

Science & Mechanics.

WEATHER PROGNOSTICS.

In these days we ought to be thankful that the zeal and devotion to the cause of meteorology of such men as Commander Maury, Professors Henry and Kingston have brought about the organization of a system of telegraphic warnings, and our Minister of Marine and Fisheries, the Hon. Peter Mitchell, has decreed the establishment of a meteorological service in the sea and lake ports of the Dominion, and that the Magnetic Observatory at Toronto shall be the grand centre of telegraphic alliance, from which daily bulletins are to be issued, and the seaman and agriculturist are to be forewarned of any severe storm which is about to traverse the district. The best ideas penetrate the minds of men but slowly, and there are unfortunately many navigators and persons interested in shipping and agriculture who are indifferent to these warnings and always ready to cry "Cui Bono." They cannot comprehend the great advantages that would result to our rural districts from a knowledge of the weather based upon observations more certain than the usual signs. We should like to see the day, and hope we may, when every county, if not every village, will possess the necessary meteorological instruments and a paid observer, obtained either by a moderate assessment or a contribution from the townships, so that the farmers may, through the observer, foresee and pre-announce the approach of disastrous atmospheric disturbances, and not be dependent upon proverbial rules and prognostics of atmospheric changes deducible from the motions of animals, the observance of plants and flowers, and the appearances of the sky. Some of these proverbial rules are found scattered among numerous works of natural history, and they are very popular among the lower classes, and may not be found, we hope, altogether uninteresting to a certain class of our readers. Therefore we have collated a few of them.

It was long ago observed by the ancients that, from the peculiar motions and habits of many animals, the consequence, probably, of their sensations of pain or of pleasure, a very accurate judgment might be formed of the approaching changes of the weather; neither has this escaped the notice of some of the modern meteorologists.

Some animals express signs of uneasiness previous to an alteration of the weather long before there are any visible signs of change, and often when they have no opportunity of observing what is going on abroad. Dogs, for instance, closely confined in a room, frequently become very drowsy and stupid before rain. A leech, confined in a glass of water, has been found by its rapid motions or its quiescence to indicate wet or fair weather.

Rain may be expected when the swallow flies low and skims backwards and forwards over the surface of the earth and waters, frequently dipping the tips of its wings into the latter. Pliny enumerates among the signs of "Hirundo tam juxta aquam volans ut penna sepe percutiat."

When bees do not go out as usual, but keep in or near to their hives, or when ducks, geese and other water-fowl, are unusually clamorous, we may also expect wet.

If abroad, after long continued dry weather when the sky is thickening and rain approaching, we may frequently observe cattle stretching out their necks, and snuffing in the air with distended nostrils; and often before storms, assembled in the corner of a field, with their heads to the leeward. See Pliny's Natural History, xlviii. 35. "Bovæ caelum olfactantes æque lambentes contra pium."

When cocks crow at uncommon hours and clap their wings a great deal, it is said to be a sign of rain. If toads come from their holes in great numbers; if moles throw up the earth more than usual; if bats squeak and enter the houses, or if mice contend together and squeak much, according to many authors we may expect rain.

The garrulity of crows, ravens, and rooks, and the hooting and screeching of owls often indicates a change of weather. The misle thrush frequently sings particularly loud and long before rain. It is, from this circumstance, called in some parts of England the "storm-fowl." Magpies before and during wind fly about in small companies, and make a fluttering noise.

When the sea-gulls come in numbers to shore and make a noise about the coast; or when at sea they alight on ships, the sailors consider it a sure foreboding of a storm. These circumstances were known of old—see Virgil and Pliny. Before storms, too, the porpoise, dolphin, and grampus come to shore in large bodies. When dolphins play about the surface of a calm sea, Pliny observes, wind may be expected from that quarter from which they have come. Some authors have added tame swans flying against the wind as a sign of rain.

The subject of prognostics from plants, flowers, and the appearances of the sky we shall give in our next number.

Another startling discovery has been made by a Paris medico, namely, a method of killing animals and human beings by introducing air into their eyes. This system has been tested by experiments at the Veterinary School of Alfort, which have proved perfectly successful, the operation only lasting a few seconds, appearing to cause no pain, and leaving no trace whatever of the manner of death.

The following are medical signs of dreams, as published in a medical work:—Lively dreams are, in general, a sign of nervous action. Soft dreams, a sign of slight irritation of the brain; often, in nervous fever, announcing the approach of a favourable crisis. Frightful dreams are a sign of determination of blood to the head. Dreams about blood and red objects are signs of inflammatory conditions. Dreams about rain and water are often signs of diseased mucous membranes and dropsy. Dreams of distorted forms are frequently a sign of abdominal obstructions and disorders of the liver. Dreams in which the patient sees any special part of the body suffering, indicates disease in that part. Dreams about death often precede apoplexy, which is connected with determination of blood to the chest.

SAND-ENGRAVING ON GLASS.—The *Builder* notices a new step of progress in this curious mechanical art. "It consists in the substitution of the force of mere gravitation for that of steam or blast power. A box, or hopper, of suitable dimensions, is placed near the ceiling of the room, and from it depends a small tube of about 8 ft. long. No machinery whatever is used. The sand or emery-powder to be used for engraving is placed in the hopper, and regulated by a slide at the top; it falls down through the tube, under the end of which is held the glass, watch-case, cup, or other object to be engraved. In a few minutes the designs are cut with a great degree of exactness and beauty. Sufficient protection is afforded by designs of paper being pasted upon the surface to be engraved, or by writing or drawing the design on the glass with gelatinous or india-rubber ink. The cutting-powder is used over and over again, being transferred from the tray in which the work is placed to the hopper."

Experiments have been made in Australia with the view of finding means of clearing the muddy waters of reservoirs. The purest waters are, as a rule, those in which mud and organic matter remain longest in suspension. Water stood in a bottle, in the laboratory, for more than six months, without depositing the clay held in suspension. The soluble matter was chiefly chloride and carbonate of sodium, and was present in only small quantity. Another water stood for three months with like results. Both waters contained more clay than organic matter, and were rendered clear by an addition of chloride of calcium. One part of this salt in 1,000 of water cleared it in less than an hour; 1 part in 2,500 of water, in five hours; 1 part in 5,000, in six hours; 1 part in 10,000, in twenty-four hours. When, however, the water contained more organic matter than inorganic or clayey matter in suspension, the calcium salt did not act so readily, but was aided by an addition of lime: as little as two grains of quick lime cleared a gallon of water in twelve hours. Three or four grains of alum or chloride of aluminum answered the same purpose; but there are many objections to the use of alumina salts.

Courrier des Dames.

FANCY COSTUMES.

We supplement the list of fancy costumes recently published in this column with a few more suggestions, offered by correspondents of the *Queen*, which will doubtless be found acceptable:—

Neapolitan Fish Girl.—Short skirt of red and white, made either of cotton or some woollen material; three bands of black velvet on this. Black velvet Swiss bodice, laced in front over a thick white muslin, low square-cut bodice, the sleeves coming to the wrist, set in a loose band; a small muslin apron, with rows of some bright-coloured ribbon round it; grey stockings, with coloured clocks, shoes with large gold buckles, and gold earrings and coral round the neck. The head-dress is made of cardboard, six inches square, covered with silk, and a sash half a yard long falling at the back, and edged with rows of bright-coloured ribbon; the hair plaited with bows of ribbon behind the ear. The net and fish are slung at the back.

Italian Dress.—Short skirt of pink, bordered with yellow ribbon, edged each side with black velvet, a strip of ribbon coming from each side of the waist and finished off with a bunch of yellow ribbon half-way down the skirt. A white apron round the waist, and a scarf of yellow tied loosely. A white Garibaldi body made high to the throat and finished off at the wrist with lace and ribbon; over it a square corset body of black velvet, with mere shoulder straps, beads round the neck, or beads and ribbon in the hair, or the Italian square head-dress, as described above. In the Roman dress, a long apron turned down half a yard at the top, is indispensable, and a Roman scarf round the waist is an improvement.

Charlotte Corday.—Lamartine gives the following description of Charlotte Corday's dress: "Her head was covered with a Normandy cap, the lace of which flapped on her cheeks; a large green silk ribbon pressed the cap round her brow. Her hair escaped from it into the nape of her neck, and some curls floated down." The description is correct, but it is a mistake to call the cap a Normandy one. It was of the shape which has been reintroduced of late into France, and goes by her name; having a full muslin crown, with lace round it, which lays plain on the top of the head, and is very much filled at the ears and back. It is, in fact, of the same form as that we are accustomed to see on Marie Antoinette in the pictures which represent her in prison. Round the crown is a band of ribbon, with a bow on the right side, made of four deep loops and two ends. Her dress was a short white one, with a scanty skirt, having a gathered flounce or frill round it; a handkerchief or fichu over her neck was folded down to the waist, and tied behind. Some describe it as of silk, but it is more generally represented as of white muslin, worn over a short-waisted bodice.

GOSSIP.

The chignon, with its appendages, has gained a champion in the person of a Parisian Journalist. "It is the fashion now-a-days," writes this gallant defender of 'women's rights,' "to rail against false hair. As for me, I frankly avow that I prefer any amount of 'borrowed plumes' to the frightful rat's tail due to Nature's gift. If the plain of St. Denis were to be planted with magnificent trees brought from some distant forest, it would, thanks to these very trees which it never produced, offer a far more pleasing appearance than it does in its present miserably bare condition." Very good, monsieur, but what about M. Lindeman's *Gregaritidae*, with their nodosities, pteropperms, and pseudo-naveicellæ?

A lady African traveller, and a lady climatologist, have lately made their appearance on the European stage. The first of these is a Swedish Countess, Madame Skenns, who has recently arrived in Paris with the intention of organizing a new expedition—a feminine one—for the succour of Dr. Livingstone, as she thinks the work done by Mr. Stanley is not sufficient. She states that she well knows Central Africa, which she explored in company with her husband; and she alleges that she is personally acquainted with all the chiefs of the country. These are advantages her sister "scientist" does not enjoy. This is Mlle. Louise Michel—an ex-communarde—who has been condemned to exile in New Caledonia, and who has made arrangements with the Geographical Society to send them the results of the observations which she expects to make on the climate and productions of this hitherto unexplored region.

A writer from across the border has, like all other writers, his solution of the Servant Girl Question. His theory has the merit of originality to recommend it, while it strikes at the root of the question, "Can anyone tell me," he asks, "why, when Eve was manufactured from one of Adam's ribs, a hired girl was not made at the same time to wait on her?" Because Adam never came whining to Eve with ragged stockings to be darned, a collar string to be sewed on, or a glove to be mended "right away, quick now!" Because he never read a newspaper until the sun went down behind the palm trees, and then stretching himself yawned out: "Ain't supper most ready, my dear?" Not he. He made the fire, and hung over the tea-

kettle himself, we'll venture, and pulled the radishes, peeled the bananas, and did everything else that he ought to do. He milked the cow, fed the chickens, and looked after the pigs himself. He never brought home a dozen friends to dinner, when Eve hadn't any fresh pomegranates, and the mango season was over. He never stayed out until eleven o'clock to a "ward meeting" hurrahing for an out-and-out candidate, and then scolded because poor dear Eve was sitting up and crying inside the gates. He never played Allards, nor never drove fast horses, nor choked Eve with cigar smoke. He never loafed around corner groceries, while solitary Eve was rocking little Cain's cradle at home. In short, he didn't think who was specially created for the purpose of waiting on him, and wasn't under the impression that it disgraced a man to lighten his wife's cares a little. That's the reason that Eve did not need a hired girl, and we wish it was the reason that none of her fair descendants did.

A hint on cleaning kid gloves is always sure to be acceptable. The best method is to immerse the gloves in benzine in a well-stoppered bottle, leaving them there for a short time. They are then to be taken out, and after squeezing them to remove the excess of the liquid, they must be hung over a cord in a strong draught to dry. The smell of the benzine can be got rid of by laying the gloves upon a plate placed over a pot filled with boiling water, over which a second pot is to be inverted to secure a sufficiently high temperature. The heat of the boiling water will drive out the residue of the benzine and carry off all its odour. The gloves are then to be brought to their original shape by means of an ordinary stretcher. It should of course be borne in mind that this operation must be performed at a distance from any fire or flame, where there can be no danger of the benzine lighting.

A novel style of advertising has been adopted in Paris, and considerable amusement has been created by the appearance of a number of ducks, holding in their beaks small three-coloured flags, on the white stripe of which was written, "Buy the D— vermicelli. — St. No. —." An enterprising tradesman had made no less than eighty-four of these unlucky birds swallow a small ball, to which the flags were attached by a string, so as to keep them in a proper position.

The *Echo* states that a sister of Mr. Spurgeon is preaching with much success at Willingham, in Cambridgeshire, where her husband is a Baptist minister. The cases from Willingham tried before the local bench have decreased to such an extent that the police authorities have expressed their thanks to the lady preacher as being the instrument of the improvement.

Rhymes to conclude with. The "A B C upon a Ball"—by Mr. Greenwood. "The Amateur Casual"—is not new, but it may be unknown to some of our readers:

"A was an Angel of blushing eighteen;
B is the Ball where the Angel was seen;
C is the Chaperon who cheated at cards;
D is the Deutemps with Frank of the Guards;
E is the Eye which those dark lashes cover;
F is the Fan it peeped wickedly over;
G is the Glove of superlative kid;
H is the Hand which it spitefully hid;
I is the Ice which the fair one demanded;
J is the Juvenile who hurried to band it;
K is the Ketchief, a rare work of art;
L is the Lace which composed its chief part;
M is the old Maid who watched the girls dance;
N is the Nose she turned up at each glance;
O is the Olga just then in its prime;
P is the Partner who wouldn't keep time;
Q is a Quadrille put instead of the Lancers;
R the Remonstrances made by the dancers;
S is the Supper, where all meet in pairs;
T is the Twiddle they talked on the stairs;
U is the Uncle who "thought we'd be going";
V is the Voice which his niece replied "No!" [in]
W is the Walter who sat up too late;
X is his Exit not rigidly straight;
Y is a yawning fit caused by the ball;
Z stands for Zero, or nothing at all."

Liszt, the celebrated pianist, fell in love with a Jeweller's daughter. A Prague Journal thus describes the courtship:—"One morning the Jeweller, coming to the point with German frankness, said to Liszt, 'How do you like my daughter?' 'She is an angel.' 'What do you think of marriage?' 'I think so well of it that I have the greatest possible inclination to it.' 'What would you say to a fortune of three million francs?' 'I would willingly accept it.' 'Well, we understand each other. My daughter pleases you; you please my daughter; her fortune is ready—be my son-in-law!' 'With all my heart.' The marriage was celebrated the following week."

WE SAY THEY ARE GOOD.—The Shoshonees Pills are manufactured with the utmost care, scrutiny, and exactness, from the very active principles, doubly refined and purified, of such of the choicest remedial agents of the vegetable kingdom as to possess them of properties that only meet in harmony the exigencies of every ingredient entering into the composition of the Shoshonees Remedy, and also that give the Pills themselves more desirable qualities for general use than any family pill before the public. On account of the extreme mildness and yet great certainty in action of the Pills, as well as their strengthening and healing effects on the stomach and bowels, and in fact the whole system; along with their permeating and restorative action on the liver, kidneys, skin, &c., &c., we say on account of their superior qualities the Pills are placed on sale as a Family Medicine.

NAIRN'S ROAD LOCOMOTIVES.

Table giving results of experiments with Nairn's Locomotives, conducted by the makers, Messrs. J. & T. Dale, Kirkcaldy.

Nominal HP.	Diameter of cylinders.	Stroke of piston.	Gross tractive force in lbs.	Net weight of engine.	Water in tank.	Gross load on a level at 2 miles per hour.	Gross load on a level at 4 miles per hour.	Gross load on a level at 6 miles per hour.	Gross load on an incline of 1 in 30, at 2 miles an hour.	Gross load on an incline of 1 in 20, at 2 miles an hour.	Gross load on an incline of 1 in 10, at 2 miles an hour.
	in.	in.		t. c. cwt.	tons	tons	tons	tons	tons	tons	tons
4	4½	8	2700	4 15 10	36	18	12	20	15	10	
6	5½	8	4000	5 3 15	52	26	17	28	21	14	
8	6½	9	5400	5 1 20	70	35	23	38	28	19	
10	7½	10	6700	7 15 25	90	45	30	48	36	24	
12	8	10	8000	9 0 30	108	54	36	60	45	30	
15	9	12	10100	12 0 35	135	67	43	75	54	36	
20	10½	12	12800	12 0 40	176	87	60	93	70	47	
25	11½	14	16700	13 0 50	220	100	76	110	82	55	