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only be won by rendering the system of those exposed to the infection impregnable to its attacks. This end it is sought to attain by the systematic use of anti-periodics. Quinine may be regularly taken with advantage at all times in tropical lands, and it ought to be taken when malaria is rife. Crudeli prefers arsenic, but my own experience is that this drug is uncertain in its action and apt to cause gastric disturbance in the weak, anæmic, and ill-fed. On account of its active properties, its administration has proved to me to be an anxious matter. It is not possible to trust arsenic in the hands of natives, whose ideas of medicine are of the haziest description, and who are quite capable of poisoning the patient through ignorance.

SOME ANCIENT LANDMARKS OF MID-LOTHIAN.

(*With Map.*)

By HENRY M. CADELL, of Grange, B.Sc., F.R.S.E., etc.

THE close connection between geography and geology has often been insisted on in the pages of the *Scottish Geographical Magazine*, and perhaps one of the most interesting examples of this relationship is to be found at our very doors, in the midst of the hills and dales of the Modern Athens. The oldest reliable map of Mid-Lothian seems to be that of Timothy Pont, published during the reign of James VI., about 270 years ago. Since that time the face of the country has undergone many alterations. Wide expanses of peat-moss have been reclaimed, forests have been cleared away, and barren moorlands have been drained and converted into smiling meadows or tracts of rich agricultural land.

The time of which I wish now to speak, however, goes much further back than the Union of the Crowns. It even antedates the period of the Roman invasion, and the formation of the 25-foot beach which indicates the last upheaval of the land or retreat of the sea. The population of Scotland was then insignificant, and our savage ancestors were too few and too ignorant of the arts of peace to exert any important influence on the external appearance of Caledonia, the greater part of which remained a land of brown heath and shaggy wood until a much later period. All the changes that then took place were brought about by the slow agencies of Nature that have, ever since time began, continued to wear down, level up, and smooth over the natural roughnesses of the rocky crust we live on.

Could one of the old residents of 2000 years ago return and give us the benefit of his impressions about the principal changes in the face of the Edinburgh district since his day, he would no doubt, in the first place, note the disappearance of several conspicuous sheets of water from the neighbourhood. He would next sigh for the ancient forest of Drumsheugh, where he was wont to chase the wild boar, deer, and wolf, and would

probably be much astonished, on going down to the Firth of Forth at Cramond, Leith, or Portobello, to find that the sea had gone back permanently several hundred yards, leaving exposed broad tracts of sandy foreshore over which he had in his youth paddled his coracle at the lowest tides in search of fish or oyster beds.

The disappearance or notable diminution of the ancient lakes in the Edinburgh district is a subject of much local geographical interest, and I shall now endeavour to examine some of the evidence on which their former existence is inferred, and show on what principles the accompanying prehistoric map of the district has been constructed.

It requires but little reflection to arrive at the conclusion that lakes are, geologically speaking, one of the most evanescent features in the scenery of a country. The reasons for this are mainly twofold.

In the first place, most lakes, and indeed all the lakes in our latitude, have an outflowing stream to carry off their superfluous waters. Running water has a strong tendency to wear down the bed of the channel over which it flows. If it is clear and free from sediment, this tendency is not always very pronounced, as it is the hard particles in the river that do most of the grinding of the rock below, and the friction of pure water alone is geologically of little importance. Where, however, the effluent stream falls over rapids or rocky barriers of varying hardness, waterfalls are formed which constantly eat their way backward towards the sources of the river. In this way the exquisitely clear, green waters of the Niagara are steadily eating the falls back towards Lake Erie, and the equally pure river of the Yellowstone is excavating its magnificent falls and pushing them up the cañon towards the noble lake in the plateau above. The final result of this process is the drainage of the parts of the lake above the level of the outlet. An excellent example of the partial drainage of a lake basin in this way is supplied by the case just cited of the Yellowstone lake, an account of which is given in this *Magazine*, vol. viii. pp. 247-8. The geological map of the Yellowstone Park at p. 236 shows the outline of the ancient "Lake Hayden," which was tapped by the Yellowstone river and partially dried up at a comparatively recent period, the present Yellowstone lake occupying the part of the depression not yet reached by the receding waterfalls.

But this is not the main cause of the temporary character of lakes. It is not so much the outlets as the feeders that sow the seeds of their decline and death. Lakes act the part of filters to the rivers that flow through them, and as filters become choked up and useless after a time, so do these great natural strainers become choked with the sediment that is constantly poured into them. Sediment can only be carried in water that is moving at a certain rate, and as the force of the current diminishes, the suspended particles begin to sink to the bottom—the coarser first, and the finer grains afterwards. Every stream that enters a lake brings down its quota of stones, sand, and mud, and drops them as it enters the quiet water, which thus acts as a natural filter. In this way sediment constantly accumulates in the basin of the lake—the water that issues at its lower end being no longer turbid, but clear and limpid. An ordinary map of any of our Scottish lochs shows generally a tongue-like promontory

at the mouth of each of the larger streams that feed it. There is, for example, a conspicuous projection of this kind at Lower Inveruglas, where the Douglas Water enters the west side of Loch Lomond, and another at Ardgarten, where the water from Glen Croe is discharged into Loch Long. If, as is usual, the largest feeder flowing down the main valley enters at the head of the loch, the mouth of the stream is generally found to meander sluggishly over a flat plain, partly meadow and partly marsh, liable to frequent inundation. The Dochart and Lochy, for instance, enter Loch Tay through a plain which, on a geological map, would appear as alluvium swept down and deposited in the form of a delta at the mouth of the river. A stream entering a narrow lake at one side is generally seen to shoot out a fan-shaped delta, which, if the amount of material transported from the higher ground be large, sometimes extends right across the valley so as to form an embankment which cuts the basin into two parts. A well-known example of this phenomenon occurs in Switzerland, where the town of Interlaken, as its name implies, stands between the lakes of Thun and Brienz on a broad bank of alluvium discharged by two rivers from nearly opposite sides of the valley into what was originally a single long lake basin. Another and perhaps more familiar instance of this bisection and subdivision of a narrow loch by the agency of lateral feeders is to be found in Strathyre, which was once occupied by a single long tortuous sheet of water stretching all the way from its outlet at the Pass of Leny to the foot of the Braes of Balquhiddy, and which is now represented by the three basins of Loch Lubnaig, Loch Voil, and Loch Doine—detached basins differing but slightly in level, and separated by alluvial haughs or fans spread out by the torrents from the adjoining mountain slopes. Many of our smaller Highland lochs have in this way completely disappeared from the landscape, and are now represented by flat alluvial meadows or haugh lands, through which the river winds peacefully, carrying down materials to fill up the next basin that may present a convenient "free toom" for its waste products.

If all our lakes are thus diminishing in size, it is clear that at some future date they will become entirely obliterated, and the geologist of the future will only be able to infer their former existence by such evidence as he can collect either from human records or from physical data.

It is by reasoning in this way that we are able to infer the former existence of several important sheets of water in and around what is now the site of Edinburgh, some of which are still represented by smaller lake basins, while others have disappeared within historic times, and a few have ceased to be remembered even in the traditions of the remote past.

During the long continental period before the Great Ice Age, when the British area was still a part of the mainland of Europe, any lakes which may have been previously in existence were no doubt completely obliterated. Our mountains and valleys were at that time all in existence, but no sparkling lochs lighted up the landscape. The rivers hurried down from their mountain cradles through deep glens, sweeping their load of sediment away to the distant sea without ever meeting a temporary asylum wherein to rest and wash off the stains of their weary

pilgrimage. When the vast glaciers of the Pleistocene age, after hugging the land in their long, rude embrace, at last melted away, they left the whole face of the land sprinkled over with multitudes of sparkling pools and freshly cut rock basins in the bosom of the hills. Most of the lochs in the Lowlands were formed by dams of detritus or hollows in the surface of the glacial drift; and as time went on, these, being chiefly shallow, were the first to disappear. The brooks that fed them brought in quantities of stones, sand, and mud from the higher grounds, as well as twigs and leaves from the forests that clothed their banks. In this way most of the lowland lakes were gradually silted up, and eventually a dense growth of pulpy peat not infrequently overspread their sites and gave rise to swampy bogs and quaking flow-mosses that continued to flourish for many centuries. At places where the water remained clear for lengthened periods, molluscs lived for ages, and their delicate shells accumulated in myriads upon the oozy floor. As time went on, beds of white calcareous shell marl were thus built up, and the presence of this characteristic deposit is one of the best evidences of the former existence of a lake at any place. When we find a smooth, flat hollow, surrounded by higher ground, and showing free, loamy soil devoid of stones of any large size, and, perhaps, a sluggish stream creeping softly across it, there is good reason to infer the presence of an old lake. If, moreover, on digging a few feet beneath the surface, we come on beds of peat, silt, laminated clay, gravel, fine sand, or shell marl, this inference is proved to be correct, and all doubt is removed as to the lacustrine history of the place.

From all the evidence, both historic and geological, we can now clearly demonstrate the former existence of seven more or less conspicuous sheets of water in the neighbourhood of Edinburgh. These "seven eyes" of ancient Dun Edin were as follows:—

1. Gogar Loch.
2. Corstorphine Loch.
3. Craigerook Loch.
4. The Burgh Loch.
5. Holyrood Loch.
6. Lochend Loch.
7. Duddingston Loch.

Of these only three are now represented by sheets of water, namely, the lochs of Craigerook, Lochend, and Duddingston. There were in addition several smaller pools or "dubs," which hardly deserved the name of lakes, situated at Canonmills, Morningside, the north-east of Blackford Hill, Hailes Quarry, and perhaps also in Hunter's Bog, between Arthur's Seat and Salisbury Crags. It may be remarked by readers acquainted with Old Edinburgh that the Nor' Loch is not included in the list; but there is no evidence that this lake had any existence prior to the year 1450. Like St. Margaret's and Dunsappie in the Queen's Park, it was of artificial origin. The valley north of the city, in the reign of David II., who flourished in 1144, formed part of the king's gardens, and was used for tournaments, sports, and military parades. In 1450 a dam was thrown across it, and the waters of the little stream issuing partly from the spring at the

Wellhouse Tower, and partly from the rising ground to the west, was impounded to save the expense of building a wall along the north side of the city. The Nor' Loch existed for three centuries, the outlet on the site of the present Waverley Station being regulated by a sluice. It latterly degenerated into a huge cesspool for the refuse and sewage of the New Town, and was drained about the end of last century, the last traces of the morass, along with other public nuisances in the vicinity, being removed in 1816 for the sake of the amenity of Princes Street.

1. GOGAR LOCH.

The configuration of the ground between Gogar Burn and Corstorphine points to the former existence of a shallow lake about $1\frac{1}{4}$ miles in length, stretching along the flat hollow north of, and roughly parallel to, the railway. There is not much historical or geological evidence from excavations as to this old lake. That it existed in historic times is, however, clear, as it is shown on Pont's map, already referred to, and in John Adair's map of 1680. It is also indicated in John Elphinstone's map of the Lothians, published in 1744, a copy of which is in my possession. It cannot, within the last three centuries at all events, have been a lake of much note, and was probably little more than a bog when these maps were made. Reference to the bogs and marshes in the meadows at Gogar is made in the narratives of Cromwell's and Leslie's marches in 1650; and in July 1661 James Forrester presented a petition to Parliament in which he complained that "the whole meadow ground and low-lying lands was undone by the overflowing of the Gogar-burne, and that, partly through the neglect of those who formerly were accustomed to cast and keep clear the ditches and stanks through which the water did naturally pass, and partly by the inbreaking of the said water in the lands of Redhewes." The Gogar Burn may at one time have flowed eastward along this hollow to join the Water of Leith at Coltbridge, and may in course of time have brought down so much mud as to fill up the west end of the lake, and then find a new outlet into the Almond on the west. The ground is, however, so flat that it is equally probable the stream may have merely overflowed into this depression, the main portion of the water escaping by its present course into the Almond. Pont's map shows the burn flowing northwards past the loch in this direction. On the 2nd edition of the 1-inch geological map (sheet 32), just published, the probable original area of this loch is marked as an alluvial plain; and this forms the basis on which I have reproduced the lake on the map accompanying this paper, and have shown the Gogar Burn flowing into its western end.

2. CORSTORPHINE LOCH.

The ancient loch of Corstorphine must have once been a feature of considerable importance in the landscape, as its existence is proved by both historical and geological evidence of a very conclusive kind. It seems to have been originally separated from Gogar Loch by a flat tongue

or ridge of boulder clay, and to have extended for a distance of nearly three miles from the vicinity of Broomhouse to the present Haymarket goods station, the original margin coinciding almost exactly with the 150-foot contour line on the Ordnance map. Both of these lakes are referred to in the *New Statistical Account of Scotland*, vol. i. p. 245, and are shown on the old maps of the district. Elphinstone's map shows that during the century preceding 1744 the area of water had become greatly diminished. The draining of Gogar Loch was carried out about 1766, as it is not shown on maps of later date; and Corstorphine Loch was partly drained and reclaimed in 1670, when the deep ditch known as the Stank was excavated along its northern side. The final reclamation was completed in 1837, when the Stank was deepened and enlarged to prevent any further flooding of the rich alluvial floor of this ancient lake. The Castle of Corstorphine was built on the neck of dry land between the two sheets of water, and for many centuries must have thus occupied a position of considerable strategical importance. The once celebrated Forresters, Lords of Corstorphine, to whom the castle belonged, are said to have brought their provisions by boat from Coltbridge; and it was their interest to prevent the lake from being drained so long as their enemies were to be kept at bay and the strength of the fortress maintained. Dr. Taylor, in his interesting little volume, *A Mid-Lothian Village*, says that sometimes the tongue of land between the two lochs was partly submerged, the passage across being maintained by a ferry; and there is a tradition that at no very remote date a beacon-light used to be fixed up on the gable end of Corstorphine Church to guide benighted travellers safely across the dangerous morass.

The recent deep cuttings through the district in connection with the Water of Leith purification works, as well as some excavations during the construction of the Forth Bridge Railway, near Corstorphine station, have revealed many interesting sections of the deposits found in this old lake. Mr. James Bennie, of the Geological Survey, has made a careful study of these and other old lacustrine deposits, and has given an account of them in the *Proceedings of the Royal Physical Society*, vol. x. p. 133. In a cutting 7 feet deep, on the farm of Broomhouse, for a culvert below the Forth Bridge Railway, the subsoil was found to consist of lake silt and peat. The silt was, Mr. Bennie says, crowded with fresh-water shells and *ostracoda*, and the peat, being composed chiefly of the stems of aquatic plants, was essentially a water peat. The recent excavations for the Water of Leith purification works, in which large sewers were laid westwards from Coltbridge to Corstorphine and southwards across the bed of the lake towards Gorgie, revealed a well-marked series of beds of silt, laminated and brick clays, sand, gravel, and peat, as well as occasional marl deposits, which show clearly that for long ages after the Glacial period this remained a lake of considerable importance. The sediment which helped to fill it up was no doubt chiefly contributed by the Water of Leith, which crosses its eastern end between Gorgie and Coltbridge; and it is probable, as the old maps indicate, that, being nearest the source of deposition, this end of the lake was the first to disappear. The lowering by natural erosion of the boulder-clay barrier across the outlet

at Coltbridge would also diminish the level of the water, and aid the stream in obliterating this ancient landmark from the district.

3. CRAIGCROOK LOCH.

This lakelet, situated in the hollow at the foot of the eastern slope of Corstorphine Hill, north of Craigcrook Castle, is now represented by a small, reedy pool on the east side of the road from Ravelston to Cramond. So far as I have been able to learn, it is not referred to in any description of the locality. Had it ever been a lake of importance, reference would have been made to it in Wood's very accurate *History of Cramond Parish*. It is, however, marked on Pont's map, and the configuration of the ground shows it to have once covered a much larger area than that of its present insignificant representative. The lake was, I believe, drained by a culvert leading northwards to the low ground near Davidson's Mains, but the original outlet must have been the burn running eastwards along the hollow through Blackhall and past the north side of Craighleith Quarry and Comely Bank to the Water of Leith. The road from Ravelston, referred to above, crosses part of the old lake bottom; and the field adjoining is locally known, I believe, as the Marl Pits, from the deposit of shell marl found by digging a few feet deep in this flat ground, which on the map is included in the old lake area.

4. THE BURGH LOCH.

This sheet of water, which was in existence up to the beginning of this century, occupied the site of the present Meadows. There was once a tradition about a lake in the neighbourhood of the Cowgate called the South Loch; but this tradition seems to have been founded on no conclusive data, and Maitland, in his *History of Edinburgh*, published in 1753, seems to have made out that the South Loch and the Burgh Loch were one and the same lake. There may have been in prehistoric times a few marshy pools along the hollow of the Cowgate and Grassmarket; and, indeed, Mr. Bennie mentions the occurrence of a black mud, with some aquatic plant remains, revealed in cutting a sewer at Bristo Port; but such "dubs" were no doubt once abundant in the district, and do not deserve special mention here.

The Burgh Loch and its marl and peat beds have been described by Hugh Miller and other writers. The marl, which was at places three feet or more in thickness, contained abundance of the delicate shells of *Limnæa*, *Valvata*, and *Pisidium*, as well as occasional specimens of *Planorbis*, and several species of ostracods, most of which forms are abundant in the marl of the other old lakes of Edinburgh. A list of these by Mr. Thomas Scott is appended to Mr. Bennie's paper, already referred to. The water of this lake was once used for domestic purposes, and a windmill was erected to pump it for the use of the brewers of the Society established by James VI. in 1598. The draining of the loch was begun in the early years of the seventeenth century. In 1722 it was let for £800 Scots on

a fifty-seven years' lease to Thomas Hope of Rankeillour, who began to drain it more perfectly, and converted it into a marsh, with a walk round it. It remained, however, a morass till 1840, when the water was finally completely drawn off, and since the first walk was constructed has remained a public resort, formerly patronised by the wit, beauty, and fashion of the Modern Athens. The surface of the ancient lake-bed was, like that of the Nor' Loch, for many years used as a "free toom" for rubbish, so that it is now raised several feet above its original level, and the uninitiated may therefore at first sight have some difficulty in realising its ancient lacustrine character. Modern improvements have so modified the appearance and levels of the surrounding ground that it is somewhat difficult to picture to ourselves the position of the ancient outlet for the surplus water when the loch overflowed, as it occasionally did. The Burgh Loch is not shown on Pont's map, nor is there any indication of a stream in the neighbourhood; but any effluent there was probably found its way westwards, and escaped into the east end of the Corstorphine Loch in the vicinity of Dalry.

5. HOLYROOD LOCH.

The greater part of this lake is unknown to history, and the evidence on which its former existence is based is principally geological. There is, however, some reference made in old descriptions of Holyrood to a lake or piece of marshy ground at the foot of Arthur's Seat, along the edge of the old Palace gardens; and from an entry in the Lord High Treasurer's accounts it appears that the "loch beside the Abbey" was drained some four hundred years ago, in the time of James IV., as a site for a garden.

The ancient loch of Holyrood must have nearly all dried up and disappeared long before the Abbey was founded in the beginning of the twelfth century, as King David, the "sair sanct," was not likely to choose a soft morass on which to erect such a noble edifice. The configuration of the ground shows that the Abbey and Palace are situated right in the middle of the original lake basin, which had a rudely triangular shape, the longest side stretching north-eastwards along the foot of Salisbury Crags to the vicinity of Spring Gardens for a distance of about two-thirds of a mile.

Numerous excavations have from time to time been made in this flat area, and have been described by Mr. Andrew Taylor¹ and Mr. John Henderson² in the *Transactions of the Edinburgh Geological Society*, and by Messrs. J. A. Johnston and J. Lindsay in the *Transactions of the Edinburgh Naturalists' Field Club*.³ I have myself also had opportunities of examining some of these sections before they were covered up, and it would be difficult to get a better example of a typical lacustrine flat in any part of the Edinburgh district. The best sections were revealed in the bores and excavations for one of the large gasometers at the South

¹ Vol. v. p. 44.

² Vol. v. p. 407.

³ Vol. ii. p. 135

Back of the Canongate. In one of these bores the following strata were pierced :—

	Ft.	In.
Forced material at surface,	3	2
Yellow clay,	2	4
Peat,	3	0
Marl,	9	0
White and brown mud,	2	6
Blue and red clay,	1	9
Rough gravel,	4	6
Clay and small stones,	5	6
Blue clay,	7	7
<hr/>		
Depth to rock,	39	4

In this section we have typical lake deposits to a depth of about 26 feet below the present surface, the lowest beds being probably glacial drift of more ancient origin.

The variable local character of these old lake beds was well shown in the deep excavation for the gasometer tank. A careful section was drawn by the engineer in charge of the work, a copy of which in my possession shows that the rock surface was covered by a bed of marl, varying in depth from about 2 to 5½ feet. This was overlaid by a bed of peat less than a foot in thickness, above which came a thick stratum of "till," or rough stony clay, probably washed down by torrents from the adjoining steep talus of Salisbury Crags. At the north-west side of the tank the till was covered by a second bed of marl, showing that the floods gave place to a drier period, in which the water remained sufficiently tranquil for the delicate molluscs to flourish in peace. This marl, however, only covered part of the area, and passed into a bed of grey and yellow sand, 3 to 4 feet deep, along the south-east side of the excavation. The whole was overlaid by a covering of vegetable mould 5 to 8 feet thick, the greatest depth of the whole section of lacustrine strata at the south-east side being about 34 feet.

In the beginning of 1887 a cutting several hundred yards in length was made for a sewer running north-eastwards from this point past the Palace gardens, in which a section at places 20 feet deep was laid bare. Mr. John Henderson, in his description of this cutting, states that the surface to a depth of about 6 feet consists of artificial deposits, with fragments of pottery, oyster-shells, bones, etc., resting on brown, peaty clay about a foot in thickness. This bed passes down into peat, which has at places a depth of 18 inches, and all along the section rests on marl 1 to 2 feet thick. The lowest part of the section consists of brown and blue clay resting on loose clayey sand, which seems to have here formed the floor of the lake.

From these sections it is clear that the ancient loch of Holyrood had originally a depth of between 30 and 40 feet at places, and that after several vicissitudes in climate it became silted up with material brought down by streams from the adjacent high ground. One of these brooks probably ran northwards along the hollow encircling the base of Salisbury

Crags along the line of the Queen's Drive, and a second entered from the west, carrying down the drainage of the valley between the Castlehill and the Calton, afterwards partially occupied by the Nor' Loch. As the lake shallowed, the fauna which flourished in the deeper water was choked out, and the area became overgrown with peat, only a few pools remaining to mark the place in historic times. The peat was full of twigs of birch, hazel, and other trees, which no doubt at one time formed part of the thick forest of Drumsheugh, whose gnarled oaks and sombre pines once cast their dark shadows across the bosom of this ancient lake.

6. LOCHEND LOCH.

Of all the old Edinburgh lakes this little one seems to have undergone least change since the earliest times. It has no streams of any consequence for feeders, and hence has not become silted up. The water seems to be derived chiefly from springs, and as such is clear and free from sediment. The outlet to the west is small, and although the level of the overflow may have been somewhat lowered, there is not much evidence of any considerable shrinkage in area.

7. DUDDINGSTON LOCH.

Although still the largest of the Edinburgh lakes, Duddingston Loch covers but a fraction of its original area, and the merest tyro in field geology can see that about half of the present lake has recently degenerated into a reedy marsh, which will at no distant date gradually become dried up and disappear in the ordinary course of nature. The level of the water is but a few feet below the 150-feet contour line, and by following this line we can approximately trace out the ancient margin. As all skaters know, this loch is supplied principally by springs rising at the foot of the Hangman's Rock and the Giral Crag, and the outlet passes south-eastwards into the Braid Burn near the railway station. The ancient lake probably extended over the whole of the flat depression between Duddingston and Inch House; and although it is not certain that the slight knoll on which the old mansion-house stands was actually ever a complete island, as its name would imply, yet it may have been near enough the water in Celtic times to have been described by that common epithet.

The ancient loch was supplied partly by the existing springs and partly by the waters of the Braid Burn and its tributary the Pow Burn, which join near Peffermill, and probably at first entered by separate mouths into the basin. These streams, in their original state before modern improvements had altered their courses and the character of the surrounding land, were no doubt subject to powerful spates. Large quantities of alluvium were swept down on these occasions from the high ground of the Braids and Blackford Hill, and deposited, where the current slackened, in the form of a flat delta at this end of the lake. Gradually the alluvial fan pushed back the water and spread over the greater part of the shallow basin, until at last this part of the depression was

completely silted up, and the streams, uniting into one, parted company with their shrunken old friend the loch, and, passing it, left it to be maintained entirely by the springs and the rills from the adjacent slopes of Arthur's Seat. The southern part of the basin, whose total length at the end of the Ice age apparently exceeded a mile, was probably shallow, and the silting-up was a comparatively rapid process, so that many centuries must have elapsed since the loch shrank nearly to its present area. The deepening of the outlet by artificial means has no doubt helped further to reduce it within historic times. It would, however, be an advantage if the hand of man, instead of, as usual, assisting in the destructive work of nature, were to be employed in partially restoring the ancient majesty of this sheet of water, by clearing out the reeds and sedges by which it is nearly half occupied—a work which would be both patriotic and practical, and would, besides adding to the beauties of the district in summer, give additional room in winter for skating and the grand old Scottish game of curling.

Of the smaller pools or ponds in the district to which I have already alluded, the map shows two along the course of the Jordan Burn. One of these, which occupied the hollow south of Morningside Asylum, is represented by a well-marked series of lacustrine strata, exposed when the Suburban Railway cutting was made. Under the surface vegetable soil, which had a thickness of 2 feet, a bed of peat 3 feet thick was found resting on shell marl 2 to 3 feet in depth. The peat and marl extended along the cutting for nearly half-a-mile westwards from the Morningside station to the point where the rock cutting begins at Myreside.

Another lakelet with a well-marked bed of marl existed at the foot of Blackford Hill, in the course of the Pow Burn, by which it was no doubt ultimately drained or filled up in prehistoric times. Canonmills Loch, again, was a pool connected with the Water of Leith, which occupied the hollow overlooked by the Royal Crescent. It is referred to in old maps and descriptions of Edinburgh, and was not completely removed till 1865, when the last part of it was drained during the construction of the Royal Gymnasium.

There were, no doubt, at the close of the Ice age, other lakes of greater or lesser magnitude in the immediate vicinity of Edinburgh, one of which may have occupied the flat hollow along the Burdiehouse Burn, south of Craigmillar Castle; but I have no clear evidence in these cases, and as I have endeavoured to adhere to well-substantiated facts in tracing the outlines of the old lakes of Edinburgh, these must be left out of present consideration until further investigations shall have placed their origin quite beyond the region of doubt.

This, in conclusion, is a first attempt at the construction of a prehistoric map of the Edinburgh district, and no doubt contains many defects; but it may, I hope, serve not only to awaken interest, but also to incite to further investigations in that most fascinating field of research—the borderland between the past and the present—where the geographer and archæologist step in and complete the tale of ages the geologist has left unfinished.