the Zodiacal Light'—drawing attention to new facts connected with that interesting phenomenon ; from which it appears that this remarkable light is not confined to the west, as was supposed, but has been seen by himself and others in the east at the same time. The latest observer, Rev. G. Jones, chaplain of the United States' frigate *Mississippi*. during her recent cruise in the China and Japan Seas. reports that he saw the 'extraordinary spectacle of the zodiacal light, simultaneously at both east and west horizons, for several nights in succession.' The conclusion drawn from the sum of his observation will be a startling one to many : it is, that the earth is surrounded by a nebulous ring lying within the orbit of the moon. So, if, as is stated, the ring be complete and continuous, we have for ages been playing the part of a smaller Saturn among our brother and sister planets.

A communication made to the Entomological Society by Mr. d'Urban of Newport, near Exeter, will be interesting to all—and the number is great—who are concerned in the manufacture of silk. He thinks that many species of *Bombycidæ* (silk-worms) are undeservedly neglected, and one, a native of Canada, is likely to stand our climate, and produce silk in considerable quantities. The cocoon is large and well covered, and double—a precaution, doubtless, against, the severity of the Canadian winter. 'Could it be made useful,' says Mr. d'Urban, 'it would be a great boon, as it must be a durable material, indeed, to resist the wind and rain of ten months, or even of two or three years, as I have found these cocoons adhering as strongly as ever to the tree the following spring after the escape of the moth.' As the insect will eat leaves of the maple, choke-cherry, and American plum, there would be 'no trouble in finding food for it in this country ; and,' Mr. d'Urban adds, 'I do not think there would be much difficulty in introducing it, as the cocoons could be gathered in any number in Canada and the United States, and sent home by steamers, backed in air-tight boxes ; as sea-air, from my own experience, seems to be fatal to them, it would be hardly possible to send the eggs across the Atlantic ; as only two months intervene between the appearance of the moth and the larva going into cocoon, it is manifest the eggs must be hatched soon after they are laid ; these eggs are large and oval in shape, and pure white, If the moths, were bred in England, could be got to pair, there would then be no further obstacle in obtaining a supply of silk by the end of the following August after their arrival.'

The project for a ship-canal across the Isthmus to connect the two oceans, which was loudly talked of in America a few years ago, is not forgotten, and we learn, that surveys of the proposed route have been made, and notes taken of the climate, geology, botany, &c., of the region. The plan is, to make use of the Atrato, a broad and deep river, navigable for seventy miles from its mouth, in the Gulf of Darien, by the largest vessels. At that point, a tributary, the Truando, falls in, which is to be widened and deepened for thirty-six miles, leaving twenty-five miles, through which a canal would have to be cut to reach the Pacific—this canal to be 200 feet wide, and thirty feet at low-water. No locks will be needed, so that no impediment will be offered to vessels passing each other at all times ; and there are good harbours at each extremity. The cost of the work is estimated at 174,000,000 dollars, which, compared with the trade between the Atlantic and Pacific, would leave a handsome profit, and all the risk of beating round Cape Horn would be avoided. According to the report published in the *Journal of the Franklin Institute*, 'the federal government of the United States proposes to verify the surveys ; and France and England have been asked to participate.'

Among recent patents taken out in America is one for weaving button-holes, or holes of any kind, in 'suspender webbing.' The apparatus is so contrived that when one side of a hole is woven, the web runs back, and the other side is formed. Another is for the preparation of the surface of metallic plates for printers, with a mercurial amalgam' to which the ink will not adhere ; whereby all the trouble now taken by copper and steel-plate printers to wipe their plates after inking will be saved, as the ink attaches itself only to the engraving or etching, and leaves the other portion of the surface free. Another is for an 'automatic rake' for harvest work. Improvements in knitting and sewing machines are numerous ; and one ingenious citizen claims 'a design for a cast-iron monument for the head of graves, combining the figures of harp and heart, with a recess for the insertion of a miniature likeness and inscription, and a locket of hair,' What next ? The office of Washington has granted altogether 250 patents for churns ; from which we may infor the approaching perfection of a highly useful dairy implement. Butter being made with rapidity, involves the necessity—among Americans at least—of a rapid means for weighing and stamping, and this is accomplished by a machine which has been in use for nearly two years. It consists of a scale beam, the weight at one end, a cup, enamelled inside at the other, in which, by a means of a lever, and and the wooden block or stamp, the lump of butter is weighed, compressed, and delivered in a condition ready for the market, with great celerity.

Canada has been so long inconvenienced by a mixed and confused coinage, that measures have been taken for reducing all the money of the country to a uniform standard. The legislature have authorised a report on the subject, and passed two resolutions, which we insert here as an encouragement to the promoters of decimal coinage for England :—'That after the first day of Jauary 1856, there shall be but one currency of accounts and payment, of which the dollar shall be the unit and standard of value ; the public accounts shall be kept in dollars, cents, and mills ; and the coinage be equal in intrinsic value to that of the Uniied States.'

'That the ton of 2240 pounds, the hundredweight of 112 pounds, the half-huudredweight of 56 pounds, and the quarter-hundredweight of 28 pounds, be reduced to a ton of 2000 pounds and its subdivisions.'

If, in altering our own standard or system, it could be assimilated to that of Canada and the States, how materially would its benefits be increased !

The Historical Society of Quebec is drawing attention to Anticosti as a desirable place for colonists and it is surprising, that an island one fourth larger than Prince Edward Island should have been so long neglected· It lies in the Gulf of St Lawrence, about 400 miles below Quebec, has excellent harbours, and is passed every year by the thousands of vessels trading to and from Canada. The resources are—a warm and fertile soil, resting on limestone ; abundance of wood ; and inexhaustible fisheries in the suronnding seas.

Arrangements have been made for flashing Greenwich time by telegraph to Christians once a week, so that merchant-captains in that port may be able to regulate their chronometers correctly—another example of the benefits which commerce may derive from science ; and this particular science is so useful, that all nations will avail themselves of it. The Russians find time for it, in spite of hostilities. The astronomer the Pulkowa Observatory, near St Petersburg, writing to our astronomer-royal that the 'war has prompted galvanic telegraphy in a rapid manner,' adds : 'At this moment we have already in Russia about 6000 miles or even more, of galvanic wires, and are on one side through Warsaw and Cracow, on the other side through Konigsberg, in connection with the foreign lines ; but to make use of these lines for scientific purposes will hardly be possible before the close of the war, for at present all the lines are continually used for official dispatches. Only one short line has served for scientific objects. This is the line of St Petersburg to Cronstadt, by which I have to transmit regularly exact Pulkowa time to that port, for the purpose of regulating the rates of the chronometers of our navy.'

What follows, presents another kind of interest. The writer, Mr. O. Struve, proceeds : 'It is really remarkable, that the war, until now, has not exercised the least influence on the progress of any scientific pursuit for which the support of government is wanted. On the contrary, the energy elicited by the state of war in one principal direction, has given rise also to a development of energy in many other respects. This will be proved, in part, by a short enumeration of the principal geographical undertakings, in the arrangement of direction of which we had to take part this year [1855]. First started from here a numerous party, under the direction of Mr. Schwarz, for the exploration of Eastern Siberia ; another party was sent to the steppes of the Kirghis ; a third, under the personal direction of Dollen, had to fix the exact geographical positions of a large number of points situated in or near the Ural Mountains, to form a base for the construction of an exact topographical map of the vast districts of mines in that part of Russia ; a fourth expedition, provided with forty chronometers, has to join. first, Moscow with Saratow ; and then this latter town with Astrakhan ; and, finally, the great trigonometrical operations in the southern part of Russia and in the Transcaucasian provinces are carried on without the least interruption.'

Gleanings from late Papers.

IMPORTANT TRIAL AT THE CRYSTAL PALACE.—The following account of a trial of scales at the Fair of the American Institute, held in the Crystal Palace in New York, is from the Pennsylvanian. We take pleasure in transferring it to our columns, reflecting as it does, great credit upon a wellknown and successful New England manufacturing firm. We would add that the scales manufactured by the Messrs. Fairbanks were taken from their usual stock in New York, and since the account of the trial was published, have been adjudged the best, and a gold medal has been awarded for the larger one and a silver medal for the smaller one :—

"We had the pleasure of witnessing, a few days since, an interesting test trial of various weighing machines on exhibition at the Fair of the American Institute in the Crystal Palace. The trial was confined to the relative merits of the celebrated Fairbanks Scales, the scales manufactured by Duryee & Forsyth, of Rochester, N. Y., and a newly patented scale, manufactured at Vergennes, Vt. To test the real merit of the scales, the committee placed upon the platform of a scale having the capacity of six tons, a weight of 3398 pounds, and then removed the weight to various parts of the platform. With this weight on one corner of the Vergennes Scale, the beam indicated 3390 pounds, when placed on the opposite corner the beam indicated only 3377 pounds, showing a difference of 13 pounds, and when removed to the centre of the platform the beam showed 3387 pounds. A request was then made, that the weight be again placed on the corner first tried, which was done, and the weight the beam now indicated was 3382 pounds, showing a difference of 8 pounds from the first trial. This variation is attributable in part to the arrangement of the platform upon the bearings, which forbids the possibility of its giving correct weight or agreeing with itself The test was then applied to a Fairbanks Scale, and when the weight was placed on one corner of the platform the beam indicated the *true weight*, 3398 pounds, on the second and third corners, the result was the same ; on the fourth corner, a slight variation was perceptible. So extremely delicate was the operation of Fairbanks' Scale, (capacity six tons,) that a quarter of a pound weight placed on any part of the platform raised the beam.

A Duryee & Forsyth Scale, of 40,000 lbs. capacity was next tested, and like the Vergennes Scale, it failed to give correct weight, or to agree with itself ; it showed a variation of ten pounds when the weight was removed from one corner to another. One of Fairbanks small Platform Scales was then tested with United States standard weights, and although it had been in constant use for six months, it exhibited unerring accuracy. The sealed weights were then placed on a similar scale manufactured by Duryee and Forsyth, but the result was far from satisfactory,—one corner was half a pound too light, the centre half a pound too heavy, and another corner two pounds too heavy."—*Boston Daily Journal*.

In the absence of late and more authentic news, we publish the following telegram from the St. John Courier, dated :—

HALIFAX, February 22d.

Steamer *Ætna*, from Havre for New York, put in here, short of coal, at six this evening—had very rough weather—brought Paris and Havre dates to 5th inst., bnt no English papers and no news of the Steamer *Pacific*.

Contents of French papers unimportant.

The *Presse* publishes names of negotiators about to assemble at Paris Conference. They are, for France, Walewsky and Bourguenay ; England, Clarendon and Cowley ; Austria, Buol and Hubuers ; Turkey, Ali Pacha and Mehemet Djmil Bey ; Sardinia, Dazeglio, Russia, Orloff and Brunow.

It is still current at Paris, that Prussia will not be permitted to participate. Prince Gortschakoff, when signing the protocol at Vienna, formally accepting Austrian propositions, demanded, that Prussia should be invited to take part in the Conferences. Count Buol supported the demand, but M. Burguenay and Lord Seymour had asked to refer it to their respective governments. The acceptance, by Russia, of peace propositions, had caused the greatest astonishment in Turkey. On the 19th, it had not yet reached the allied generals, owing to the submarine cable in the Black Sea being broken.

Some disturbances had been created by the Bashi Basouks at Shumla.

It was reported that a serious military conspiracy at Madrid, with ramifications through the North of Spain had been discovered—particulars not given.

Not a particle of any kind of English news.

THE CLAYTON AND BULWER TREATY.—A telegraphic letter from Washington, dated sinct the receipt in the city of the telegraphic report of the English news by the mail steamer Canada, in allusion to the reported angry words of Lord Clarendon and Mr. Buchanan, says, that there has been no important correspondence between the two Governments, since the date of the President's message, "which would provoke any extreme opinions or actions." It says also, that no formal proposition has been made by Lord Clarendon to refer the question of the interpretation of the Central American treaty to the arbitration of a third power ; but that Lord Clarendon made the proposition about a year ago, in conversation ; and that Mr. Buchanan replied, that there was only one potentate whom the United States would accept as an arbitrator, and that was the Emperor Nicholas of Russia, with whom Great Britain was at war. The author of the despatch intimates, that Lord Clarendon may have renewed the offer. Lord Clarendon stated expressly in his speech in Parliament, that the proposition had been renewed, and that he hoped the Government of the United States would agree to it.

It must be unfortunate for the United States, if among more than a dozen foreign governments, from whom we receive Ministers of a rank above that of Charge d' Affaires, and to whom we send Ministers of equal rank in return, there is but one which we can trust to decide a question of this nature, and that one happens to be at war with Great Britain. It is moreover a poor compliment to the other powers, with whom we are on terms of amity, to make a declaration of so extraordinary a want of confidence in them.

The question at issue between the two governments, being simply one of the true construction of the language of a treaty drawn up with great care to avoid misconstruction, would seem to be one, compared with all others, most proper to be decided in this way, and it is to be hoped, that if the proposition should be declined when made a second time, it will be for some better reason than that there is no foreign government in which the United States can confide for the equitable performance of so simple a service as that of determining the true meaning of a carefully written document—agreed to and signed by the accredited agents of the two parties, and ratified by their respective governments.—*Bos. Daily Adv. Feb.* 21.

Isaac, my dear son," said Mrs. Partington "being's you have good larnin' and know all about the course of human events, can't you tell me if Sevaster Pool, about whom the papers talk so much now-a-days, is any relation to Bill Pool, who was killed in New York."

"I'll be with you in a crack," as the rifle-ball said to the traget.

MAINE LAW IN NEW YORK.

A recent number of the *New York Tribune* gives the following observations on the working of the Prohibitory Liquor Law in that State :—

The friends of prohibition, who are a large majority of the people out of our State having any decided opinion on the subject, not only uphold the essential principles of the present Act, but *they mean to stand by this Law, until its provisions are everywhere enforced and respected*. Whoever says or insinuates the contrary is a wilful falsifier. The advocates of prohibition have confidence in both the people and the courts, and are certain of ultimate triumph. If the courts should knock a corner off our present law, they will restore or replace it to the best of their ability, always with deference to judicial authority. If the rumsellers should buy a legislature, we shall rally and carry its successor, able and eager to undo all the mischief it has wroughr. But we do not fear the choice, a rum legislature or an outlay of 100,000 dollars, which is all that the liquor interest have been able to raise for this fall's canvass.

As to the enforcement of the law, there is no demur or hesitation among its friends. Over two-thirds of the state, it is this day perfect. In the residue, it has been temporarily defeated by a conspiracy of mayors, recorders, judges, and others to trample it under foot. This is inevitably a transient evil. The decision of the Court of Appeals on the law-points raised under it, and the choice of a new legislature to uphold and strengthen it, will sweep away the last hiding-places of the desolating trffic. We are already freed from the curse of licensed rum-selling ; a few months more will place us in a position to stop the unlicensed as well. Patient and persevering effort will soon secure the end of our life-long struggle.

The Rev. H. W. Beecher, alluding to difficulties experienced in executing the law, in the city of New York, concludes by observing:—"What shall be done ? The friends of Temperance have a plain work before them. By patience and perseverance, exerted through years and against great opposition, they triumphed and obtained a good law. Now, by the same diligence and the same patience, they must secure the right men to execute the law. This will be done. It is only a question of time."