## Picturesque America; or, the land we live in

a delineation by pen and pencil of the mountains, rivers, lakes, forests, water-falls, shores, cañons, valleys, cities, and other picturesque features of our country ; with illustrations on steel and wood, by eminent American artists

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Niagara.



The Brink of the Horseshoe.
bezi, or the Wagogo, are, in his opinion, not inferior to the far-famed Niagara. But this is simply an ebullition of enthusiasm, due to personal feeling, and the indulgent reader regards with a smile a statement which it is alike impossible to verify or to controvert. The essential quality of Niagara is its sublimity. Other falls are dashed from more stupendous heights, and lost amid chasms of rocks of wilder and more savage formation. But none of them even approach this cataract in that first essential of magnificence. Nor can we be surprised at this when we consider that over the ledge of limestone at this point the accumulated waters of four vast inland seas hurl themselves madly on their way to the ocean, and that, during the last half-mile before the wild descent, there is a decline so great as to produce the most superb rapids. The territory that these lakes drain is equal to that of the entire Continent of Europe, many of the streams that feed Lake Superior being fully two thousand miles away. Hence the volume of water
precipitated is so enormous as to produce the most majestic effects, and it may well be doubted if Niagara would gain much by an increase in the height of the fall. At present the height is, on the American side, one hundred and fifty-four feet, and, on the Canadian, one hundred and forty-five feet. The reader can without difficulty recall to his mind many water-falls whose height exceeds this; but it often happens that the volume

of water over such descents is very small, as is notably the case with the Bridal-veil Fall in the Yosemite Valley. That, however, has advantages of the most striking character in its surroundings Niagara has nothing. All that it boasts of the sublime and the beautiful is contained within the rock-walls of its stupendous chasm. All its approaches are plain, dull, and tedious. The country around is almost absolutely flat, divided into fields that wave pleasantly with bearded grain, and dotted with white-
painted wooden houses, ugly churches, homely factories, and mills. There are no forests, and but few fine trees; and these are confined to the verge of the chasm, and have been planted there by people who mourned the poverty of the surroundings of the great fall, and desired to add something to the immediate effect. The villages that now crowd about its vicinity have no recommendations on the score of fine taste; and, though


Barnett's Stair, in Winter.
the numbers that resort hither from every land have made large hotels necessary, it has never been thought worth while to surround them with gardens, or to do aught that should remove the utilitarian look of the place. Niagara, it must be confessed, resembles a superb diamond set in lead. The stone is perfect, but the setting is lamentably vile and destitute of beauty. And, even in the chasm to which its glories are confined, there is but little loveliness or majesty in the configuration of the rocks, though they are deeply in-
teresting because the river has laid them bare from top to bottom, and exhibits their stratification as clearly as a geologic chart. First we find Niagara limestone, compact, hard, and full of geodes; next to this comes a soft, crumbling shale, argillo-calcareous in character; next comes a hard, gray limestone; then thin layers of greenish shale; then mottled sandstone; then layers of reddish shale and marl; then red, quartzose sandstone ; and, lastly, red, shaly sandstone, intermixed with marl. And not only does Nature thus disclose the composition of the ground, but she enables us to see the work which has been done by the turbulent waters. We realize at once that two great feats have been performed through their agency-one the cutting of a channel from the head of Lake Erie to Lake Ontario, the other the retrogression of the falls from Lewiston to their present position. The method of operation of the former must be left to the opinions of geologists; but the latter is before our very eyes, and we cannot fail to comprehend it. There is no fact more undoubted than the first location of the falls at Lewiston, and of their gradual retirement by the eating away, year by year, of the rocky ledge over which the waters hurl their strength. The shale is so much softer than the other rocks, between whose strata it lies, that it is scooped out by the influences of moisture and frost with comparative ease. The result is, that the slabs of limestone and the masses of sandstone have, at length, their supports withdrawn from them, and are toppled down. The rate at which this work goes on varies considerably, according to the volume of the Niagara River and the severity of the winter's frost; but the average is considered, by scientific men, to be about one foot per annum. Those romantic persons, therefore, who have felt grieved at the inevitable fate of the cataract, may be comforted by the reflection that it required a period of thirty-six thousand nine hundred and sixty years to bring the falls from Lewiston to their present position; and it will take a much longer period to remove them back to the head of Lake Erie. And it is some comfort to reflect that, as nothing save a shifting of the poles or a sinking of Lake Erie can change the relative position of its bed to Lake Ontario, the falls must always be somewhere between the two. Also, in receding, the falls will gain considerably in height, as the slope of the rapids will then be added to the present fall. It is within the range of possibility that, when the cataract shall reach the source of the river, a new one may be formed at any point along its course. It is the opinion of Professor Agassiz that at one time there were three distinct water-falls in the thirty-four miles of the Niagara River. There is a cause which might produce another one. It has been suspected, on a comparison between the volume of water at the falls and that which is poured into Lake Ontario, that at least one-half of the accumulation of the upper lakes finds its way into Ontario by a subterranean channel. The Niagara, below the falls, has a mean depth of one hundred feet; below this, the bed of the river is filled up, for another hundred feet, with blocks of sandstone and slabs of limestone of enormous size, which have been detached from the rocks, and have sunk to the bottom. Those which have

UNDER THE FALLS, CANADA SIDE.
been broken down by ice are, of course, ground to powder in the ice-gorges; but these form only a small part of the masses which are detached every year. The retrogression of the falls will necessarily make considerable changes in the channel, and thus will affect the subterranean river very materially, even to the extent of choking up its entrance. Then the rocky masses which form the false bed will begin to shift, and will be carried down to Ontario, producing such inequalities in the depth of the Niagara bed as may well cause another fall. These, however, are mere speculations, floating scum-like over the sea of science; but the retrogression of the falls is undoubted. The residents of the place have grappled this fact, however much they may disdain abstract science, and, knowing that the day must come when all their hotels and buildings, all their stairways, and their bridges and apparatus, will be useless, have determined to make hay while the sun shines. They unfortunately, while they appreciate the fact, seem to ignore the time during which these sad changes will be brought about; and they are as rapacious as if every present year was going to be the very last of Niagara, and had to be paid for accordingly. In no quarter of the world is the traveller fleeced as at these falls; he cannot take a single glance at any object of interest without having to pay dearly for it. Still there are few people who can afford to visit the place who do not go there ; for man's impertinence and rapacity, though they poison the pleasure, cannot rob the scene of its awful sublimity.

The first discoverer of Niagara Falls quickly perceived that Table Rock, on the Canada side, was the best point of view for the ordinary spectator, though for the artist there are several other spots which bring into prominence various interesting features. It is so still, even after the fall of Table Rock itself, all that remains of that famous slab of limestone being a mere shelving rock. Here a rustic seat is arranged for the accommodation of visitors, who from this point can take in at one glance the whole of the falls. Immediately in front of them is the Horseshoe Fall, where, from the extreme depth of the channel, the water has a deep-emerald tinge of exquisite beauty. Next to it come shelving down the shores of Goat Island, with which, by bridges of frail aspect, on the right hand, is connected Terrapin Tower, and, on the left hand, Luna Island. Between Goat Island and Luna is a small fall, sometimes called Schlosser's. Beyond Luna Island stretches the American Fall. The whole width of the river here is four thousand five hundred feet, of which the American Fall occupies eleven hundred feet, Goat and Luna Islands fourteen hundred, and the remaining two thousand feet belong to the Horseshoe Fall. But it must be remembered that this measurement is from point to point; for, in reality, the curvilinear shape of the Horseshoe has a much more extensive line, probably double as much. These details one learns afterward, the first gaze of the visitor being too productive of the stupefaction of extreme awe to allow him to notice individual details. One sees the extraordinary volume of water, and its deep, rich color; one sees the clouds of smoke-like spray rising at the base; one hears
the roar of the cataract; and that is all. At the time being, nobody can estimate what is seen. The mind is stunned, and what the eye sees produces no effect upon the imagination. Afterward, when the mental powers have recovered their elasticity, the faculties of observation and of perception emerge from their lethargy, and act upon the discoveries of the eye. This peculiar condition of mind somewhat resembles the stunning effect of great grief caused by misfortune on the
 owners of side-shows in the neighborhood, will

Stairway at Whirlpool. permit you, and, after all, you have not seized the
idea of Niagara, and you will not be able for some time. Best is it, therefore, to glance from Table Rock last of all, and to examine first the details which the enterprise of individuals has placed within our power to study and observe. The great feat, of course, is to descend the stairs underneath the Table Rock from Barnett's, and to penetrate under the Horseshoe Falls as far as one's courage will permit. For this purpose we have to procure oil-skin suits, and caps like those worn in former times by coal-heavers,
and known as fantails. The feet have also to be encased in India-rubber shoes, and, if the descent is made in winter, iron spurs are fastened underneath, so as to give us a firm footing on the ice and snow. The wooden stairways are narrow and steep, but perfectly safe; and a couple of minutes brings us to the bottom. Here we are in sprayland, indeed; for we have hardly begun to traverse the pathway of broken bits of shale when, with a mischievous swoop, the wind sends a baby cataract in our direction, and fairly inundates us. The mysterious gloom, with the thundering noises of the falling waters, impresses every one; but, as the pathway is broad, and the walking easy, newcomers are apt to think that there is nothing in it. The tall, stalwart negro who acts as guide listens with amusement to such comments, and confidently awaits a change in the tone of the scoffers. More and more arched do the rocks become as we proceed. The top part is of hard limestone, and the lower part of shale, which has been so battered away by the fury of the waters that there is an arched passage behind the entire Horseshoe Fall, which can easily be traversed, if the currents of air would let us pass. But, as we proceed, we begin to notice that it blows a trifle, and from every one of the thirty-two points of the compass. At first, however, we get them separately. A gust at a time inundates us with spray; but, the farther we march, the more unruly is the Prince of Air. First, like single spies, come his winds; but soon they advance like skirmishers; and at last, when a column of thin water falls across the path, they oppose a solid phalanx to our efforts. It is a point of honor to see who can go the farthest through these corridors of Eolus, where, in the lines of Virgil-
"Una Eurusque Notusque ruunt, creberque procellis
Africus."
It is on record that a man, with an herculean effort, once burst through the column of water, but was immediately thrown to the ground, and only rejoined his comrades by crawling face downward, and digging his hands into the loose shale of the pathway. Professor Tyndall has gone as far as mortal man, and he describes the buffeting of the air as indescribable, the effect being like actual blows with the fist.

As we return along the narrow path, we have leisure to examine the rock-wall, and to discern in it masses of white sulphur, mixed with limestone-lumps lying among the shale. We find also masses of pure, white quartz, sparkling like sugar, and pieces of selenite, or crystallized gypsum, which has a faint resemblance to asbestos, but is translucent. There are ferns growing in patches here and there, and a kind of water-cress, which, the negro says, is good to eat, but there is so little of it that it would take months to collect a dish. Of moss-long, fine, green moss-there is an abundance, and it grows so delicately that it forces screams of admiration and thrills of delight from the ladies of our party. When we remount the stairs, and find ourselves once more on the upper earth, we are divided in our minds whether to turn and examine the falls, which now begin to be

comprehensible, or to doff our dripping over-suit and remove our drenched shoes. Romance and æestheticism suggest the former, but prudence thunders out that the latter is imperative, if we do not wish to catch a violent catarrh ; so prudence carries it.

There are two things which can now be done-take a glance at the rapids above the Horseshoe Falls, from the Prince of Wales's Tower, or buy Indian curiosities. For those who are tired, the latter is no bad way of resting; but, for the strong-chested, strong-lunged visitors, the tower is decidedly preferable. We can walk comfortably here, while our friends are reposing; and we find ourselves side by side with a little streamlet which comes from the northward, and, though nameless and insignificant, has the honor of falling into the Niagara before it takes the great plunge, and uniting its tiny waters with the volume that pours forth its might in the tremendous curve of the cataract. We cross this streamlet by a pretty bridge, and linger for a few moments to observe the furious speed of the tiny rivulet, and how fully in harmony of feeling it is with the great stream beside it. Up the steps of the tower we go, and the guide kindly informs us that the structure was built in honor of the visit of the Prince of Wales, and was first ascended by him. When we arrive at the light-house-like summit, we cannot but admit the justness of thought of the gentleman who erected it. The view is, indeed, transcendent. Immediately below us is the river, which, from the position of the tower, we are forced to look up to rather than across, so that it appears like a raging, shoreless sea. To the left are Goat Island and the Three Sisters; midway, in the distance, the green slopes of the Grass Islands; and, beyond, the wooded bluffs of Navy Island complete the view. The rapids extend from the verge of the falls for half a mile; and so furious is the rapidity of the current that the centre is heaped up in a ridge-like form, and the waves on every side suddenly leap up in the air, like great fish, and fall down with a sullen sough. The wind comes sweeping over them, and drives their crests along the surface in showers of spray. Great logs and trees burdened with all the glory of their branches, with their greenery still untorn, come swooping down, taking leaps like greyhounds, and giving us the idea of independent life and motion. They terrify us, but we must follow them with our eyes. Here is a great hemlock, bearded with age, and with an abundant spread of branches. How he darts along, showing only portions of his length, like a great brown-and-green serpent! He nears us, he passes us; we turn -we must do it-and we see him, in an instant, shoot with tremendous speed over the brow of Niagara. .Another and another still succeed; and, as we gaze, the instinct of cruelty arises in us, despite ourselves, and we long to see a bear or a deer driven down the rapids, and disappear over the abyss, uttering hoarse cries of fear and anguish.

Coming back from the rapids, we learn, when we rejoin our companions, who are loaded with selenite ornaments and bark trifles, curiously ornamented with colored grasses, that the finest rapids are on the American side, and must be viewed from the bridge over from the main-land to Bath Island. The next point, however, on
the regular line of observation is the Whirlpool and its rapids. These are more than a mile below the falls, and the best point of observation is from the American side, and we have again to cross the Suspension Bridge, and to pass the lower bridge, which is justly considered one of the marvels of modern engineering. It was built in 1855, and it combines the advantages of the tubular form of construction and the principle of suspension. The carriage-way is level with the banks of the river at the edges of the chasm, and the railway-track is placed above this, on a level with the tops of the secondary banks. It is supported by two large cables on each side, one pair above the other, the lower pair being nearer together, horizontally, than the upper, so that a cross-section of the tube would be shaped somewhat like the key-stone of an arch. Each of these large cables is ten inches in diameter, and is composed of seven small strands. Each strand contains five hundred and

was boiled for three hours in linseed-oil, so as to cover it with an oleaginous surface of considerable adhesive power. Each wire was carried across the river separately, from tower to tower, by a contrivance of the engineers, and then wound together, the strands being finally united into a cable. By this method the destructive power of the vibrations was reduced to the lowest possible pitch. Not far from this bridge is the elevator which leads down to the rapids.

The width of the chasm at the rapids, immediately above the Whirlpool, is only eight hundred feet-this contraction being caused by the compact, hard nature of the sandstone rocks through which the river here had to cut its way. The depth of the Niagara here must be very great, and the rapidity of the current, combining with the volume of the stream, actually heaps up the centre in a broken ridge, from which waves are perpetually forced into the air. The color of the flood here is a dull brown, and this is continued as far as the eye will reach, namely, beyond the Whirlpool, to the abrupt turn to the right which the river makes. The Whirlpool is not exactly a whirlpool. It is a vast and furious eddy, which, meeting with a very faint resistance from the shale and gravel of the hills at that precise point, cuts out, by its force, a huge, semicircular curve, and would, no doubt, have cut its way, but was suddenly arrested by hard rocks, which forced it to make a sudden turn to the right hand. There is an elevator here, the property of the De Veaux College, through whose handsome grounds the carriage of the visitors is driven, the toll for descending the wooden stairs going to support the institution. We traverse painfully the downward road, and find ourselves at the bottom, among huge masses of fragments, principally of gypsum, of a very hard character, whose edges, however, have been strangely and fantastically worn by the action of the water. These blocks are of all sizes, from slabs weighing many tons to pieces no larger than one's hand. Mingled with them are granite bowlders, whose pink hue makes them conspicuous among the gray gypsum. All are partially covered with a thick, velvety moss, of an intensely dark color. Seating ourselves on these rock-fragments, we discover that we are at the head of the Whirlpool, in the very fullest frenzy of its rushing fury. The chasm is still contracted here, and the rocks on the Canada side are sandstone, but on the American side limestone. There is on both sides a fine growth of deciduous trees, and the cedars come sloping daintily down to the line of broken rocks. The water fairly hisses as it undulates, seethes, and boils. The waves seem to have a life of their own, and to be animated with human passions. Here, at this exact point, comes the reaction of the eddy; and here one of a series of small whirlpools is formed, which suck down trees head-foremost in an instant, and vomit them out in a few minutes, with every vestige of branches and bark completely gone, and great splinters riven out of the hard wood. Even after this they do not escape, for they are borne into the semicircular eddy, and go wandering round and round for days together. The body of Francis Abbott, the hermit of Luna Island, was found here, but so mangled, so


THE CAVE OF THE WINDS.
changed from what it had been, that the only being that recognized the piteous mass of tortured flesh was the poor victim's dog, which crawled to the horror that had once been a handsome face, and licked it with howls of anguish. He had been seized with the cramp when taking his accustomed morning bath; and, though his fate was known and his body was searched for, it was two days before this awful place would give up its dead. At the points where the whirlpools are, the scene is fairly terrific; the waters battle and rage and foam. Current opposes current, wave fights wave, with hideous uproar. Sometimes a wave is forced into the air by fierce collision with another from an opposing side, and is broken into masses of boiling foam, which the wind, as it comes bellowing down the gorge, drives in sheets of spray along the surface of the struggling eddies, and upon the cedars at the brink, which in winter-time become masses of icicles, and sparkle, when the sun falls on them, with a radiance greater than any chandelier of banquet-hall or ballroom.

Ascending the elevator and regaining our carriage, we are now driven to the bridge above the Cataract House, which connects the American side with Bath Island, and thence again with Goat Island. From the first-named the view of the rapids, above the falls, is immeasurably finer than on the Canadian side, and this for two reasons: the first, because the point of observation is not much above the level of the rapids; whereas, from the Canada side, you see them from the great elevation of the Prince of Wales's Tower; and, secondly, because the water is contrasted at this point with numerous small islets, which are crowned with cedars, growing at every possible angle. These give an immense relief to the current, and exhibit its rapidity in the strongest possible manner. Where all is moving, the motion seems less fierce; but these stationary islets act as a foil. This is a good place to study the lines of waves, for the appearance of these rapids is exactly that of a tempestuous sea, whose billows are heaved and tossed in every direction, and yet, at the same time, are forced forward by an irresistible current. The time to visit this spot is at night, for then the moon, rising slowly in the heavens, sends its light through the very verge of the cataract, shining through the extreme edge. Rising higher, it casts its beams over the angry rapids, turning the dark waves into moving ebony, and the foam into molten silver. But we cannot delay here, for the guide has to convey us over the farther bridge on to Goat Island, where we land amid all the smiling glories of a garden, and inhale with satisfaction the perfumes of roses and heliotropes. The soil of the island is fertile; fine cedars grow in every direction, and there are elms and basswoods. Underwood is also plentiful, and the grass grows long and green. There was a smiling farm here once, and may be again, for there is an area of one hundred and fifty acres to the isle. But the fate of Goat Island is doomed. Sooner or later it will be all carried away by the remorseless water, which bears away, year after year, yards upon yards of its circumscribed and narrow bounds. It is a pleasant and a smiling spot in summer-time, much beloved by the white gulls that
hover with impunity close over the falls, and seize their finny prey in the very shadow of the great cloud of smoky spray that rises from the Horseshoe.

On the left side there is a bridge which connects with Terrapin Tower, built on a firm rock, right upon the verge of the precipitous cataract. We go across, and mount the stairs with somewhat stinted breath; and, when we arrive at the summit, we do, indeed, catch the sublimest view of the falls which can be found. We see nothing but the Horseshoe Falls, it is true; but we see all of that, and we discern the full fury of the torrent, and catch the utmost glory of the rainbow. The clouds of spray seem mounting up to us, to drag us down into the abyss below. They come wreathing up like exhalations from an enchanter's den, twisting themselves into fantastic shapes, that stretch forth arms to seize us in our tower of strength. We descend again, cross the bridge, and find ourselves again on Goat Island. Getting some refreshment in one of the many nice places round about, we take a rest, and then renew our investigations. From Termination Point we go down Biddle's Stairway, having donned


Below American Fall.

il-skin suits, and make our way painfully to the bottom of the rocks, which are even more arched in formation than those on the Canada side, and the pathway is still broader. Here we come to the famous Cave of the Winds, which has been for many years the great lion of the American Fall. Nature has been assisted here by the hand of man, for bridges have been built from rock to rock, under the very cataract itself, and amid all its vapory spray and turmoil and deafening roar. We stagger blindly on, preceded by the guide, and blinded by the torrents of spray that are incessantly dashed in our faces and on our backs. The concussion of the waters produces corresponding cur-
 of spray are drifting and sweeping madly in every direction. First, a torrent pours down upon our heads, protected by immense water-proofs;
then another descends upon our backs; a third comes driving against our legs; a fourth, with an insidious spiral twist, manages to inundate our faces, in spite of the protecting hood; and they come with such violence that they fairly knock the breath out of our bodies. All this while our ears are stunned by a demoniacal orgy of sounds. The cata-
ract shrieks and groans and howls and bellows in fifty different accents at once, while over all dominates the deep, booming roar of the distant Horseshoe Fall. There are voices in the uproar, heard but faintly-voices that are not articulate to human ears, but such as pæans may have been sung in, or Orpheus may have charmed the brutes with. We cannot distinguish any words, and yet the voices are full of meaning. They seem to wail and to invite, to murmur and to threaten, and they are clearly distinguishable amid the hideous sounds that reign within the enchanted space.

Close here is the bridge which leads over to Luna Island, a small grain of dry land in the very curve of the fall. It is pleasant enough in summer, for it has evergreens, trees and bushes, grasses and wild-flowers in abundance, the atmosphere of spray by which it is surrounded being apparently favorable to vegetation. At night-time, when there is a moon, a fine lunar bow is visible from the bridge that connects it with Goat Island, and hence its name. But the great glory of Luna Island is in the winter, when all the vegetation is incrusted with frozen spray. The grasses are no longer massed in tufts, but each particular blade is sheathed in a scabbard of diamonds, and flashes radiantly at every motion of the wind. Every tree, according to its foliage, receives the frozen masses differently. In some, especially evergreens with pinnatifid leaves, each separate needle is covered with a fine coating of dazzling white. In others, where the boughs and branches are bare, the spray lodges upon the twigs, and gives to the eye cubes of ice, that greatly resemble the uncouth joints of the cactus. In some evergreens the spray, being rejected by the oleaginous particles, forms in apple-like balls at the extremities of the twigs and the nooks of the branches. Those close to the verge of the fall are loaded so completely with dazzling heaps of collected frozen spray, that the branches often give way, and the whole glittering heap comes flashing down in crumbling ruin. On the ground, the spray falls in granulated circular drops of opaque white; but, wherever there is a stone or a bowlder, ice is massed about it in a thousand varying shapes. Let us peep down from the verge, and, regardless of the noise and the smoke of the water-fall, give our attention solely to the ice. It stretches in great columns from the top to the bottom of the falls, and a colonnade is formed, such as one reads of in the fantastic stories of the East, where alabaster and marble, jade and porphyry, are carried to the skies in the tremendous palaces of preadamitic kings. The frozen spray, descending upon these, covers them with a delicate tracery of flowers and ferns, and even of resemblance to human heads, which is a beautiful sight and a strange. In winter-time we may not descend on the American side; but, if we might, surely we should discern the most wondrous ice-configurations along the verge of the pathway. The descent can be made at this time under the Table Rock; and the visitor passes from the stairways into a defile of the kind that Dante dreamed of in his frozen Bolgia. Along the side of the rock-walls are rows of stalactites, about the size of the human body, to which all of them bear a quaint resemblance. Upon the other side, massed
along the verge of the bank, are ice-heaps that mount up fifty feet into the troubled air, some of them partially columnar in shape, but the majority looking like coils of enormous serpents, that have been changed, by the rod of an enchanter, into sullen ice.

It must be remembered that, if winter gives much, it also takes much away. If it covers the trees and the grass with diamonds, and heaps up ice-serpents, and builds colonnades and spires and obelisks, it takes away a great part of the volume of the


Tree crushed by Frozen Spray.
water, for the thousand rills that feed the great lakes have been rent from the hills by the fierce hand of the Frost-giant, and clank around his waist as a girdle. Those who love color and light, and majesty of sound, will do well to come in the summer; those who like the strange, the fantastic, and the fearful, must come in the winter. But the true lover of the picturesque in Nature will come at both times. Each has its special charm ; each has some things which the other lacks; but in both are features of transcendent beauty.

