

For the Scientific American.
Drawing False Horizons.

BY CHARLES BURTON, PROFESSOR OF PERSPECTIVE.

Having made the study of Perspective Drawing the chief business of my life for more than forty years; I, at a very early period, discovered that no confidence could be placed in any of the Treatises on that subject, as a reference to real objects almost invariably contradicted most of the Diagrams given to illustrate the subject, and its principles; the simple reason of which (to me) appears to be that—all the books that I have ever yet seen on the subject evidently copy the error of a work, published in London, about 200 or 230 years ago without taking the trouble to examine whether they were consistent with facts at all times discoverable to an observing eye.

I have often, been greatly surprised that many eminent Artists should neglect to make their own observations in this subject; but, in truth, it is so much easier to copy from others, or to design in the Studio, without knocking about in the arena of Nature to come at TRUTH, that many otherwise excellent works of merit make absolute Monsters of the "Human form divine," by their extremely Low Horizons.

Indeed you can have no conception how almost universally prevalent this great error is; but, I hope, before I get through this humble essay, to give you and the public the means of judging for yourselves, when a picture has a natural horizon; and, as I have long felt a desire to give publicity to some of my observations on this scientific subject, I know of no periodical better calculated for the purpose, than your valuable and interesting paper, the SCIENTIFIC AMERICAN, only I could wish that some of its machines were drawn different, and that isometrical perspective (?) was totally abolished.

I could name a number of pictures, lately exhibited in the Arts Union, with very low horizons; but I shall mention no names, lest I should be charged with ill will to any artist; my aim is against error, and false principles, not against men. My ardent wish is to see the Fine Arts pursued with scientific accuracy; and my hopes, to see them liberally patronised; and to prove that I do not wish to censure modern American artists more than those of England and the old Continental schools, a work is now before me, containing (I believe) correctly engraved copies of many paintings, by very eminent artists, which are equally defective in the place of the horizon. Here is a table of a few of them:

Adam and Eve driven out of Paradise—by Vanderwerf—Place of the horizon, just above Adam's ankle.

David, with the head of Goliath—by Mortimer—Place of the horizon, halfway up David's thigh.

The Death of Samson—by A Caracci—Place of the horizon, just above Samson's knee.

The Descent from the Cross—by Rubens—Place of the horizon, even with the second round of the ladder.

Samson slaying the Philistines—by De Louthembourg—Place of the horizon, a little above Samson's knee.

Many more celebrated names might be added to the above, having the same error; but I will now refer you to more modern pictures, with the same fault. You must have seen "Washington crossing the Delaware," where the horizon is represented less than one-third the height of him and his horse. Now, although Washington was a fine looking man; and a truly great man; he was not a monster in height; neither was his horse; and I could defy any man, Artist or not, to throw me such a low horizon beyond a man and horse, unless he were to stoop very low, or dig a hole and jump into it, for that express purpose; neither of which positions would be natural; or probable, on such an occasion.

There are, also, whole length Portraits of John Kemble, the tragedian, Andrew Jackson, Gen. Taylor &c., some with similar, and some even with lower horizons, which you may have seen; all of which make the person appear from three to six times the height of human beings, as I will now attempt to prove, by an easy mode of demonstration.

Was you never seated in a room where you

could look through the window and see the horizon, or a distant landscape; and when you arose from your seat, the distant view seemed to rise past the horizontal frame of the window with you? Or, let us ascend the spire of Trinity Church!—the distant horizon is rising too! Why we can see the the Atlantic Ocean! True—and now tell me—what is the height of Trinity spire compared to the distance we can see from it? Nothing, comparatively nothing! And does not this fact convince you of the truth of the first lesson I always inculcate, when teaching perspective, viz. *The horizon is always the height of the beholder's eye.*

Apropos—here comes Mr. Hales, the English Giant. Nature made me short of stature, you a little taller; I see the horizon a little below your eyes, and even with the breast of Mr. Hales; but if Major Littlefinger was here he could look between Mr. Hale's legs, and see it below his knees truly; but because the dwarf sees the horizon below the knees of the giant, shall we pronounce all the artists who have erred in this respect, dwarfs like Major Littlefinger? Yet me must either suppose so, or that they dug holes, and got into them to see such horizons; or that their horizons are false, which is really the truth.

In few words—if we are neither Giants, nor Dwarfs, when on any thing like even ground, we are used to see the distant horizon somewhere between the eyes and shoulders of standing men; and all that the horizon is represented below that height, make adults appear monstrously large, and children and sitting adults still more so, as we are used to see the horizon above their heads!

Now, look at your Diplomas—haul out your Bank bills, or Notes, and note how few of their Allegorical figures will bear criticism by the above correct principles.

New York.

Mirage in the Great Salt Desert.

Bryant, in his journal of a tour in California, gives the following description of one of the remarkable phenomena of the famous Eastern deserts, which it seems, is also to be seen in our American Salt Desert:

As we removed onward, a member of our party in the rear called our attention to a gigantic moving object on our left, at an apparent distance of six or eight miles. It is very difficult to determine distances accurately on these plains. Your estimate is based upon the probable dimensions of the object, and unless you know what the object is, and its probable size, you are liable to great deception. The atmosphere seems frequently to act as a magnifier; so much so, that I have often seen a raven perched upon a low shrub, or an undulation of the plain, answering to the outlines of a man on horseback.

But this object was so enormously large, considering its apparent distance, and its movement forward, parallel with ours, so distinct, that it greatly excited our wonder and curiosity. Many and various were the conjectures (serious and facetious) of the party, as to what it might be, or portend. Some thought it might be Mr. Hudspeth, who had concluded to follow us; others that it was some Cyclopean nondescript animal, lost upon the desert; others that it was the ghost of a mammoth or Megatherium wandering on "this rendezvous of death." It was the general conclusion, however, that no animal composed of flesh and blood, or even a healthy ghost could here inhabit. A partner of equal size soon joined it, and for an hour or more they moved along as before, parallel to us, when they disappeared, apparently behind the horizon.

During the subsidence of this tempest, there appeared upon the plain one of the most extraordinary phenomena, I dare to assert, ever witnessed. As I have before stated, I had dismounted from my mule, and turning it in with the cabsilada, was walking several rods in front of the party, in order to lead in a direct course to the point of our destination. Diagonally in front, to the right, our course being west, there appeared the figures of a number of men and horses, some fifteen or twenty. Some of these figures were mounted and others dismounted and appeared to be marching on foot. Their faces and the heads of the horses were turned towards us, and at

first they appeared as if they were rushing down upon us. Their apparent distance, judging from the horizon, was from three to five miles. But their size was not correspondent for they seemed nearly as large as our own bodies and consequently were of gigantic stature. At the first view I supposed them to be a small party of Indians (probably the Utahs) marching from the opposite side of the plain. But this seemed to me scarcely probable, as no hunting or war party would be likely to take this route. I called to some of our nearest men to hasten forward, as there were men in front coming towards us. Very soon the fifteen or twenty figures were multiplied into three or four hundred, and appeared to be marching forward with the greatest action and speed. I then conjectured that they might be Captain Fremont and his party with others, from California, returning to the United States by this route, although they seemed to be too numerous even for this. I spoke to Brown who was nearest to me, and asked him if he noticed the figures of men and horses in front? He answered that he did, and that he had observed the same appearances several times previously, but they had disappeared and he believed them to be optical illusion similar to the mirage.

It was then, for the first time, so perfect was the deception, that I conjectured the probable fact that these figures were the reflection of our own images by the atmosphere, filled as it was with fine particles of crystalized matter, or by the distant horizon covered by the same substance. This induced a more minute observation of the phenomenon, in order to detect the deception, if such it were. I noticed a single figure, apparently in front in advance of all the others, and was struck with its likeness to myself. Its motions, too, I thought, were the same as mine. To test the hypothesis above suggested, I wheeled suddenly around, at the same time stretching my arms out to their full length, and turning my face sidewise to notice the movements of this figure. It went through precisely the same motions. I then marched deliberately and with long strides several paces; the figure did the same. To test it more thoroughly, I repeated the experiment, and with the same result. The fact then was clear. But it was more fully verified still, for the whole array of this numerous shadowy host in the course of an hour melted entirely away, and was no more seen. The phenomenon, however explained and gave the history of the gigantic spectres which appeared and disappeared so mysteriously at an earlier hour of the day. The figures were our own shadows, produced and reproduced by the mirror-like composition impregnating the atmosphere and covering the plain. I cannot here more particularly explain or refer to the subject. But this phantom population, springing out of the ground as it were, and arraying itself before us as we traversed the dreary and heaven-condemned waste, although we were entirely convinced of the cause of the apparition, excited those superstitious emotions so natural to all mankind.

Function of the Skin in Man and Animals

In a very curious experimental paper, Dr. Ducros shows that a coating of gum-lac put on the skin of animals, causes them to die in a longer or shorter time by producing convulsive movements similar to epilepsy. When the animals coated with gum-lac were subjected to electricity they died in a much shorter time. He next tried the effect of metallic coverings as he entertained the notion that, because they had opposite electrical properties, animals so coated would die with symptoms of an opposite nature. He therefore cut off the hair from some animals and covered them with thin plates of tin (tin-foil) and found that they perished with symptoms of debility the reverse of what he had noticed when the coating consisted of a resinous substance.—When the tin was covered with a coating of gum-lac the animals perished still more rapidly. He then placed under the influence of electricity some of the animals covered plates of tin and found that so long as they remained connected with the electrical current their vigor appeared to be restored; but that whenever it was arrested they appeared ready to perish. The object of these experi-

ments was to ascertain what would be the likely effect of such coverings in certain diseased states of the human frame and especially in nervous or neuralgic affections and in rheumatism. He reasoned that if metallic coverings deprived animals of life by producing rapid sinking of the vital powers the same metallic plates applied to the human body would cure or remove those diseases which seemed to depend on an excess of organic life. On putting his plan to the test of practice he was so fortunate as to find that it removed some nervous, and a few acute and chronic rheumatic affections. The plan of treatment was of no avail in any case where the disease was dependent on, or connected with organic lesions, or attended with fever, or swelling of the part, or with general weakness; on the contrary, in all these cases the metallic plates augmented the disorder.

Land of Plenty.

In Singapore, with the exception of children and bedridden adults, it would be impossible to suffer from starvation: privations are the lot of all; but it must be said for this tropical region, that an all-kind Providence seems to have opened her stores most lavishly for the use of man; he needs neither to toil or spin, and yet like the lilies of the field, he can be fed and clothed. Every cleared spot that is allowed to run into jungle furnishes leaves of various kind that can be used in curries or in stews. The common *Ubi kayu* gives a delicious arrowroot, and this plant is found as a weed, and used as a fence; in all parts, the clady (*Arum esculentum*) that springs up indigenous to our marshes and ditches though possessed of a poisonous fluid in its leaves and epidermis of the root, yet furnishes in the latter, when boiled, a wholesome food for man and fattening nourishment for pigs in its leaves. The sea and rivers teem with fish and the beaches with molluscs and edible sea-weeds. If any part of a ditch is dug, in three or six months it will be filled with fish, and daily from it you will see superannuated women and young children drawing out small yet tasty fish, to season their dry rice or insipid caldy.

Coral Formations.

A barrier-reef off the north-east coast of the continent of Australia, is the grandest coral formation existing. Rising at once from an unfathomable ocean, it extends one thousand miles along the coast, with a breadth varying from two hundred yards to a mile, and at an average distance of from twenty to thirty miles from the shore, in some places increasing to sixty and even seventy miles.—The great arm of the sea included between it and the land is nowhere less than ten, occasionally sixty fathoms deep, and is safely navigable throughout its whole length, with a few transverse openings by which ships can enter. The reef is nearly twelve hundred miles long, because it stretches nearly across Torres Straits.

The long ocean-swell, being suddenly impeded by the barrier lifts itself in one great continuous ridge of deep blue water, which curling over, falls on the edge of the reef in an unbroken cataract of dazzling white foam. Each line of breaker runs often one or two miles in length, with not a perceptible gap in its continuity. There is a simple grand display of power and beauty in this scene, that rises even to sublimity. The unbroken roar of the surf, with its regular pulsation of thunder, as each succeeding swell falls first on the outer edge of the reef, is almost deafening, yet so deep toned, as not to interfere with the slightest nearer and sharper sound.

Dying for another Man's Wife.

Mr. L— resides in Henry street. His wife who is an economical body, has sent a costly silk gown to a French dyer. The dyer himself brought the dress home, and unlucky as it happened met the husband of the lady at the door. "Is madame within?" asked the Frenchman. The husband who is of a jealous disposition, replied, "And suppose she is, what do you want with her?" "I am dying for her sair." "You dying for my wife—get out of my house, you scoundrel!" and he had just raised his foot to kick the honest mechanic into the street, when the lady made her appearance and set the matter to rights.