

Air and Water.

The two substances everywhere met with on the surface of this globe which receive the least popular attention are air and water. The latter especially is one of the most remarkable substances in nature, and exceeds in its pervasiveness even the air. Go where we will, on the most arid desert, the mountain top, the frozen pole, in the deepest cavern, we meet with water in some or all of its forms. The coldest, hottest, or driest air found in nature contains aqueous vapor. Water forms a large portion of many minerals, in which by the giant power of chemical affinity it is directly combined or is locked up as water of crystallization. To adequately discuss all the natural phenomena in which some form of water is a factor would require a volume; to enumerate and describe all its industrial applications would require a number of volumes.

Both air and water are essential to the existence of all known life. Our bodily health can only be supported by our taking quantities of both at short intervals. Both may and often do become the vehicles of deadly poisons, which in densely populated countries and towns are liable to contaminate them. It is of essential importance that supplies of each needed for the support of animal life should be pure.

Air and water are the great natural distributors of heat and cold. The climates of different parts of the world are very materially affected by the hot or cold currents of air which flow over them, and by the analogous currents of water established by the action of heat in the great seas. Proximity to large bodies of water also has a very important effect upon climate. Water slowly absorbs the summer heat in very large quantity, and slowly gives it off again to the colder air of winter, thus tempering what would otherwise be cold and freezing winds, and retarding frost.

Air and water are the great natural distributors of mechanical energy. The currents of rivers represent a portion of the mechanical equivalent of solar heat expended in raising the masses of water that flow through their channels to the clouds. The winds that propel our ships and wind motors are the product of solar energy also. The chief and most economical means by which the heat generated in the combustion of fuel can be converted into mechanical energy for the propulsion of machinery is water, which this heat converts into steam.

The envelope of aqueous vapor which surrounds the globe, and forms a notable part of its atmosphere, is, as has been well shown by Tyndall, the great conservator of terrestrial heat. Should this aqueous envelope be removed by any cause the heat of the earth's surface would so rapidly radiate into space that every living thing would shortly perish.

The ice cover which forms upon the surfaces of lakes and rivers protects the life which exists in such waters. Were it not for this provision of nature these water deposits would become solid masses, in which all their teeming life would be immovably imprisoned.

The snow blankets which have spread this year over a large portion of our land perform a similar service for the vegetable life which lies dormant below. Without this protection the ground would be too deeply frozen, the frost would be too late in leaving the earth in the spring, the growing season would be shortened, and many of the plants that now thrive in the temperate zones would cease to exist in latitudes where they now abound.

Air and water vapor are the great diffusers of light. Were it not for our atmosphere no solar light could penetrate our houses where the sun rays do not directly enter, except such as might be reflected from solid objects. Everything not directly illuminated by the sun would lie in deep shadow. In the mid-day many of our apartments would require artificial illumination. Out of the direct sunshine only the lowest forms of life could exist. But the enormous diffusing, transmitting and reflecting power of our atmosphere compensates almost wholly for disadvantages of position, causing light to penetrate almost as universally as the air itself.

This is illustrated the wonderful character of these common substances—air and water—so important to all animated existence, yet so heedlessly regarded by the mass of mankind.—*Scientific American.*

Personal Taste and Skill in Woman's Dress.

Never did fashion give such scope to individual fancy and taste as at the present. In studying the past, each century and epoch shows a characteristic style of dress appropriate to its time and peculiar to its people. At the present day there exists no longer style in dress, and it is almost impossible to be out of style, as eccentric, old-fashioned and even ugly garments are in the height of favor, provided they are put on in an artistic manner. And in order to be conspicuous now-a-days, a lady has to be a downright dowdy; and a dowdy in this day and generation has not the shadow of an excuse for herself. The surprising rates at which beautiful and fashionable dress goods can be purchased puts it in the power of any lady who dresses at all to dress well. She cannot even plead as an excuse the high rates of the dressmakers, for she can be her own dressmaker. Stylish and graceful patterns of every description, from a slipper to a sweeping cap, can be purchased for a mere trifle. Large agencies are constantly sending out the latest and most desirable models of dresses, wraps and indeed of every article of apparel worn. These patterns are easily adjusted and simple in construction, and the envied and peculiar "twist"

given by the dressmaker is put into the lady's own hands by divers marks, notches and other unmistakable printed directions showing just where and how the forms are joined, all of which are easily followed, and advice is even given as to the selection of material and trimmings. If a lady chooses, however, she can exercise her own taste and ingenuity in drapery and garnishing her toilet. This will, of course, make the garment all the more novel and attractive, provided the lady has an artistic eye for combination and effect, but she would be safer, provided she were not absolutely certain as to her powers, to listen to advice than to give scope to bad taste, although glaring and inharmonious toilets are now the exception and not the rule. American ladies are noted for their development of great skill and taste in the art of dress, and they not only show skill but wisdom, for this is a sensible generation, say what the grumblers will to the contrary. The vogue of crumpled waists and thin-soled shoes has happily passed away, and gone to be numbered with the vain and foolish fashions religiously followed by our grandmothers, who, though wise in their generation in countless ways, were yet slaves to the fickle goddess; and it is a matter of congratulation that the grandchildren have come to be independent, reasoning beings, with minds and tastes and toilets of their own. A lady need not be rich to dress in taste and even elegance. She need not try to make a Queen Elizabeth or Eugenie of herself, but one "best" black silk dress will keep her in a ladylike and refined appearance as long as the dress lasts. There are a thousand and one ways of making pretty and fresh toilets, with one rich dress to do duty as a foundation for varying toilets; for much of the attractiveness and elegance of a lady's dress is made up of trifling accessories in the shape of pretty ruffs and frills, delicate and fresh ribbons, dainty laces and charming little overdresses, fichus and caps, and last but not least there is a whole Eden of flowers which may be converted into hats and capes, perures, garlands and wreaths, wherewith to transform a dull, grave toilet into a bright beautiful dress fit for Queen Flora herself.—*Cor. N. Y. Post.*

Manner.

One of the most prominent public men of our time said, lately, "I have lived sixty-three years in the world, and have come in contact with all ranks and quality of men; but I have never met one who when I spoke to him with sincerity and courtesy, would not reply to me in like manner."

This testimony is the more valuable as it comes from a man who probably possesses more personal popularity than any living American, and who owes it to the magnetic charm of his sincerity and courtesy of manner.

Dorothy Dix, who visited almost every prison in the United States, said that she had never received once a rude word from a convict, no matter how degraded he might have been.

"I showed them that I trusted them by my manner," was her secret.

There is no personal quality which young people are so apt to neglect as this, of an attractive, magnetic manner, which is so much more potent and enduring a charm than the beauty of face and figure which they prize so highly. It is not like the art of dancing, a charm to be learned, for it is not attractive when artificial. All the world, down to your dog, knows by instinct when the suavity, the genial smile, the friendly word, are assumed.

The basis, the absolute essential, in a thoroughly well-bred manner is that total lack of self-consciousness which not the most expert actor can assume. Hence all the awkwardness, the diffidence, the social mistakes of boys and girls. They are usually intensely self-conscious. Egotism belongs to their age. The world, their knowledge, their very selves, are all so new to them; their opinions and thoughts, and the part they mean to play in life, are so important to themselves—that they are apt to thrust them on others. After a while, when they learn how insignificant they are, they will begin to be considerate of others, easy and unembarrassed.

"I ceased to be awkward," says Sidney Smith, "as soon as I discovered nobody was looking at me."

But sometimes a man most anxious to please never finds out during a long life that the manner which attracts is that which shows that its possessor forgets himself, and is generously interested in his companion.—*Youth's Companion.*

A Teutonic Argument.

In the Legislature of Ohio, some years ago, there was a warm dispute whether a certain proposed railroad should commence at a given point down or at a certain other up the river. "Who ever heard," said a down-river advocate, "of beginning anything at the top? Who ever heard of building a chimney from the top downward? Who ever saw a house begun at the top?"

Up jumped a Dutch member from an up-river county. "Meester Brezident, de jentlemans zay dat dees beezness ees all von hooomboog, because vee vants to peegeen our railroad mit de top ov de Shtate, und he make some seely comparissons apout de house und de schimney. I veel also ask de jentlemans von questions. Een hees bart ov de Shtate, ven dey pegins to built von vell, do dey pegins mit de bottom ov de vell, or do dey pegins mit de top ov de vell? Veel de jentlemans bleeze answer me dat leeble von question?"

The laughter which explosively followed this Teutonic retort showed who, in the opinion of the legislators, had the better of the argument.—*Harper's Drawer.*

Making a Small Lawn.

How to make a lawn which shall be satisfactory is a question which troubles a great many. Digging, plowing and sowing grass seed often prove most unsatisfactory in results; the grass is often coarse, very unlike what we buy the seed for; the sod is very uneven; hummocks of grass roots occur here and there, with lower places between, as unlike a good sod as can well be. At the best it takes several years to get anything like a fair sod and lawn where we depend upon seeding. There may be, and probably are, faults and mistakes in attempting to make the lawn, which could be well overcome and a very different result be obtained. We may never expect to obtain satisfactory results unless the nature and composition of the soil is evenly alike over the whole lawn, and then it must be worked and treated evenly alike. Poor spots must have extra treatment to make them nearer equal to the best, either by extra fertilizing, better working, or by adding new and better soil from some other source. The soil must be of like depth, richness and composition, and be worked equally thorough in all parts, making the surface well pulverized. Then the seed will start and grow even and alike, and, if treated annually to a top dressing of manure, and frequently cut during the growing season, a good and permanent sod is easily obtained.

The most satisfactory result that I ever obtained was from the following course in the case of a small lawn or "door-yard," as called in former days: The ground was evenly and well worked and made as near uniform as possible. Then from the roadside I cut sods of even size and thickness and carefully laid them over the whole space, being careful to match and lay close up where the pieces joined, so that when the whole was finished one would hardly believe it to be a new-laid sod. Of course great pains were taken in selecting the sod to have it all alike well set with grass. This was done in the spring; perhaps fall would have done as well. After laying the sods the whole was well watered with a sprinkler, the result being that we had a good, handsome, smooth sod, well set with just the sort of grass desired, and likely to last, probably, for a lifetime, always provided it is properly treated. If one has only a limited area this will prove one of the most satisfactory methods. Sods from an old pasture are as good, and oftentimes better, if one can obtain them; they can be cut by horse-power with an implement adapted for the purpose, cutting the turf in strips of even thickness and width, and leaving it in its place ready to be cut to lengths and carried where needed. Perhaps I should have said that my experiment was made on a rather light sandy loam.—*Cor. Country Gentleman.*

Increasing the Corn Crop.

This winter has been a very unfavorable one for preserving corn in common cribs. There has been much snow and rain, and they have blown in the cracks of the cribs and rendered the corn moist. When the grains and cob have been wet they have frozen, and the freezing, most likely, has destroyed the germ of the seed. This fact can only be satisfactorily ascertained by testing some of the kernels. This may be readily done by placing them between layers of cotton batting, or in loose cotton, moistening them, and placing the vessel that contains them in a moderately warm place. If experiments show that a considerable proportion of the corn relied on for seed will not germinate, means must be taken in season to procure a supply that is reliable. This matter should not be deferred so late as to put off the time of planting till beyond the usual period. In this latitude it is necessary to utilize the entire growing season if we wish to obtain a large crop of corn. It is vastly better to give five dollars a bushel for reliable seed corn than to plant that of which there is any doubt.

Many persons who are careful in their selections of seed corn make up for their want of prudence and foresight by replanting the "missing hills." Common observations show, however, that replanted corn, like chickens that are helped out of the shell, never amounts to much. If it is of the same variety as that which was planted in the first place it is not likely to mature if the season is short. It is a source of trouble during the season of cultivation and harvesting. If an early variety is selected for the reason that it will mature quickly, the product of the field will be mixed corn, which will command a lower price in the market than a lot that is of the same kind throughout.

After procuring an ample supply of reliable seed corn of a good variety, attention should next be given to the preparation of the ground where the crop is to be produced. It is not enough to plow and harrow it well. If there are low places in the field provision must be made for draining them, and for preventing water from collecting in them during the season. More corn is lost by water standing on the ground than by any other cause. Land intended for corn should never be plowed when it is wet. The soil should be in a condition to be pulverized as it rolls from the plow. If the soil is quite damp when it is plowed it will not be in a condition to work well at any time during the entire season.

It is a mistake on the part of many farmers to suppose that corn is not an exhaustive crop. Its growth does not exhaust the soil of a few elements, as wheat does in a few seasons, after which it cannot be raised in paying quantities. Neither does it quickly appropriate the elements of plant growth, as is the case with flax and most of the

small grains. The reason of this is that the plants occupy but a comparatively small amount of the soil in the field where it is planted. As the hills are generally about four feet apart, the roots do not extend through all the soil occupied by the crop, as is the case when seed is sown broadcast, or planted by a drill. Still the roots draw the fertility from the soil they occupy, and in the course of a few years the change in the location of the hills will cause all the ground to be occupied by roots at least for one season. Our prairie land is rich in the material required for the production of corn; but crops grown several years in succession will cause it to become poor. In many of the richest portions of the West the decrease in the yield of corn has been great during the past few years.

No crop shows the effect of high manuring better than corn. The easiest and perhaps the best method of applying coarse farm-yard manure to corn land is to spread it over the surface and to plow it under. Treated in this way, it benefits the crop during the entire season. Its effects will also be seen on several following crops planted on the same land. In the East and South, where farmers seek to make a small amount of manure "go a long way," they apply the manure in the hill. Only that which is thoroughly decomposed is employed, as new and rank manure would be likely to destroy the seed. A furrow is made for holding the manure, that is dropped at proper intervals, or an opening is made for the manure with a hand hoe. This method of applying manure is laborious, but it is productive of excellent results. Fine, well-rotted manure in the hill gives the corn an early start and causes its growth in the first part of the season to be very rapid. The largest corn crops in the country are produced where this manner of applying manure is practiced.

Lately it has become fashionable to run a light smoothing harrow over land planted with corn as soon as the plants are a few inches high. By so doing the first weeds that appear are killed, and no great injury is done to the growing corn. Some hold that no lasting injury is done the corn. Its appearance is bad for a few days after the harrow is used, or till a rain occurs, but it then improves and generally grows rapidly. Very careful farmers go through a field of corn as soon as the plants are a few inches high, and with a hand hoe work the soil immediately about the hill. If stones or lumps of hard earth are over the young plants they are carefully removed. All weeds and grasses are killed and the soil is loosened about the plants for a few inches on all sides. If there is a deficiency of light soil some is drawn about the hill. Care is also taken to kill cut-worms that are likely to injure corn in the earlier stages of its growth. The frequent use of the hand hoe in the corn-field is strongly commended to all who take pride in raising superior crops. No matter what improved implement is used in doing the chief part of the work of cultivation, the hand hoe should be used in connection with it or after it has been employed. But little soil may be stirred with a hoe, but it is moved exactly as it should be. The plow, harrow and cultivator are all excellent for stirring the ground between the hills, but for treating that in the hill itself there is no implement like the hand hoe. In cultivating corn with any horse implement some hills are likely to be injured, and the hand hoe is necessary to repair the damage. The instances are rare that premiums are awarded to crops of corn that were not tended in part by the use of the hand hoe. If a hoe is made of good material and is kept sharp and bright it is easily handled. Its use, since the introduction of labor-saving implements, has been too much neglected, and, as a consequence, our corn crops have been reduced.—*Chicago Times.*

The dome erected by Sir Henry Bessemer for the reception of his new and powerful telescope, is now nearly finished. The telescope itself has arrived from the makers, and is now ready to set up. It has been constructed on a plan devised by Sir Henry Bessemer, which it is believed will permit of telescopes being made on a much larger and more powerful scale than even the present one, which is the largest one in the world. The present instrument is capable of being directed to any part of the heavens at the option of the observer. The upper portion of the dome is made of glass, with windows facing in every direction, and within there will be placed mirrors of silvered glass, which is part of the new invention, silvered glass being used in place of metal. The room and dome with its windows will revolve and keep pace automatically with every motion of the telescope, and the upper end of the instrument will reach a height of about forty-five feet.

The list of edibles for the consumption of civilized nations is gradually extending. Asses' meat is the latest addition to the menu of the unprejudiced gourmet. It has lately been tried, dished up in a variety of forms, by a circle of enthusiasts at Brescia, similar in character, we take it, to the well-known Societe l'Hippophogie, of Paris, and pronounced highly satisfactory. But this can scarcely be called a new discovery, if, as generally understood, the meat of the same animal is the chief component in the genuine Bologna sausage. We may note here that the Hungarian dish, Kolosh, which figures on the bills of many city restaurants, chiefly German, is only an imitation of the real *plat*, which, in its native land, is made of horse-flesh, while here it is counterfeited in beef.

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