

Artificial Rock Formation.

BY GEO. A. BEST.



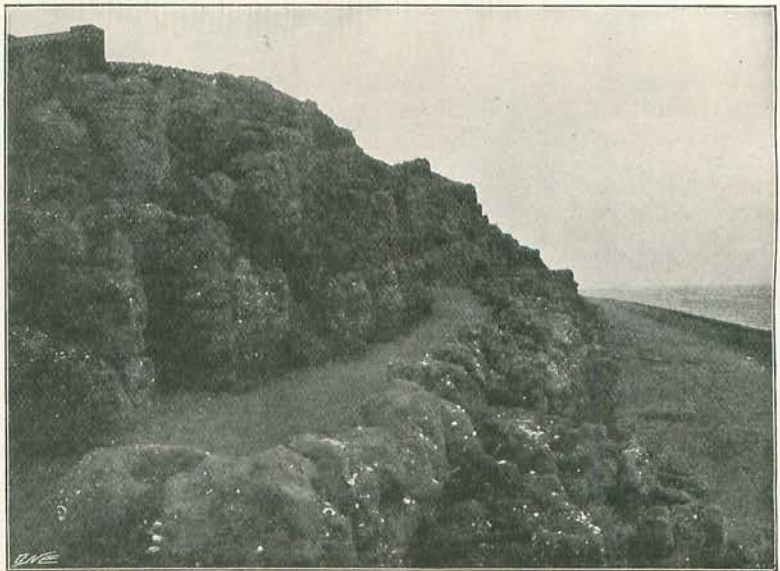
THE fact that rocky gorges, really formidable precipices, and waterfalls of great beauty exist in many parts of this country where no natural rock is obtainable has very probably exercised the minds of the observant British tourist and traveller from time to time. In the grounds of private mansions situate near the craggy cliffs of Devon or Cornwall, or within sight of the picturesque glades of the Peak District, the appearance of huge boulders, stalactitic caverns, and mountain torrents is obviously consistent with the romantic surroundings and the geological strata of the district; but when an acre, or so, of bold and rugged scenery appears in the heart of the Black Country, in Battersea Park, or among the dreary marshes of Essex, or the monotonous fens of Lincolnshire, even the most expert geologist is occasionally deceived as to the nature and origin of boulder or crag.

"When Nature fails Art steps in," is an adage peculiarly applicable to the fascinating work of the rock-builder, whose art is not only imitating, but actually excelling, Nature in some of her most fantastic forms is surely of the highest possible order.

The "core" of each boulder is composed of the least expensive material obtainable near the scene of operation. In the vicinity of large towns, brick burrs and building material are largely used for this purpose; while shingle is frequently utilized for the foundation of marine crags or artificial cliffs. When the heart of the boulder has been formed in this way, a veneer

of specially prepared cement is applied by skilled workmen. The necessary clefts and fissures are rapidly produced, with no more elaborate tools than an ordinary trowel and brush, while the surface is in a soft state, the form of the whole block depending on the will and fancy of the operator. The infinite variety of shape and contour; the worn and honeycombed appearance where the rock is touched by running water; the necessary stratifications, escarpment, and cleavage are all faithfully reproduced, with a consistent regard to natural formation, at the hands of the skilled artificer. All kinds of naturalistic sandstone and limestone rocks have been thus so closely simulated as to deceive the most practised eye, the distinctive colouring being produced by the amalgamation of a number of mineral products associated with specially-prepared cements and aggregates. The exact ingredients employed in this connection naturally form a "trade secret," which can scarcely be divulged in an article of this kind.

Our first photograph of a marine cliff is an interesting example of the more rugged and cavernous forms of artificial rock. It is a perfect and faithful imitation of the



AN ARTIFICIAL CLIFF.

From a Photo. by Pulham & Son, Finsbury Square.

local crag. The original cliff had become disintegrated by the action of rain and wind, and portions of the base were continually washed away by the waves below. As a large house was being built near the edge of the cliff a landslip was feared, and it became necessary to stop this destructive action of wind and wave. Instead of constructing unsightly groins or breakwaters for this purpose the landowner decided to have the crumbling bluff strengthened and faced with artificial rock of the same character. This really extensive undertaking (seeing that the new cliff is about 500yds. long and, in some cases, 50ft. high) was successfully accomplished, and the original character of the cliff preserved. The material employed was an amalgamation of brick burr, rubble stone, and shingle from the beach, faced with cement, the clefts and crags being produced by trained artisans in the manner already described. The face of the cliff is dotted here and there with shell; and the result of this novel experiment is a complete success, the entire work forming a perfect counterpart of the natural rock of the district.

A marine cliff of an entirely different character was accomplished at Ramsgate some years ago. Here we see large, stratified rocks of assimilated sandstone, the smooth and even nature of which affords a pleasing contrast to the rugged and cavernous aspect of the Suffolk Crag. The core of each of these rocks was formed of the remains of the old Custom House and other buildings at Ramsgate which were pulled down to make way for the new road. The cliff may possibly also contain a few "regulation" ink-pots and a quantity of red-tape, which unique fossils may afford the geologists of a future age material for much argument and speculation.

Before leaving the neighbour-

hood of Ramsgate I should like to divulge a secret in connection with a very interesting combination of cascade and rock-work which will be familiar to many readers of this Magazine. The Ramsgate waterfall is really one of the most imposing and attractive features of the town; but I wonder how many of the thousand visitors who daily contemplate that interminable rush of falling water are aware whence it comes or whither it goes! Here, then, is the somewhat unromantic solution of the mystery. In a small cave excavated in the rock immediately behind the cascade, a pump, governed by a gas-engine, is continually at work. This pump draws its supply from the pool at the foot of the fall, and throws the water up 17ft. into a concealed reservoir, from whence the torrent falls over the rocks, forming a very effective cascade. The same water is thus used over and over again with grand effect, the noise of the working machinery being completely lost in the roar of falling water.

Our next picture shows a delightful series of cascades falling over huge "rocks" in a district of the Black Country, which is quite innocent of anything in the form of natural bluff, boulder, or brook. This picture may be taken as an example of work to be seen in many parts of the country. Another was recently executed in the grounds of a private residence within three miles of the



A "HIGHLAND BURN" IN THE BLACK COUNTRY.
From a Photo. by Pulham & Son, Finsbury Square.

heart of Birmingham. In this instance the "torrent" is produced by a wind-mill-governed pump, which throws the water from a deep well, sunk at the foot of the falls, into an underground reservoir constructed for the purpose on the highest point. This particular "mountain torrent" is, therefore, never allowed to "join the brimming river" in the orthodox and natural fashion, and the rush and swirl of the waters are more or less dependent upon "the will of the wind." All the "rock" shown in this picture is artificial. Every cleft and fissure has been produced by the hand of man; every rugged boulder showed the water-worn effect of centuries even before it was touched by the first wave of a newly born brooklet. And the nakedness of the rocky water-course was soon hidden from sight behind a wealth of moss and aquatic plants which quickly clothed

harmony existing between the natural and the artificial.

But the work of the artist in rock is by no means confined entirely to the construction of cliffs, cascades, and rocky streams. Picturesque caves, stalactitic caverns, and such minor products as duplicates of famous rocks and rocking-stones are occasionally erected to order. In fact, there is no natural cavern in the United Kingdom, however intricate or difficult of imitation, which can defy the wondrous craft of the experienced cave-builder. Cavernous wells, stalactitic and stalagmitic formations, fantastic pillars of rock, and subterranean streams are all included in some of the more ambitious work in this connection; while in the smaller models a most imposing effect is frequently produced by the introduction of a cunning arrangement of mirrors.

Natural Tufa-stone—a light rock obtainable only in the neighbourhood of Matlock



A SMALL CAVERN OF TUFAROCK, WITH AN EFFECT OF MIRRORS.
From a Photo. by Patham & Son, Finsbury Square.

the boulders and removed every vestige of newness and artificiality. It is scarcely a matter for wonder that trout, imported into a rocky stream of this kind, should thrive as well as in their own native waters; while the luxuriant vegetation which follows the course of the brook is well illustrative of the

—is largely utilized in the construction of artificial caverns. This interesting substance is composed of petrified vegetation; and the grotesque and peculiar forms which it assumes are, in themselves, a capital imitation of the natural stalactite. Tufa-rock, however, is by no means the only substance

employed to produce the wonderfully naturalistic effect depicted in our illustration of this kind of work. It is supplemented by the introduction of purely artificial stalactites and assimilated crag; while the moisture which is allowed to percolate from the roof falls in heavy, irregular splashes, forming a picturesque dropping well and deep pool.

Boat-caves, for the accommodation of such pleasure craft as are confined to ornamental waters, make a most suitable and romantic home for skiff or launch.

An artificial "rocking-stone"—a huge boulder which responded to the slightest

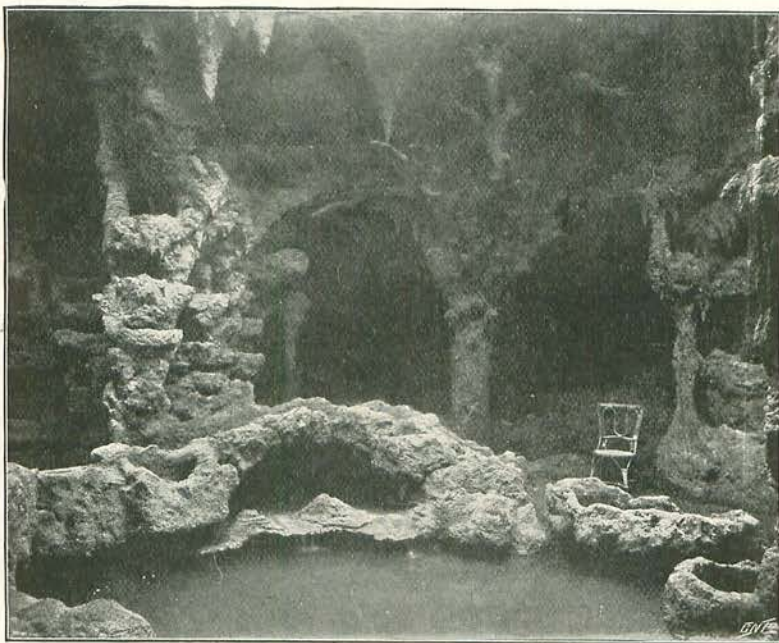
"The Irish Exhibition, sir; everybody should know that," replied the custodian, gruffly.

"So they should, my friend," remarked the other, thoughtfully; "and your own exhibit is more characteristic of Ireland than anything else in the whole show."

"How?" asked the exhibitor.

"Because there is nothing but *sham-rock* to be seen," was the witty reply.

Photography plays a very prominent part in the business of the rock-builder, whose large and varied assortment of negatives may almost be described as the only "stock in



A BOAT-CAVE.
From a Photo. by Pultam & Son, Finsbury Square.

touch of the bystander—constituted one of a series of novelties in constructive rock-work which formed so unique a feature of the Irish Exhibition of 1888. The idea originated from the famous Logan Rock on the Cornish coast, and the duplicate was constructed on mechanical principles similar to those which govern that and other movable rocks of a like nature.

Referring to these particular exhibits, a visitor spontaneously concocted a pun which is so infinitely superior to the average effort in this direction that I cannot conscientiously make the orthodox apology for its repetition.

"What is the name of this Exhibition?" demanded the visitor, addressing one of the custodians of an artificial cavern.

trade" required for the production of innumerable duplicates of natural scenes, either in miniature or to scale. The crags of Devon and Cornwall; the rocky dells of Yorkshire and Derbyshire; the waterfalls of Wales, and the rock-bound torrents of Scotland each afford a multitude of models, and suggest an infinite variety of artistic combinations.

But with all this wealth of picturesque material before him, the astute rock-maker seldom blunders towards the incongruous or grotesque. A combination of "rocks" of different strata is never attempted, and the work is made to accord as nearly as possible with the natural site and surroundings. A stalactitic cavern constructed in a dell of light sandstone would form an execrable

parody on Nature; and a noisy cataract bounding over the naked summit of a cliff of "Suffolk Crag" would be even more inconsistent and grotesque. I need hardly say that such manifestly absurd combinations as these are altogether beyond the imagination of the most inexperienced manipulator of rocks; but less glaring mistakes, displaying an inconsistency of geological detail and stratification, are easily made by the artist whose knowledge of natural rock formation is limited, and whose only ambition is to produce a pleasing effect.

The ability of the rock-builder to produce a faithful counterpart of any natural scene of a bold and rugged character is certainly the most fascinating and interesting phase of this unique profession. Many a tourist possesses a cherished photograph of some rock-bound cascade or lonely gorge which forms the ideal Arcadia of his imagination. It may be a picture from the neighbourhood of Killarney, from Bettws-y-Coed, or the shores of Loch Lomond, or nothing more than a black and white representation of some sylvan scene which lies outside the beaten track of the ordinary tourist. From such a photograph the artist in rock formation is able to build up, in the most unpicturesque neighbourhood, and even among a wilderness of bricks and mortar, a correct model of the view depicted.

There is practically no limit to the possibilities of rock formation in this direction, where expense is no object and the builder can be given an absolutely free hand. Waterfalls have already been constructed with a clear drop of 25ft., and the caverns and marine cliffs already shown are by no means either insignificant miniatures of Nature or feeble parodies upon her own formations. I am firmly convinced that the enterprising rock-worker would cheerfully book an order for a full-sized model of the Giant's Causeway, or a counterpart of Fingal's Cave; although he might honourably refuse to undertake the construction of an exact duplicate of Niagara or the Rock of Gibraltar.

At Oswestry is a striking example of the art of duplicating Nature. For this work the builders employed as a model the celebrated falls of Geisbach, where a rocky footpath actually runs behind the waterfall itself. This remarkable feature is faithfully reproduced in the Oswestry cascade.

From a utilitarian point of view the value of artificial rock formations, when constructed as a picturesque and permanent method of combating the encroachments of the sea, can scarcely be over-estimated. Our

eastern coast from Clacton to Cromer has suffered terribly in this respect, and the construction of some kind of protection for the adjacent lands is becoming, year by year, more necessary. The earth "cliffs" of Clacton, exposed during the winter months to the fury of the German Ocean, are manifestly unsafe as a promenade for summer visitors; the uplands of Felixstowe are supported by nothing more substantial than a slender facing of crumbling bluff; while the inroads of the sea in the neighbourhood of Cromer are a constant source of trouble to the local authorities and of apprehension to the inhabitants of the town.

The formation of artificial cliffs at such places, if the initial outlay were not beyond the limits of the local exchequer, would probably meet every requirement and prove the least expensive method in the end. Many an otherwise attractive beach is rendered hideous by a monotonous row of timber-built groins, which are generally laden with an accumulation of sea-refuse, and are always in a bad state of repair. Sea-walls and breakwaters seldom add to the attractiveness of a popular resort from an artistic standpoint. On the other hand, quaintly fashioned rocks and sea-girt cliffs invariably form a welcome adjunct to marine scenery, promoting the growth of huge masses of ozone-laden sea-weed, and attracting the sportive crab and the various many-hued anemone, which are always a source of wonder and delight to the younger generation of holiday-makers.

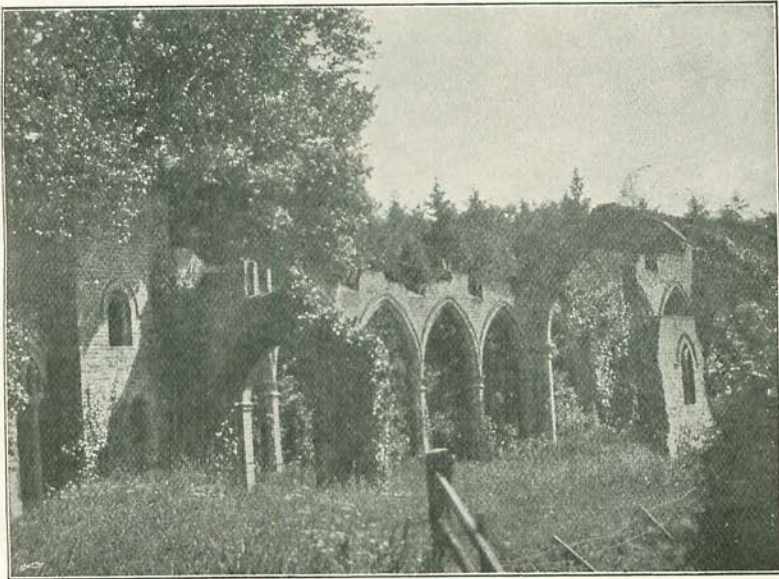
And now, having laid bare a few secrets in connection with the strata of sundry mysterious rocks and cliffs, I have some further disclosures to make on the subject of certain remarkable "ruins" which have suddenly and unexpectedly appeared in the grounds of several of the most modern mansions in this country. These choice "antiquarian relics" have been actually supplied to order, and left with the apparent effect of centuries of decay upon them to bear silent testimony to the fact that the artificiality characteristic of our own time is by no means confined to sham jewellery and imitation diamonds. While allowing that such work is undoubtedly of a deceptive nature, it cannot be denied that the fraud is entirely harmless in character; and, far from being the deplorable sham which certain outraged antiquarians would have us believe, the fictitious ruin is certainly a thing of beauty, fascinating in conception, and a picturesque adjunct to the best work of the artist in scenery.

At the same time, a ruined tower or gateway forms one of the best means of concealing unsightly objects from view, and is capable of serving a variety of useful purposes. For instance, the upper part of such a tower may inclose a water cistern; the lower portion being utilized as a garden retreat, tool-house, or stable.

One of the most interesting artificial ruins in the southern counties is the handicraft of an enthusiastic amateur who accomplished the entire work with no other assistance than that of an ordinary labourer. This building, of which we are enabled to give an illustration, is truly a "home-made abbey" of magnificent proportions. Unlike the

concerning the early inhabitants of the "abbey." They would picture the cloisters peopled by weird forms in cassock and cowl, describe the periodical assaults of wicked barons and gilded knights, and locate the hiding-places of fugitive kings and princes. As the building of the abbey was a work of many years we can almost fancy that the authors of these fascinating and oft-repeated legends eventually came to regard them as real and true traditions of the supposed period of construction.

But being composed chiefly of brick, our "home-made abbey" cannot by any stretch of imagination lay claim to a fictitious antiquity equal to that which characterizes the picture



A "HOME-MADE ABBEY."

From a Photo. by Messrs. J. Cheal & Sons, Crawley.

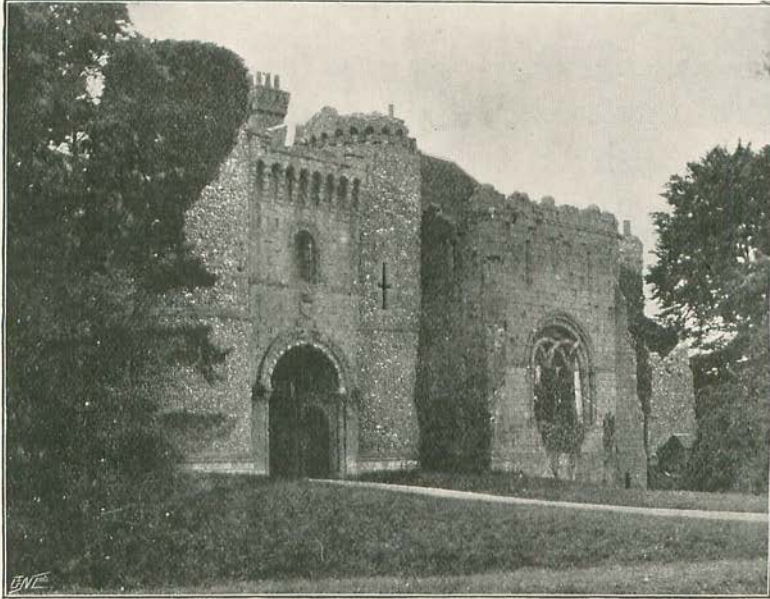
majority of nineteenth-century "ruins," the "abbey" in question possesses a history which is not unworthy of repetition. The original scheme of the architect was to construct a ruined gateway, and when this was accomplished the effect was so pleasing, and the work exercised so extraordinary a fascination over the builders, that they were quite unable to leave it until further additions had been conceived and carried out. Thus, from a simple gateway, an abbey with ruined walls and dismantled cloisters gradually took shape; these, in turn, being eventually supplemented by the addition of a banqueting-hall and watch-tower. During the progress of the work the builders were wont to entertain each other with weird romances

of similar work executed in stone. A close examination of this illustration will reveal a crumbling and weather-worn effect on the face of the building which is a marvellous imitation of natural decay. In the most exposed positions the surface of the stone has apparently succumbed to the hurricanes and tempests of a dozen centuries; while the more sheltered portions retain their surface with only an occasional mark of winter storm and gale. It is something of a disillusion to know that the weather stains have been all applied by the hand of man; that corners have been purposely broken away, and that the "decay of ages" was rapidly produced while the face of the building was in a soft state. But the interest and picturesqueness of the work

may be justly said to make ample atonement for the innocent deception practised by the builder—a picturesqueness intensified by the natural growth of ivy, which, as the years roll on, never fails to remove the last vestige of artificiality from the fictitious ruin which it embraces.

Our photograph of a "Norman castle" is

As a rule, amateur work of this nature is apt to take incongruous and even ludicrous forms. Clinker-built castles are often constructed, and lath-and-plaster abbeys are not entirely unknown. At the Irish Exhibition of 1888 a pleasing model of Blarney Castle was constructed of the latter material, and most artistically coloured. Even the "ivy



A "NORMAN CASTLE," BUILT 1835—1838.
From a Photo. by Messrs. J. Cheal & Sons, Crawley.

a magnificent example of the most finished work in this direction. This "ruin," which was constructed between the years 1835 and 1838, is situated in Hertfordshire, and comprises a large dining-hall, gateway with high tower on either side, corridor, and staircase, with buttressed walls, and an apartment used as a smoking-room. It is built entirely of flint dressed with artificial stone. Many an astute antiquarian has been deceived by the Hertfordshire "ruin," and it is by no means improbable that in the course of a century or two the secret of its construction will die out, and this "Norman castle," ivy clad, and bearing the genuine mark of time, may then be regarded as one of the most finely preserved specimens of early architecture in the kingdom.

green" was, in this case, painted on the flimsy walls of the castle.

The amateur builder generally errs on the side of leniency, and neglects to ruin his production sufficiently at the outset, the result being that unless a cart is accidentally backed against the walls of the building it never becomes a ruin at all!

A writer in the *Journal of Horticulture* made an interesting statement to this effect many years ago. It ran as follows: "I went to see a fine piece of ruins, built at a great expense, which, on the day succeeding my visit, tumbled down for nothing. It was greatly improved by this fortunate incident. It is hardly possible to put stones together with that air of wild and magnificent disorder which they are sure to acquire by falling of their own accord."