

D E W.

All have been struck with the beautiful phenomenon of dew, and must have had frequent occasion to observe its beneficial effects. A single dew-drop, so beautifully pure and clear, and so lustrous in the morning sunshine, is an object well worthy our attention and admiration. And when we see the fields and lawns, with their innumerable plants, strewn with "orient pearl," and sweetly refreshed by the copious moisture, so as to be prepared for the scorching heat of day, can we fail to be delighted by the beauty of the scene, and profoundly impressed by the inimitable skill with which all vegetation is thus watered and revived?

If we inquire into the causes of dew, and the periods of its more abundant formation, we shall find the same marks of creative skill and benevolence that meet us in every other field of physical research. In all substances heat exists in a greater or less quantity; and from these it radiates in all directions, like light from a luminous body. Thus there is a constant and mutual interchange of heat between all kinds of bodies on the earth's surface, and consequently a tendency to a universal equalisation of temperature. Heat is also given off from bodies by conduction; but conduction strictly speaking, is only a particular, though a very remarkable, case of radiation. The process of conduction, moreover, is much less general and important than of direct radiation, which, in the great operations of nature, is the chief means of transmitting heat from one substance to another. A great portion of the solar heat absorbed by the earth in the course of the day, is radiated into the cooled air during the night; and the radiation proceeds till the surface of the ground is at a lower temperature than the surrounding atmosphere, provided only the sky be serene. If the sky be cloudy, most of the radiated heat is retransmitted from the clouds to the earth, so that the temperatures of the earth and atmosphere remain nearly equal. When the heat is not radiated back, but allowed to escape into the higher regions of the atmosphere and the exposed surface of the earth, and of the substances upon it, thereby becomes colder than the air, it results from the principle of the condensation of vapour by cold, that a deposition of the invisible moisture floating in the air takes place. This moisture generally exists in the greatest quantity when the heat of the sun is powerful and continued; and at nightfall it is ready to be condensed into visible globules by the relatively cold substances with which it every where comes in contact. These globules of condensed vapour form what is called dew, and should be carefully distinguished from the moisture which is formed into clouds, and which visibly descends in the shape of rain or fog. Thus, dew cannot properly be said to fall, as it has been erroneously supposed to do. It is merely caused by the condensation of moisture contained in the air that is in contact with a cold substance; and its formation is strictly analogous to that of the moisture which appears on the inside of windows when the external air is suddenly chilled,—of that which appears on a cold stone or piece of metal when we breathe upon it,—or of that which is observed on a glass of cold spring water, in a warm room.

It has been ascertained by experiment, that dark coloured bodies radiate heat, and therefore cool, with greater rapidity than bodies of a light colour. A dark or green substance, if it be exposed to the night air, will be covered with dew, while substances of a brighter colour, in similar circumstances, will remain almost dry. If the surfaces of the latter be smooth or polished, their radiation will be still less perfect, and their dryness consequently greater. In our morning walks we frequently see the green grass and bushes plentifully bedewed, while the light materials of the road remain untouched. Here we perceive a new and beneficial effect of the prevailing colour of vegetables. Green is not only a lively and beautiful colour, and least hurtful to the eye, but green substances are among the best radiators of heat, and are therefore most liable to condense the moisture of the surrounding air. Thus the leaves of plants, which require a constant supply of moisture, being mostly of a green colour, are admirably fitted to procure it.

In warm and settled weather, when the hot day is succeeded by the calm clear night, dew is most abundant. Now, it is just then that it is also most necessary; for the heat of the sun, unmitigated by any cloudy screen, increases greatly the general evaporation, and there is no rain to compensate for the increased quantity of moisture of which plants are thereby deprived. In cloudy weather, when the solar heat is mitigated, and rain is more abundant, dew is less necessary to the health and nourishment of plants; and it is precisely such weather that is most unfavourable to its formation. The clouds, as we have already seen, radiate back the heat transmitted from the earth, and thus prevent the temperature of the ground from sinking to the dew-point. Frequently, when a clear nocturnal sky is suddenly covered with clouds, the dew already formed is evaporated, as the temperature of the earth is increased by the counter-radiation from above. And, again, should the clouds clear away, and the sky become serene, dew immediately begins to form. Thus,

there is not unfrequently an alternate formation and evaporation of dew in the course of the night, as the aspect of the sky fluctuates between clear and cloudy. In covered or shady spots, it has been observed, that there is always the least dew. The shade or covering radiates back the heat, and thereby keeps up the temperature of the ground below. Thus, in the recesses of the wood, where on account of the impervious shade, there is least evaporation during the day, little or no dew is formed upon the rank grass, which is otherwise well provided with moisture: so little superfluity of means is there in the works of nature. In the production of any given effect there is an economy of resources which, while it greatly enhances to our apprehension the wisdom and skill of the Creator, is well fitted to teach us a useful moral lesson.

Most of the grand phenomena and aspects of nature are mentioned in scripture, and so applied as to teach or illustrate some important lesson. They are spoken of as declaring the glory of God in creation; they are employed to represent his dealings with the children of men. The snow, the hail, the thunder, and the storm, are appealed to as grandly shewing forth his power, and terrible majesty; the wind, "that bloweth where it listeth," the early and the latter rain, and the gently dropping dew, are used as appropriate images of the blessings continually showered down from on high, and especially of the influence of the Holy Spirit upon the soul. The Bible, designed to be an intelligible record of divine instruction, abounds in imagery borrowed from material nature, and expressly adapted to arrest and charm the attention. It contains many beautiful allusions to the phenomena of dew.

The beneficial effects of dew, in reviving and refreshing the entire landscape, have already been adverted to. How frequently do we observe the aspect of the fields and woods improved by the dew of a single night. In the summer season especially, when the solar heat is most intense, and when the luxuriant vegetation requires a constant and copious supply of moisture, an abundant formation of dew often seasonably refreshes the thirsty herbs, and saves them from the parching drought. In Eastern countries, like Judea, where the summer is fervid and long continued, and the evaporation excessive, dew is both more needed, and formed in much greater abundance, than in our more temperate climate. There it may be said to interpose between the vegetable world and the scorching influence of a powerful and unclouded sun,—to be the hope and joy of the husbandman, the theme of his earnest prayer and heartfelt gratitude. Accordingly, the sacred writers speak of it as the choicest of blessings wherewith a land can be blessed; while the want of it is with them almost synonymous with a curse. Moses, blessing the land of Joseph, classes the dew among "the precious things of heaven." (Deut. xxxiii. 13); and David, in his lamentation over Saul and Jonathan, poetically invoking a curse upon the place where they fell, wishes no dew to descend upon the mountains of Gilead. The Almighty himself, promising, by the mouth of one of his prophets, to bless his chosen people, says, "I will be as the dew unto Israel; he shall grow as the lily, and cast forth his roots as Lebanon" (Hosea, xiv. 5). Here the refreshing and fertilising effects of dew beautifully represent the prosperity of the nation which God specially favours and protects. The dew is also employed by the prophet Micah to illustrate the influence of God's people in the midst of an evil world, where he says, that "the remnant of Jacob shall be in the midst of many people, as a dew from the Lord" (Micah, v. 7). What emblem more expressive of that spiritual life, in some of its members, which preserves a people from corruption and decay!

Another beautiful application of the dew in Scripture, is its being made to represent the influence of heavenly truth upon the soul. In the commencement of his sublime song, Moses employs these exquisite expressions,—“My doctrine shall drop as the rain, my speech shall distil as the dew; as the small rain upon the tender herb, and as the showers upon the grass” (Deut. xxxii. 2). Similar passages might be quoted from the sacred writers, wherein, by a felicity of comparison that all must at once acknowledge, the word and ordinances of God are likened to the dew of the field. How strikingly the reviving effects of dew upon the parched and thirsty vegetation of the sun-scorched plain typify the moral and spiritual freshness diffused by the word preached in its purity, and received with faith and love! As the dew of a night will sometimes bring back beauty and bloom to unnumbered languishing plants and flowers, and spread a pleasant freshness over all the fields, so will some rich and powerful exposition of revealed truth, or some ordinance dispensed with genuine fervour, not unfrequently enliven and wholly refresh a Christian congregation, or even spread a moral verdure over a large portion of the visible church. If the soul be stained in its intercourse with the world,—if, like the grass on the wayside that is covered with dust, it contract impurity in the beaten paths of life, the word of God falls upon it with a refreshing influence, like the dews of night upon that grass, to wash it, and to wipe away all marks of contact with surrounding corruption. If it be scorched by the withering sun of persecution, and pine for spiritual nou-

ishment and support, that same word bedews it with the sweetest influences, and affords its sustenance in richness and salubrity, like that of the heavenly manna itself.

But let us not forget that the word of God sheds a healing influence only when it is rendered effectual by the Spirit of all truth. The Spirit worketh through the instrumentality of the word; silently, secretly, and powerfully worketh; falling gently, operating unseen, and diffusing refreshment around, like the balmy dews of night. Of the Spirit's agency the dew is, indeed, the finest and aptest illustration. As dew to the parched and drooping flower, so is the Spirit shed upon the Christian's soul; as the "dew of Hermon," or "the dew that descends upon the mountains of Zion," spreading freshness and beauty over the whole surface of the ground, so is the same Spirit poured out in rich abundance upon the Church, the spiritual Zion, in times of reviving and refreshing from the Lord.

As we spring from our couch, therefore, on the bright summer morning, and walk joyfully forth into the fragrant fields, to breathe the inspiring air, feast our eyes upon the glowing mixture of colours in which all nature is arrayed, and listen to the sweet and various music that ascends from every grove, let us not fail to derive a high spiritual lesson from the dew that is so thickly strewn upon the grass beneath our feet. Distilled in the silent night by the reciprocal influence of heaven and earth, it bathes and refreshes each blade and flower with its stainless moisture. Let us regard it as the chosen image of God's choicest blessing, the cleansing and sanctifying influence of his spirit upon the heart of man.—*Dr. Duncan's Sacred Philosophy of the Seasons.*

NATIONAL DEBT.

[From Tuesday's Gazette.]

The Lords Commissioners of her Majesty's Treasury, having certified to the commissioners for the reduction of the national debt, in pursuance of the act 10 Geo. 4, c. 27, sec. 1, that the actual surplus revenue of the United Kingdom of Great Britain and Ireland, beyond the actual expenditure thereof, for the year ended 5th day of April, 1837, amounted to the sum of £1,862,823 5s. 7d.

The commissioners for the reduction of the national debt hereby give notice that the sum of £465,705 16s. 4d. (being one-fourth part of the said surplus of £1,862,823 5s. 7d.) will be applied under the provisions of the said act, between the 7th day of July, 1837, and the 10th day of October, 1837, to the following purposes, viz—

To be applied to the purchase of stock £165,705 16s. 4d.
To be applied to the purchase of Exchequer Bills, made out in pursuance of the act 57 Geo. 3, c. 48 300,000 0 0

£465,705 16s. 4d.

Add interest receivable on account of donations and bequests to be applied to the purchase of stock 3,275 4 11

£468,981 1s. 3d.

S. HUGHAM, Comptroller-General.

National Debt-office, July 3.

THE PEARL.

HALIFAX SATURDAY, SEPT. 16, 1837.

THOMSONIANISM.—In order to enlighten our readers on the subject of medical science, we now recur to Doctor Thomson's theory, invented by himself, for the general benefit of mankind. We give the gist of the theory as discovered by Doctor Thomson, in his own words.

"I found, after maturely considering the subject, that all animal bodies are formed of the four elements, earth, air, fire and water. Earth and water constitute the solids, and air and fire, or heat, are the cause of life and motion. That cold, or lessening the power of heat, is the cause of all disease; that to restore heat to its natural state was the only way in which health could be produced; that the constitutions of all mankind being essentially the same, and differing only in the different temperament of the same materials of which they are composed; it appeared clearly to my mind, that all disease proceeded from one general cause, and might be cured by one general remedy; that a state of perfect health arises from a due balance or temperature of the four elements; but if it is by any means destroyed, the body is more or less disordered. And when this is the case, there is always an actual diminution or absence of the element of fire or heat; and in proportion to this diminution or absence, the body affected