

**Weather Factories.**

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In Greece and Sicily the three midwinter months resemble a west Indian rainy season, and increase the sickliness of the coast swamps to such a degree that foreigners generally prefer the misery of the dog days. Byron arrived at Missoloughi in the month of February, and died in April, after fighting the fever for six weeks. The summers are healthier, but inexorably dry; and, without irrigation and the elevated mountain ranges that always have a little moisture to spare, Southern Europe would be a sort of Africa Minor. Murcia and Valencia, under the parallels of Missouri, are hotter in summer than Southern Yucatan; on the Gulf of Salerno, near the ruins of Paestum, 110 degrees in the shade is nothing unusual; for the proximity of the ocean is no protection against the arts of the desert-makers; the Portuguese have managed to ruin Maderia, and the Spaniards in a still shorter time, have ruined a considerable part of Central America and the West Indies.

Up to the end of the eighteenth century the whole world of the Caucasian races had been a cooperative factory of villainous climates; but about eighty years ago the good weather-makers began their noble work. Near Cape Breton, on the west coast of France, the drifting of the dunes had encroached upon the arable soil till the inhabitants of half a hundred hamlets had to remove their houses and rebuild them further landward, when it occurred to the proprietor of an endangered farm to protect his garden by a bulwark of rush-wattles.

That stopped the sand drifts for five or six years, during which time his vineyard and an orchard of young apple-trees became the finest on the Breton coast, till a heavy sand-storm overwhelmed the bulwark and ruined his vineyard in a single week. But the orchard stood its ground; the foremost row of trees had broken the force of the wind, and the rearward rows continued to flourish till nothing but a sand hurricane could have endangered their growth.

The hint was too valuable to be neglected, and during the next ten years (1802-12) Professor Brémontier elaborated a system of tree culture which has since enabled the coast dwellers of Europe to reclaim about ten thousand acres per year in France, and eight thousand in Denmark, Belgium, Eastern Prussia and the Tuscan Maremma. In the Landes of Gascony, and in the Belgian "Campine," the planting of the umbrella pine (*Pinus maritima*) has effectually arrested the advance of the dunes, and thus given the inhabitants a new lease of their land, but also a new climate; the average monthly rainfall has more than doubled in summer, and perceptibly decreased in the winter season. The improved summer weather of Bayonne, at the south end of the vast pine plantations, has made it the favorite seaside resort of Southwestern France. In 1832 Mehemet Ali decided to try his luck with the *Waddies*, or sand-plains, on the coast of Egypt, Upper Egypt, Abyssinia and the slopes of Mount Caucasus were overrun by the tree agents of the autocrat: trees by ship loads and caravan loads were landed at Cairo, and distributed to the overseers of an army of *l'ellahs*; and according to a moderate estimate, 15,010,000 of fruit and forest trees were actually planted and so carefully nursed that 40 per cent. of them took root and helped to qualify the soil for further plantations. As a result, the average yearly rainfall has increased from 0.60 to 14 inches, and the summer temperature of Suez decreased from an average of 92 Fahrenheit to 86 degrees.

In North America the colonists of the Atlantic States were blessed with such a re-

dundance of forests that thus far the axe has not changed our climate for the worse. It has made our summers a trifle dryer and the winters considerably warmer. Very dry summers like those of 1875 and 1881 are too exceptional to establish the probability of a permanent change; but I venture the assertion that a committee of five hundred old farmers, representing the five mountain States of the Southern Alleghanias, would agree with hardly a dozen dissenting voices that the temperature of the five coldest months has steadily moderated for the last forty years. Eye-witnesses in eight or nine different counties assured me, for instance, that in the first half of this century the Ocoee (or Toccoa, as they call it in Georgia) used to "freeze solid" about every other winter, while during the last fifteen years it froze only twice—in February, 1877, and January, 1881. So in West Virginia and western Pennsylvania, heavy snow storms have become shorter and less frequent, and "cold snaps" less severe, though in the agricultural districts of the same States one often hears the complaint that the bad weather has begun to set in sooner—i.e., that the miracle of the Indian Summer seems not to last as long as formerly.

In the West Indies and some of our Gulf States the clearing of the primeval forests has already gone too far. The denudation of the coast plains has produced extensive sand-barrons and their usual concomitants, sand-drifts and scorching summers. On the Pacific slope the ruralists of a prehistoric race have committed the same blunder on a larger scale, and the return of many discouraged pioneers of the Great West has scared our cotton planters into redeeming their worn out fields, and it is evident that the experience of France has awakened our agriculturists to the climatic importance of our remaining wood-lands though the work of replanting the forests of the West appears to lag from want of systematic management.

But it seems more than probable that weather manufacture is destined before long to become the principal occupation of the human race. The children of the next century, like the Alabama cotton planters, will be obliged to reclaim their own fields. Instead of husbanding the interest of our earthly inheritance, we have devoured the principal, till the day of reckoning is now evidently near at hand. The 680,000 foreigners whom a single year has added to our population, and its average increase of four-tenths per decade, presage that a second centennial of our independence will be celebrated by half a billion citizens of the United States; in other words, that before the end of the next century our country—prairies, mountains, and all—will be as thickly populated as Egypt under the Ptolemies, or as Belgium under her present King. But since General Hazen has proved that it would be far easier to reclaim Palestine than two-thirds of our Great West, it is probable that the tide of immigration will overflow into Mexico and South America. There, too, every square mile of arable ground will be crowded before some of our boys can be called old men—*et apres?*

"We will reclaim the land of our fathers," said Mehemet Ali, when he planted his *Waddies*. "You will? you must?" one might reply with Byron's French Count. To plant or not to plant will soon be an equivalent of Hamlet's alternative. The Old World was on the verge of bankruptcy when Colon and Cook effected a stay of proceedings; and if that respite is up the prodigals will be reduced to a dilemma of cultivating old fields or the talents of Dr. Tanner. A considerable plurality of European malcontents are still under the impression that the agricultural capabilities of the United States could be measured by the total area of

our territory, but the next forty years will suffice to convince them that the builders of the Casas Grandes have forestalled us in the Great West, and after a recoil toward the neglected highlands of the Alleghanias the westward current of the tide will bring us back to our eastern garden home: the first oyc-c will be completed and the era of reconstruction will begin.

And by that time the experience of the Algerian colonists will have taught us a useful lesson. The results of their systematic horticulture have revealed the consoling fact that the work of the first successful tree planter facilitates the labor of his neighbors as well as of his successor. When a good sized orchard has once taken root it exerts a fertilizing influence on the adjacent sand fields; even in the midst of the desert, a clump of forest trees tends to propagate itself—Vishnu prevails against Shiva; and without the constant interference of the *Simia destructor*, as Lorenz Okon proposed to call the mischievous biped, the spontaneous spread of the oases would probably redeem the "Dying Continent" in two or three centuries. But the alliance of man and nature is more than a match for all the hostile powers of the elements, and if the establishment of that alliance has once been recognized as the only practical plan of salvation, the work of redemption will proceed fast enough to meet the wants of a growing population for many centuries to come.

Asia Minor would be a good nucleus, a central weather factory for the withered fields of the five Aryan Empires, and in itself the fairest prize of the redeemer. The tree gardeners would extend their plantations from the mountain woods downward, and after the western highlands had once been restored to their pristine fertility, grove after grove of the ancient settlements would emerge from the sand sea like the mountain tops from the assuaging waters of the deluge. Further east the difficulties of the work would increase, but also its rewards. The Taurus and Lebanon will receive the Aryan wanderers in the home of their fathers; the river nymphs, the wood birds and wood gods will return to their ancient haunts; the terrace lands of the Mediterranean coast would offer every variety of soil and of climate, ready-made names for every new village, and chances for classic treasure-troves, in every plowed field. The first May festival under the replanted oaks of Bashan will be the birthday of a new world, the second advent of the *Juventus Mundi*. The harmony of nature recalls in the smallest things the law of the greatest, and if the labor of a single man can redeem an old farm, the labor of millions can redeem an old empire; and even the twentieth century may witness the highest triumph of the Caucasian race; the restoration of their birthland in the fertility that could astonish the leaders of the Egyptian refugees, and with a climate that could lure the Italian magnates from their luxurious villas.

When Pessimism had gone out of fashion Claude Bernard, M. D., ventured in a public lecture to profess his belief that the progress of science was destined to effect the physical regeneration of the human species. "The physical laws of God," said he, "shall then be so thoroughly understood that a sensible man will think it a disgrace to be sick." Nor is it impossible that the nations of that golden age will be ashamed of a drouth, and that Macaulay's New Zealander will gather figs on the site of a former Sahara.

No man can be successful who neglects his business.

No rank can shield us from the impartiality of death.