

**An account of Peterhead : its mineral well, air, and neighbourhood / By William Laing.**

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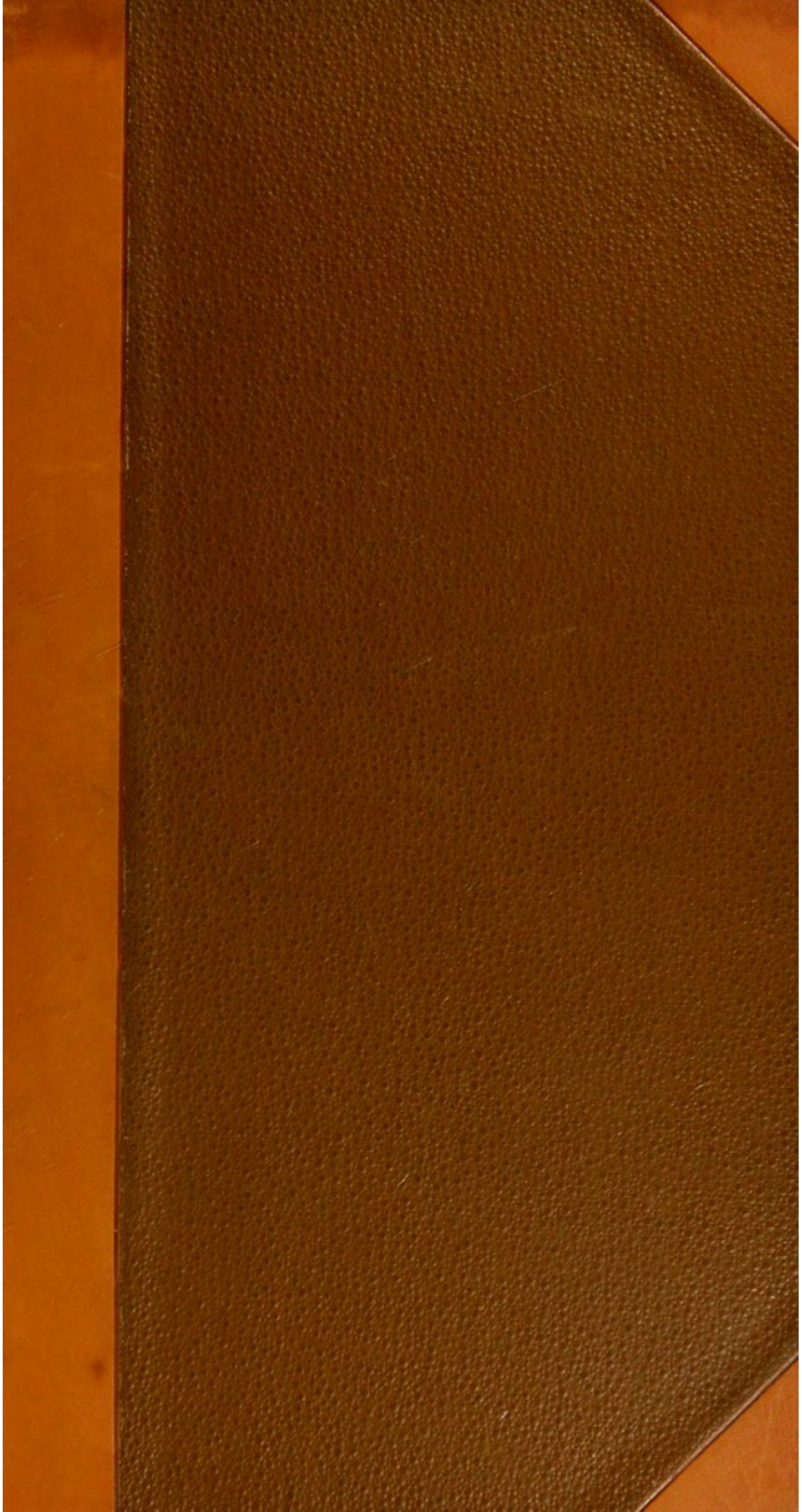
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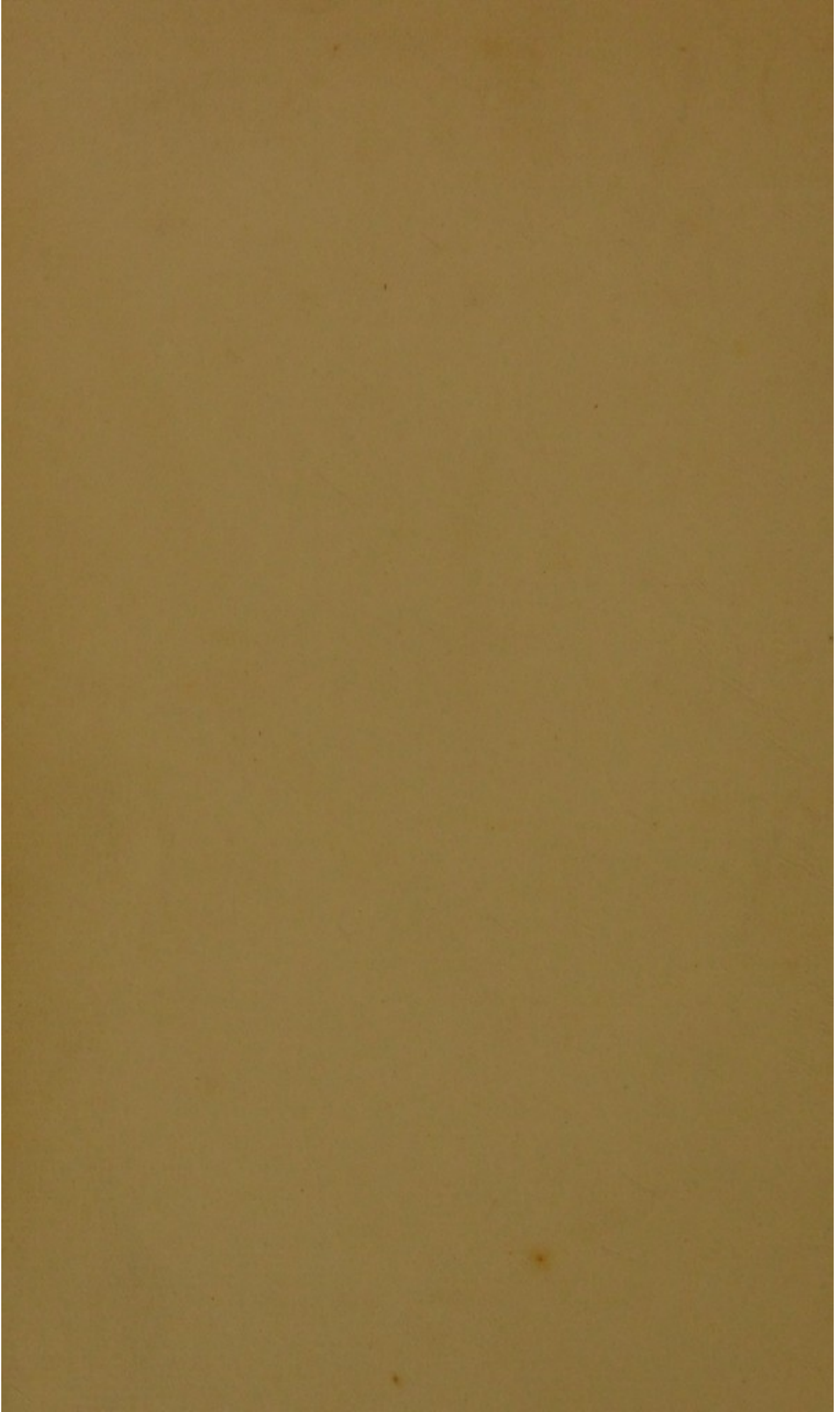


Supp. 59665/3

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AN  
A C C O U N T  
OF  
P E T E R H E A D,  
ITS  
M I N E R A L W E L L,  
A I R,  
AND  
N E I G H B O U R H O O D.

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By WILLIAM LAING, M.D.  
MINISTER OF THE ENGLISH EPISCOPAL CHAPEL OF PETERHEAD.

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L O N D O N :

PRINTED FOR T. EVANS, PATER-NOSTER-ROW :

SOLD BY W. CREECH, EDINBURGH ;

AND ANGUS AND SON, ABERDEEN.

M D C C X C I I I .

PRICE ONE SHILLING AND SIXPENCE.

ACCOUNT  
OF  
THE  
FETTERHEAD

MINERAL WELL  
AIR  
AND  
NEIGHBOURHOOD



LONDON  
PRINTED BY J. JOHNSON, ST. PAUL'S CHURCH-YARD  
AND SOLD BY THE AUTHOR, 10, ABchurch-lane  
1847  
THIRD ONE HUNDRED AND TWENTY

TO THE HONOURABLE,

THE GOVERNORS OF THE MERCHANT  
MAIDEN HOSPITAL, EDINBURGH.

GENTLEMEN,

AS the subject of these few sheets is a town of which you have ever shown yourselves indulgent Patrons, I have presumed to inscribe them to you.

I am happy, in this publick manner, to express the sense which all the inhabitants of this place entertain of the liberal policy that has dictated all your conduct towards it; whereby you have at once promoted its prosperity, and the interest of the Society of whose affairs you have more immediately the charge.

And that share of your favour which I have enjoyed, in common with the rest of my fellow-townsmen, merits, and has, my grateful acknowledgments.

I am, with great respect,

Gentlemen,

Your humble

And obedient servant,

Peterhead, }  
January 1793. }

WILL. LAING.

THE GOVERNORS OF THE MERCHANT  
MARINE HOSPITAL, LONDON

DEAR SIR,

As the subject of these few lines is a town of which  
you have ever been your friend and patron, I  
trust, I have presumed to intrude them to you.

I am happy, in this public manner, to express the  
satisfaction which all the inhabitants of this place entertain of  
the liberal policy that has directed all your conduct to-  
wards it; whereby you have at once promoted its pro-  
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And that share of your favour which I have enjoyed,  
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I am, with great respect,

Gentlemen,

Your humble

And obedient servant,

Wm. Linn.

London  
January 1793

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## E R R A T A.

Page 1. line 15. for *object* read *subject*.

6.—3, put a comma after—reddish.

22.—15, for *might* read *must*.

32.—1, 2—put the commas after the marks of reference.

—7, read *skilful*.

33.—22. put a comma after—irregular.

34.—3. read—or a *fore*.

36. foot-note—read—unnatural contraction.

43.—II. dele *even*.



The first of the great principles of the  
constitution is the separation of powers  
between the three branches of the  
government. The executive power is  
vested in the President, the legislative  
power in the Congress, and the  
judicial power in the Supreme Court.

CHAPTER III

The second of the great principles of the  
constitution is the federal principle. The  
government is composed of a central  
authority and a number of local  
authorities. The central authority is  
the President, and the local  
authorities are the States. The  
President is elected by the people, and  
the States are elected by the people.

The third of the great principles of the  
constitution is the principle of  
liberty. The government is established  
for the purpose of securing the  
liberty of the people. The  
government is not to interfere with  
the liberty of the people, but to  
protect it.

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A N  
A C C O U N T  
O F  
P E T E R H E A D,

ITS MINERAL WELL, AIR, AND NEIGHBOURHOOD.

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**T**HE mineral well at Peterhead has long been in repute, and much resorted to, not only by the people of the town and neighbourhood, but also by many persons from almost every part of Scotland: and in a great variety of disorders it has been found very beneficial. An attempt therefore to lay before the public a full and authentic account of what may be expected from it, seems not only justifiable, but even likely to be of use. Such an account I mean to give. I wish the object had fallen into hands more capable to do it justice: for the analysis of mineral water is a matter of no little difficulty. For more than twenty years I have dwelt near this well, and have occasionally drank the water with success. I have prescribed the use of it to many persons in various disorders, without being disappointed in any reasonable hopes. Yearly during the season I have given advice concerning the use of it to many of different ranks, and especially to numbers of the meaner class who frequent it, requesting of them that before leaving the town they would let me know its effects. Every year, in common with the other inhabitants of the place, I have seen the vast crowds that resort to the water, and heard of the advantages they have reaped. And since I resolved to write on this subject, I have

B spent

spent a good deal of time in endeavouring to make a correct analysis of the water; and though the success has not been complete, yet it has been sufficient to point out its nature and probable effects.

I propose therefore to give an account of the mineral water of Peterhead, of the disorders to which it is adapted, and of the town itself, its air, and neighbourhood.

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## CHAPTER I.

### OF THE MINERAL WATER OF PETERHEAD.

Sect. 1. *Of the situation of the well, and of some external circumstances.*

THE town of Peterhead lies in latitude  $57^{\circ} 31'$  north, near the Buchan-ness, and in the greatest East longitude of any land in Scotland. The mineral well, which from its virtues has long obtained, from the common people, the name of the *Wine-well*, is situated at the south-east side of the town, among some rocks, on the sea side, and about ten feet above the highest flowings of the tide. In the greatest cold of winter the water in this well has not been observed to sink the mercury in Fahrenheit's thermometer below  $42^{\circ}$ ; nor in the greatest heat of summer to raise it above  $54^{\circ}$ : therefore the spring seems to lie a considerable depth below the surface of the earth. The soil in the neighbourhood of the well, and for a considerable extent along the coast on the south side of it, is very full of a brownish ore of iron: all the water issuing from that part of the coast has a brown colour and an inky taste: there is no kind of stone found near Peterhead, except granite of a reddish tinge, evidently from iron in its  
com-

composition. The highest ground near this well is not more than sixty or eighty feet above the level of the sea. The quantity of its water has an evident connection with that of the rain that falls; as in winter it discharges considerably more than in summer, and in the dry season its water increases after a fall of rain. It seems to consist of several veins, some of them having more of the iron joined to the water by the fixed principle, and others more by the volatile principle. All the stones forming the reservoir, which are of freestone, and the bed of its stream, are incrustated with ochre, or rather the substance of them seems to be filled with iron, as petrified bodies are filled with stony matter. Glasses or stone ware used in holding this water are quickly covered with a brown crust, not easily removed without pearl ashes, or spirit of salt. As the well is daily cleaned, and runs over a short course of stone into the sea, no animals or vegetables live in its water.

*Seçt. 2. Sensible qualities of the water.*

Viewed in a clear glass, and compared with a similar glassful of clear rain water. it appears sensibly, though but little, yellower. When shaken in a phial it sends out many more and larger air bubbles than common water does: and, when poured into a clean glass, it sparkles. It has a pretty strong smell, like that of polished iron when rubbed, which is most distinctly perceived when the head is held within the reservoir, above the water: but there is not the least mixture of a hepatic smell. (See Bergman's Eff. v. 2d. p. 298.) Its taste is what is called *inky*, to a great degree: but along with the taste of iron, there are evidently other tastes

joined, as a briskness, and a sharp taste, as of some kind of salt dissolved in it.

Sect. 3. *Experiments for finding out its contents.*

The knowledge of the component parts of bodies is desirable, as being pleasant in the meantime, and probably useful in the time to come. This is particularly the case with regard to any remarkable medicine, as it may enable us to know by analogy what effects we may expect from it, what disorders it may be useful or prejudicial in, how to act so as to make it produce its good effects to the best advantage, how to obviate any bad effects that might arise from it, and how to find natural or artificial substitutes for it, when the real medicine cannot be had.

(A) If the water is allowed to stand for some hours in the open air, many air bubbles attach themselves to the bottom and sides of the vessel containing it, successively come to the top, and escape: in the meantime a variegated scum is formed on the surface, which becoming at length too heavy, breaks and falls to the bottom, in form of a brown powder: the water loses its briskness, but keeps its inky and saline taste. This shews that by the exposure of the water to the air a change is made upon it, in consequence of which it becomes incapable of holding the whole quantity of iron which was formerly dissolved in it; and that the portion of iron, thus let go, falls to the bottom in form of ochre. And from other experiments we know that this change consists in the escape of that volatile substance called *fixed air* or *aerial acid*, which was naturally mixed with this water, and which, like any other acid mixed with water, enables it to dissolve iron. This acid, having but a slight attraction to the water, when unconfined soon leaves it; and allows the iron,

no longer soluble in the water, to fall to the bottom. Exactly the same things happen, when water, having fixed air and iron artificially united to it, is exposed to the open air.

(B) The same change that is slowly brought upon the water by exposure to the air is more rapidly produced by boiling it on the fire. Before it boils it becomes brown; and when it has boiled about twelve minutes, the brown colour does not seem to grow deeper any longer. The variegated scum does not appear in this case, being prevented by the agitation of the water in boiling.

Here then is another principle that is joined to the water, along with iron; namely, the *fixed air* or *aerial acid*; that principle which gives the briskness to this and to most other good mineral waters, as Seltzer, Spa, Pyrmont; in the same manner as it does to bottled beer, and indeed to every other liquor either in a state of fermentation, or shut up in close vessels before the fermenting state was over; that principle which gives the pungency generally desired in all kinds of vinous liquors, which become flat when it is allowed to escape into the air, and recover their briskness when it is restored by art.

(C) It is well known, from the making of ink and other experiments, that if iron in the form of green vitriol, or in any other form, be united to water, and that water be mixed with any liquor impregnated with galls, shumack, oak, tea, or any other vegetable astringent, the liquor will soon become black. Hence vegetable astringents become a good test for trying whether water contains any portion of iron, however small, in its composition: and in this case a \* saturated spirituous tinc-

\* One substance is said to be saturated with another substance, when it is so impregnated with it that it can receive no more.

ture of galls is the most convenient test. If two or three drops of this tincture be put into a wine glass full of the mineral water, it soon becomes reddish purple, and by and by black.

I dissolved eight grains of green vitriol in eight ounces (by measure) of pure rain water. I chose six similar wine glasses. Into the first glass I put one dram measure of the solution of vitriol, into the second two drams, into the third three drams, into the fourth four drams, into the fifth eight drams or an ounce; and to the solution of vitriol in each of these five glasses I added as much rain water as made up two ounces of liquor in each glass: lastly, into the sixth glass I put two ounces of the mineral water. Then into each glass I put twelve drops of the tincture of galls; from that time, during an hour, the colours of them all were diligently compared by several persons called for the purpose: and that of the third glass, containing the three drams of the solution of vitriol, or three eighth parts of a grain of vitriol to the two ounces of water, was found most to resemble that of the mineral water; only that this last seemed a fuller colour, and like as if some claret had been added to the mixture.

This affords an easy way of comparing this mineral water with others, in regard to the quantity of iron contained.

It also gives a sort of estimate of the quantity of iron. There is, by this experiment, in two ounces of the mineral water, iron equal to three eighths of a grain of vitriol; that is, equal to three grains of vitriol in one pint English; which is, (Bergman's Essays, v. 2. p. 180.) equal to three-fourths of a grain of solid iron to one pint of the mineral water. But the quantity of iron given by this estimation is too small (D).

(D)

(D) With a view to estimate more accurately the quantity of iron contained in this water, I attempted to convert into Prussian blue all the iron contained in a certain quantity of this water ; to treat a solution of green vitriol in the same way, at the same time, and to compare the results. This was done with the view, that, as different processes and alkalis differently prepared might produce different quantities of Prussian blue, there might be no deception from that quarter. And as the *phlogisticated* or *Prussian alkali* made in Professor Bergman's way, by boiling *salt of tartar* with four times its weight of Prussian blue, seemed to contain Prussian blue ready formed \*, and only discoloured by the alkali ; therefore I prepared the *phlogisticated alkali* for the purpose, by calcining together salt of tartar with dry neats blood. A small quantity of the solution of this alkali discovers the quantity of iron to be very considerable. The mineral water, after this addition, becomes at first of a greenish yellow : but after a while it becomes of a deep and beautiful blue : and the same thing happens immediately, on adding a few drops of dilute vitriolic acid.

Into two English quarts of the water I poured a quantity of the *phlogisticated alkali* ; and added slowly dilute vitriolic acid, as long as the blue colour appeared to grow deeper by the addition : I allowed the colouring matter to fall to the bottom, and took off the transparent liquor by the syphon. I then treated this liquor as before with fresh quantities of *phlogisticated alkali*, and of vitriolic acid, and obtained an additional quan-

\* This was afterwards rendered certain by experiment. I boiled half an ounce of the finest Prussian blue, first with one-eighth of an ounce of salt of tartar ; and, the solution not proving colourless, with as much again of salt of tartar. The solution, when filtered through paper, still was somewhat greenish. With this liquor I treated two quarts of Peterhead water, and, by repeated trials, made at last 33 grains of Prussian blue, of which a great part must have come from the alkali.

tity of Prussian blue. This process was repeated, till no more blue sediment could be obtained from the water: and the whole quantity of the Prussian blue, when dried in a china cup by a sand heat, amounted to eighteen grains. I treated a solution of eight grains of green vitriol exactly in the same manner, and it produced fourteen grains of Prussian blue. But having observed something saline along with the blue, while it was drying; and considering that a portion of the *vitriolated tartar* formed by the mixture of the *phlogisticated alkali* and vitriolic acid must still remain joined to the blue; I therefore washed both the dry powders well with pure rain water. And now the dry remainders amounted to eleven grains and a half of Prussian blue from the two quarts of mineral water, and to five grains and a half of Prussian blue from the eight grains of vitriol.

Calculating now as before, we have to the two quarts of water, iron equal to sixteen grains and seven tenths of vitriol, that is 4.12 grains, or something more than one grain of iron to one pint of the water. This is more than the last experiment gave, but it is probably nearer the truth; for the eye can judge but imperfectly in such cases, and this present experiment may make the iron appear to be too little, but can hardly bring it out to be too much. Nay, it is evidently still too little; for the mineral water, after it would yield no more precipitate, was very blue; whereas the vitriolic solution, in that situation, was colourless.

(E) I next wished to know for certain, whether or not the mineral water actually contains fixed air: for the deposition of ochre, either on boiling, or on long exposure to the air, is not quite decisive; as the same thing, in some degree, happens to a solution of vitriol.

For

For this purpose, I caused a vessel to be made of tin plate, in form of a tubulated retort, and filled it with the mineral water as full as it could boil without running over; and put the turned up end of its neck under the mouth of a bottle, filled with filtered lime-water, and inverted in a basin. After the water in the retort had boiled twelve minutes, I found a considerable quantity of white clots at the bottom of the lime-water; which was the lime precipitated by the fixed air driven over from the mineral water.

I thought that the quantity of fixed air might be thus measured; but the necessary exposure of the lime-water to the common air, from which it is every moment attracting fixed air, frustrated this hope.

(F) The only certain way of measuring the fixed air contained in water, namely by distillation, as in the last experiment, but using a glass retort, and mercury for the lime-water, was not in my power; for no proper glass retort could then be had. The Florence flask and bladder, mentioned by Bergman, did not answer with me; for the bladder was shrivelled up, and its texture destroyed by the hot vapour, before the water boiled; so that it did not retain the fixed air.

I. I therefore used the tin retort (E), with the inverted bottle full of mercury. Many precautions were applied to insure success, and the experiment was six times repeated: but the vapour, expanded by the heat on the one hand, and compressed by the weight of the mercury on the other hand, always in part escaped by the joinings and by the corked tube, so that its whizzing was distinctly heard. The air thus collected, after being cooled, amounted only to three ounce measures in the pint of water. Nor had I an opportunity

nity of trying whether some part even of this might not be common air.

2. I hoped for better success from finding the *quantity of iron* dissolved in the water by fixed air, and thence calculating the *quantity of fixed air*. I therefore boiled twelve English pints of the water for twelve minutes; allowed the sediment to fall to the bottom; abstracted the liquor by the syphon; and found the sediment, when dried, to amount to three and one-third grains of ochre. Now if a hundred cubic inches of fixed air be necessary for dissolving four grains of iron (Bergman's E. v. 2d. p. 220), then eighty-three and one-third cubic inches of fixed air will be necessary for three and one third grains of iron. There are then eighty-three and one third cubic inches of fixed air in twelve pints of the water: that is nearly seven cubic inches in one pint of twenty-eight and four fifths cubic inches, which is almost one fourth of the bulk of the water.

It was necessary, for the mean time, to hold this as the proportion of fixed air to the water: but this plan, though the best that could be got, is far from accurate. It is not possible to determine exactly when all the fixed air is exhaled, and consequently, when all the iron dissolved by the fixed air is set at liberty to subside: nor is it possible, from so great a quantity of water to collect all the particles of the *iron*; and, in an experiment so nice, the least loss must be of consequence: nor lastly, is it known whether there be not more fixed air in the water than is necessary for dissolving the iron. On the other hand, it is not easy to be certain that some part of the iron deposited may not be owing to the decomposition of vitriol (E,) or of any other combination of iron with an acid. The first error would  
give

give the quantity of *fixed air* too little: the last error would give it *too much*. However, I have reason, from what has been just said, and from the taste, to believe the quantity of air here assigned to be still too small.

(G) We have seen that there is iron united to this water by means of fixed air, which is the most common way in \* *chalybeate* springs. But here far the greater part of the iron is dissolved by some acid much less volatile than fixed air. For not only do the experiments (C and D), for making *inky liquor* and *Prussian blue*, succeed, after the *aerated iron* has been separated by boiling and filtration; but even after the water had stood for fourteen days in a bottle half full, and was afterwards boiled for half an hour, and filtered, still its power of becoming black with galls, and blue with phlogisticated alkali, was not greatly diminished. Therefore, to find out what other acid or acids are in the water, I tried these experiments.

1. Into a wine glass full of the mineral water I put three drops of Muriated Barytes †. It became somewhat whitish: which shews that there is some vitriolic acid in this water, united either to the iron, or to some other body; for there is no disengaged acid in this water.

2. Of a saturated solution of *lunar caustic*, ‡ or (*nitrated silver*) in distilled water, I put some drops into a wine glass full of the water; which immediately became of a dense white at the bottom: and, on adding more and more of the *nitrated silver*, the liquor became all over of a full white, and thick seemingly as if a large proportion of some fine white powder had been

\* Impregnated with iron.

† Or *solited terra ponderosa*, which is a saturated solution of the earth called *terra ponderosa* in *muriatic acid*; and is used for discovering whether water contains acid of vitriol joined to any base whatever.

‡ This is used for finding out the *muriatic acid*.

diffused in it : afterward the liquor became purplish, and deposited a sediment of the same colour. This shows that a large quantity of *muriatic acid* \* is, in this water, united either with the iron, or with some other base.

Of any other acids in this water I had no suspicion.

(H) But other substances are generally found in most kinds of water, and especially in mineral waters : and therefore, to find out what other substances there may be in this water,

1. I prepared a quantity of *acid of sugar*, [it could not be had to buy in this part of the country] purified it by repeated chrySTALLIZATION, and tried it on other waters known to contain lime, (chalk, or calcareous earth,) which it readily precipitated in a white powder. This acid, when added to the Peterhead water, sometimes made no difference : at other times, after it had stood for twenty-four hours, clear lines appeared running down along the conical part of the glass to the bottom ; owing to a small deposition of lime. Hence the presence of lime in this water is accidental, as its quantity when present is very small.

(I) I tried many other precipitants † : but they discovered nothing contained in the water different from what was already known.

1. *Concentrated vitriolic acid* dropped into the water makes the air to arise in vast numbers of bubbles to the surface. These soon cease, and the water continues transparent. The presence of *fixed air* in the water is thus confirmed (A. B. E. F.)

\* Called also *marine acid*, and vulgarly *spirit of salt*.

† Substances that discover matters dissolved in waters, by producing a known difference of appearance in the waters.

2. Salited lime \* makes no sensible alteration upon the water. But no more did it make any alteration upon waters in which I had dissolved alum, Epsom salt, and martial vitriol, in a proportion fully greater than any of them could be supposed to be in Peterhead water : so that this experiment proves nothing.

3. Salt of tartar precipitates abundance of iron, in form of ochre, first of a bluish green, and then becoming brown. (A. B. C. D.)

4. I put a piece of alum weighing three grains into a wine glass full of the water ; but no spongy stratum, or any other change in the liquor appeared during twelve hours. There is therefore in this water no *alkali* in a free state ; no *aerated*, † *muriated*, nor *nitrat-  
ed* lime. (Bergm. Ess. v. 2. p. 131.)

5. Lime water poured into the mineral water immediately makes it turbid ; because the quick lime absorbing the fixed air from the water, can no longer be dissolved in water, and therefore falls to the bottom in a white powder, which soon becomes yellow or greenish, from the mixture of ochre.

Besides these I made many other experiments with various *precipitants* : but the result of the whole of these trials was this ; that the Peterhead water contains fixed air in a moderate quantity, iron and muriatic acid in great quantity, vitriolic acid in small quantity, and seldom any lime. Besides these I could, by precipitants, discover nothing else contained in it.

But how these acids are combined, which of them is united to the iron, or whether they be all united to it, or whether any of them be united to any of the fixed alkaline salts ; and in what proportion the various ingredients subsist in the water ; these experiments do

\* Muriatic acid saturated with chalk or lime.

† Lime or chalk united to the water by means of *fixed air*, muriatic acid, or nitrous acid.

not indicate : and therefore I attempted to discover these things, by the more operose, but more satisfactory processes following.

(K) (a) I took twelve pounds avoirdupois of the water that had first been deprived of its aerated iron, (F. 2.), and by a heat of from  $140^{\circ}$  to  $180^{\circ}$  evaporated it in a tin-kettle (for want of a better apparatus which could not be had,) to one pound : and then evaporated this pound to dryness, in a vessel of stone-ware, on a sand-bath. The *residuum*, when well dried, weighed ninety-nine grains.

(b) This residuum I put into three ounces of *alcohol*, which I had rectified for the purpose : after it had stood six hours, the liquor was filtered, and put into a phial corked and labelled.

(c) What remained undissolved by the *alcohol* I carefully collected, put it into eight times its weight of distilled water ; and after it had stood for several hours, I separated the liquor, and put it up as the former.

(d) The matter that still remained undissolved I boiled in five hundred times its weight of distilled water ; separated and put up the liquor as before.

(e) 1. What now remained, being well dried, weighed thirteen grains, and seemed, by its colour, to be almost entirely ochre. It was put into a tobacco-pipe, having its hole shut with pipe clay, and kept in a brisk red heat for half an hour. It then weighed only seven grains, and had a purplish appearance, like powder of thick pieces of rust of iron. This diminution of weight probably arose from the expulsion of the remaining air and water.

2 I then put this calcined powder into an ounce and half of distilled vinegar, and after it had stood six hours decanted off the clear liquor.

3. This liquor evaporated to dryness left three and a half

half grains of a grey matter, which did not deliquesce in the air : and this matter, having dilute vitriolic acid poured upon it beyond saturation, had about half of it dissolved ; which half therefore I at first concluded to be magnesia, (Bergm. v. 2d. p. 161.) and the undissolved half to be lime. But on adding *phlogisticated alkali* to the solution, the whole became of a thick and intensely deep Prussian blue. This shewed that the dissolved part was not magnesia, but iron : and this also shewed, that half an hour's calcination in a brisk red heat is not sufficient to render calx of iron insoluble in distilled vinegar.

The other half which was not dissolved by the vitriolic acid, or rather, which was precipitated by it in form of gypsum, was lime, one grain and three fourths.

4. What remained untouched by the vinegar, being washed and dried, weighed five grains ; and had the appearance of *colcothar of vitriol* much calcined. Strong muriatic acid repeatedly poured upon it dissolved two grains ; and nitrous acid dissolved one grain more ; and both these solutions were discovered to be, not clay but iron, (Berg. v. 2. p. 162.) The remaining two grains I supposed to be siliceous earth that had been mechanically suspended in the water.

(bb) We now return to the solution in *alcohol*. It was evaporated to dryness, and weighed about nineteen grains ; but the weight of the dry residuum was not exactly determined, as it was continually increasing by its attracting moisture from the air. I dissolved it in distilled water, and during the solution there arose to the surface a quantity of blackish matter, of which, for a while, I did not know what to think. It did not dissolve, either in distilled water, or in dilute vitriolic acid : but in strong muriatic acid it readily dissolved into a  
green

green liquor. This liquor, plentifully diluted, and tried by the tests often mentioned before, gave abundance of Prussian blue, and nothing else: so that I concluded it to be iron, under some degree or mode of phlogistication different from the rest, and perhaps acquiring that difference from the alcohol.

With regard to the solution from which this black matter separated, *nitrated* silver discovered the acid in it to be muriatic; as indeed I had, on a former occasion found it to be, by pouring concentrated vitriolic acid on the dry *deliquescent* salt; which raised the muriatic acid in white fumes, and having its own peculiar smell. Phlogisticated alkali discovered, at least the greatest part of the solid matter in it, to be iron. Acid of sugar shewed no lime. Every other trial I made confirmed this opinion. On a former occasion I thought I had found magnesia in this part of the process: but later and fuller trials discovered none.

(c c) I next examined the solution (c) in cold water. This liquor was at first colourless: but, when a little evaporated, it threw down about two grains of ochre. It was slowly evaporated in a china cup, by a sand heat; and the cup, along with the hot sand in an iron ladle was repeatedly set by, that it might crystallize by slow cooling. By these crystallizations I obtained the following products.

1. One grain of crystals like very minute needles, set together at an angle of about  $60^{\circ}$ . the appearance of which was somewhat like that of *sugar of lead*; but on the tongue it was quite insipid: and

2. Two grains more of the very same appearance. These crystals did not easily nor entirely dissolve in distilled water. The solution being examined, by acid of sugar, gave lime; by *muriated barytes*, gave some  
vitriolic

vitriolic acid, and by *nitrated silver*, gave muriatic acid. There remained about two grains of a yellow powder, insoluble in distilled water, in muriatic acid and in vitriolic acid. I tried whether or not these crystals might not arise from the tin of the evaporating vessel, acted upon by muriatic acid; by dropping into distilled water a small portion of that acid, evaporating it in the same tin vessel, and endeavouring to crystallize it: but it yielded only a pultaceous kind of magma. The crystals seem to have been a compound of calcareous earth, joined to vitriolic and muriatic acid.

3. The next crystallization gave an irregular mass, weighing seven grains of small crystals. This mass being afterwards looked for to be examined, was found dissolved into a brown liquor: which on undergoing the trials, appeared to be *muriated iron* \* coloured with ochre.

4. I got four grains of perfect crystals, of a white colour: and

5. One grain and three fourths of the same crystals. These crystals, when examined by the taste, by the figure, and by all the precipitants, plainly appeared to be Glauber's salt.

6. Lastly, there remained a quantity of liquor of a very strong saline taste. Being evaporated almost to dryness, and allowed to cool very slowly, it gave a saline mass weighing fifteen grains. This mass, dissolved in distilled water, had very much the taste of sea water much evaporated; but it was not affected by precipitants as sea water is. (Bergm. v. 2. p. 228.) *Nitrated silver* made it thick and very white: *muriated barytes* did the same: *fixed vegetable alkali* † made at first no

\* Iron united to the *muriatic acid*.

† Salt of tartar.

change, but after a while some ochre appeared in light flocks : acid of fugar made no change ; nor did muriated lime, nor vitriolic acid. *Phlogisticated alkali* made a light blue. Hence this saline matter appeared to have been a compound of *sea salt* and *Glauber's salt*; perhaps in equal parts : with a very small quantity of *muriated iron*.

(dd) The solution in boiling water (d) being examined with *fixed vegetable alkali*, and with acid of fugar, shewed a minute quantity of *gypsum*, which did not exceed two grains. On having *phlogisticated alkali* with a little vitriolic acid added to a part of it, there appeared a light Prussian blue : and by the addition of nitrated silver, it discovered *muriatic acid*.

Such were some of the most material experiments which I made upon this water, repeatedly, and with all the care I could. They are neither so complete, nor so perfectly satisfactory, especially in regard to the exact quantities of the various ingredients, as I could have wished : owing to the imperfection both of my apparatus, and of my experience in chemistry. I am therefore so far from doubting that this *analysis* might be more accurately performed by another, that I know I could do it more perfectly myself, if my time would permit, and if the season of the year were proper. The uncommon nature of this water, and its great efficacy as a medicine, lead me to hope that the analysis of it may be undertaken by some person well qualified to do it justice. Then perhaps the experiments chosen to be made, or the conclusions drawn from them, may differ from mine : but I hope the faithfulness of those I have related, and the general inferences drawn from them, will stand the trial.

Left any one, after this acknowledgment, should add  
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an accusation of tediousness in the detail, I must mention the reason of the minuteness that appears in various parts of the process. On examination I found the contents of this water very different from what I had before suspected; and therefore I made many minute trials, that I might be as sure as possible not to be deceived. And a recital of those experiments seemed necessary to justify me, in affirming that this water contains iron joined to the *muriatic acid*; which combination, so far as I know, has not yet been found in any other water of which the analysis is published. That it is really found in this water, the foregoing *analysis*, especially as confirmed by the following *synthesis*, plainly shews.

Still however it seemed not impossible that a false conclusion might have been drawn from the appearances: for though the *muriatic acid* was found joined to the iron only, and the *vitriolic acid* to the *fossil alkali*; yet it might be thought, that this combination was the effect of the process: that in the water these substances might have been in the form of *sea salt* and *martial vitriol*, which had not acted upon one another while diluted with much water, but when concentrated by evaporation, had formed the substances found in the water by a double decomposition: therefore I made this trial.

(L) I dissolved equal parts of common salt and of martial vitriol, in a large quantity of water, and by a moderate heat, evaporated the solution to dryness. But though I could not get the two salts to crystallize separately, yet there was no mutual decomposition and recombination; for the residuum continued perfectly dry, after it had been long cold, which it could not have done if the *muriatic acid* had left its own *base*, to

combine with the iron, as *muriated iron* is always *deliquescent* \*.

There is therefore no reason to doubt, that, in the Peterhead water, the iron is naturally joined to the *muriatic acid*.

(M) Now though the absolute proportions of the ingredients cannot be supposed to be given by the above analysis; yet as the ingredients themselves are all ascertained, let us collect them from the foregoing processes, as a pretty near approach to the truth.

There are therefore in twelve pounds avoirdupois of Peterhead water, of aerated iron (F 2.)			
	Grains		$3\frac{1}{2}$
Muriated iron (K. e. 3.)	gr. $1\frac{3}{4}$	(K. e. 4.)	gr. 3
(K. bb)	gr. 19	K. cc. 3.)	gr. 7
in all			$30\frac{3}{4}$
Muriated lime (K. e. 3. Berg. p. 179)	gr. 4	(K. c c. 1, 2.)	gr. 3
	—		7
Siliceous earth (K. e. 4.)	—		2
Gypsum (K. dd)	—		2
Glauber's salt (K. cc. 4, 5, 6.)	—		$13\frac{1}{2}$
Common salt (K. cc. 6.)	—		$7\frac{1}{2}$
Fixed air (F. 2)	—	Cubic inches	$83\frac{1}{2}$

These articles put together ought to recompose the Peterhead water; wherefore,

(N) I took, of distilled water three parts; of water saturated with fixed air in Nooth's apparatus, and that afterwards saturated with iron, one part; and of all the foregoing ingredients, silicious earth and gypsum excepted, in due proportions by calculation, as above stated. The *muriated iron* was prepared by dissolving iron in the *muriatic acid*, and then evaporating the solution to dryness. The water compounded of these ingredients, had, as it seemed to me, and to many others, the

\* Growing liquid, by attracting moisture from the air.

very same taste as the mineral water, in point of quality ; only that it seemed rather stronger of the iron.

It was my design to have made a set of experiments for fixing the quantity of every ingredient, so that every trial with all the precipitants should have answered alike in both the natural and artificial water : but the accidental breaking of my Nooth's apparatus put a stop to it.

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## CHAPTER II.

OF THE MEDICINAL EFFECTS OF THE PETERHEAD WATER, AND  
THE DISORDERS WHICH IT IS ADAPTED TO CURE.

### Sect. I. *Of the strength of this water.*

THE medicinal effects of the Peterhead water, as of all other mineral waters, depend on a combination of various causes : but in so far as they depend purely on the water, they are founded chiefly on these three parts of it, the IRON, especially that part of it which is united to the *muriatic acid*, the COLD WATER, and the FIXED AIR. We cannot indeed reckon the *virtues* of this water complete without the other ingredients, as without them the *taste* is not complete. And perhaps they may contribute to the cure of some of those very various disorders in which the water is found beneficial. Yet as it is not known that they are generally useful ; as it is the strengthening power residing in the parts of the water lately mentioned, that is usually sought after ; and as most of the cures performed by the water can easily be conceived to proceed from those parts ; I shall here take notice of *them* only.

Iron,

Iron, cold water, and fixed air, have all of them *tonic* \* powers : and when they are all united, the power must be heightened.

Neither Pyrmont nor Spa, those celebrated foreign waters, is equal to the Peterhead water in the quantity of iron, which is the most important ingredient in them all : for neither of those, according to Bergman, contains three fourths of a grain in the pint, whereas this has at least more than a whole grain to the pint (D. M.). And not only is the *quantity of iron greater* in this last, but it is in a *more powerful form*. *Aerated iron*, the only kind found in those foreign waters, is so very easily separated from water, that this probably happens to it in the stomach or bowels : and therefore, in that case, its effects might be confined to those organs. Not that the effects of a medicine must be small on account of their being confined to the stomach and bowels ; for this is probably the case with many of the most active medicines. But if the effects of a medicine are great in the first passages, and are also extended to all the other parts of the body, being carried by the blood and lymph, it may be expected to act upon diseases out of the reach of the other. And that muriated iron, which adheres so closely to water as not to be separated from it but with great difficulty, is capable of passing with it into the blood vessels, as common salt does, seems very probable. Whatever be in this, the Peterhead water has also the *aerated iron*, as those famous waters have, though in less quantity : and its *fixed air* is also in less quantity. But I make no doubt that the tonic effect

\* An *astringent* is supposed only to contract the parts, as alum held in the mouth does its parts ; whereas *tonic* is used to express what gives strength and spring to the parts, the power of contracting or relaxing spontaneously, as the purposes of life require.

of fixed air lies much more in its rendering *cold water* pleasant to the taste, agreeable to the stomach, and easy to pass off, than in any strengthening power inherent in itself. But the taste of Peterhead water is abundantly brisk and agreeable; a very large quantity of it can be taken without incommoding the stomach, and it passes easily off, with such a quantity of fixed air as it possesses. And therefore the greater quantity of aerated iron and fixed air that subsists in those foreign waters, is much more than compensated, by the greater quantity of iron that this water possesses on the whole; especially as it is in a much more effectual form. If therefore these foreign waters are justly celebrated for their strengthening powers, the Peterhead water may be expected to excel them in that respect; which, in regard to the quantity and quality of its chalybeate principle, has no rival that comes up to it so far as I know. As to the cold water, which is probably one of the most important ingredients, it is unnecessary to seek for any difference among them: as any of them will be sufficiently powerful in this respect, of which a sufficient quantity can be safely taken; and that Peterhead water may with safety be drank in large quantity, will be afterwards shown.

Some persons, who judge only by superficial appearances, will be apt to imagine that the superior powers here ascribed to this water, have no better foundation than the partiality of an inhabitant of the place: and to allege, as I have heard many do, that they have in their neighbourhood stronger mineral springs than the *Wine-well*. That they had little confidence in those springs appeared, by their neglecting to use them, and coming to Peterhead for their health. Their notions are founded on the great quantity of ochery substance that  
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appears about many of those common mineral wells, at the bottom of the water, and floating on its surface, and even choaking up its stream. But this ochre was never joined to the water, as the chalybeate principle of the Peterhead water is; the greater part of it being only mixed with the water, as clay or mud may be. This is evident by their vapid taste, and by their muddy appearance when viewed in a clear glass. The quantity of loose ochre about them is no sign of their strength; but rather generally of their weakness and uselessness. But though a spring should far excel these common ones, it does not therefore follow that it can be compared with the Peterhead well. If they wish for further conviction of this, let them try *tincture of galls* and *phlogisticated alkali* with those waters, as is mentioned in the foregoing chapter: and more especially, let them keep those waters for fourteen days, boil, and filter them; and then try them with those *tests*; and if they find the chalybeate principle still strong in them, (G,) it will then be time to compare them with the Peterhead water.

Sect. 2. *Of the sensible effects of this water.*

The effects generally perceived after drinking this water are the following.

1. If the stomach is in a fit state for receiving the water, having no foulness, nor even food in it; and if the water be taken in small portions at a time, though a considerable quantity be swallowed in the whole; it sits light and easy on the stomach, without causing flatulency, tumefaction, or any other inconvenience.

2. In some it produces a slight appearance of intoxication, especially on beginning to use it; and almost

most always, not only sound sleep in the night, but also a considerable degree of drowsiness through the day.

3. One of its most certain effects is a very hearty appetite, especially for breakfast. Most people, after using the water for some days, for the first time, are surprised at their impatience for the hour of breakfast, and at the unusual quantity of food which they find necessary for them.

These two last effects are justly reckoned sure signs of the water agreeing well with the constitution, and presages of benefit to be derived from it.

4. Another effect of it is elevation of spirits, with an increase of bodily strength and agility.

5. No effect of this water is more certain, where it agrees with the state of the body, than its passing off speedily and copiously. With regard to the bowels, like other tonics, it has sometimes opposite effects on different persons, and on the same person at different times. To some it occasions constipation, which is reckoned a good sign, but must not be allowed to come to too great a height. On others it produces the contrary effect, especially at the beginning. This some persons look for, as the proper sensible effect of the water; but that is a mistake. Perhaps it would seldom have this effect, if proper precautions as to evacuation were taken before beginning to use it, and if proper regimen were applied during the time of using it. At any rate, considerable laxity of the bowels ought not to be allowed; for it would undoubtedly prevent the strengthening effect of this water, which is its most valuable property, and that for which it is chiefly used. Without this evacuation being increased, those by the skin and by the kidneys are so copious, as to keep the

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body.

body lean, notwithstanding the augmented appetite. Additional evacuations would therefore be unsafe.

6. The effects upon the pulse are various. When the pulse is weak and slow, owing to pure weakness without pain, the water makes it stronger, firmer, and quicker. But when the pulse is quick and weak, owing to pain along with the weakness; the water will render the pulse slower and fuller. In both cases it will bring the pulse nearer to the natural state. Again, if the pulse is already full, and more especially if it be also hard, the use of this water would be improper, as it would increase the fulness and hardness.

7. Contrary to the effect of other tonics, this water must cool the body; both by the quantity of cold matter introduced into the stomach, which is the *regulator* of the body; and by the sedative power of the fixed air and neutral salts joined to the cold water. This is a happy effect of this medicine, as it impels those who use it to that exercise which is necessary for the increase of strength: and as it prevents the otherwise heating effects of the iron, rendering this water proper in cases where other tonics would be improper.

8. The final effect, always wished for, and generally found, is, that those, who came to drink this water, feeble, dispirited, without appetite, and without strength, return home hearty and well: sometimes having the constitution so mended, as not to relapse into the same state: often with such a degree of recovery, as to make any remaining inconvenience very tolerable: and even in cases where firm health can no longer be looked for, yet with as much amendment, as to stand the hardships of winter, and go on with fortitude till a new summer enable them to get a new supply.

From some things that have been mentioned we may under-

understand how it is that mineral waters, and particularly this mineral water, may effect cures in cases where other more powerful medicines may fail. Peruvian bark is justly reckoned the most powerful of tonics: yet in many cases in which that medicine has not answered, when administered with all the precautions and assistances that could be judged proper, a season of Peterhead water has succeeded. Muriated iron is indeed a very powerful tonic in itself: but its quantity, and consequently its power, is here limited, by the quantity of the water that the stomach can bear. And this very circumstance constitutes great part of the excellency of this mineral water. In all those cases where the tonic power must be exerted in great vigour, and in a short time, we must have recourse to the Peruvian bark; as in all the diseases called putrid. But there are disorders in which such expedition, if it were practicable, could not avail; and the strength must be promoted by the more gradual or alterative course: and such are all weaknesses of considerable standing and slow progress. Now it has been observed, that, unless a considerable quantity of bark can be used in a *given* time, its powers become insignificant: whereas *chalybeate* medicines never exert their strengthening powers so naturally, as when given in small quantities, and much diluted. Besides, in cases of much debility it is a great acquisition to get any medicine that the stomach will bear, and which is able to put the constitution into the way of amendment, however slow. But bark and steel in the common preparations often fail, either by being rejected, or by destroying the appetite: in which case the strength cannot increase. Whereas the Peterhead water, if given in proper quantity, generally agrees with even the weakest stomach; and by carrying off its cloy-

ing viscid mucus, as well as by slowly adding to its muscular power, gives an increase of appetite and digestion. This effect is well known to all who have ever been at Peterhead. Thus is the person supported in the meantime; and the strengthening effects of the water are advancing with a slow but steady pace. In other cases Peterhead water will be effectual when bark and steel medicines will fail, by the disease approaching so near to an inflammatory nature, that the medicines now mentioned cannot be borne on account of their heating the body, rendering the pulse quick and hard, and thus aggravating the inflammatory tendency: while this water, by its gentle progress, and by its cooling sedative powers, produces the good without the bad effects.

There are other diseases in which the good success of the water might be accounted for, partly by its strengthening power; and partly by the large quantity of diluting and refreshing liquor that is sent through the mass of circulating fluid, carrying salutary additions along with it, and perhaps bringing off with it again noxious matter.

Other circumstances still there are, tending to unburden and cheer the mind, which this place has in common with other watering-places, and which no doubt contribute to many of the cures which it produces.

It has indeed become usual of late, to ascribe almost all the benefit found at Peterhead, not to the mineral water, but to the circumstances last mentioned. How can a person fail to eat a hearty breakfast, say they, who rises before six o'clock in the morning, invigorates himself by the cold sea-bath, washes his stomach with such a quantity of water, were it no other than com-

common cold water, and walks about in the open air till nine o'clock? And if he repeat the same ablution of the stomach from eleven to twelve, walk, sail, or ride, from that time to three, no wonder if he have a fresh appetite for dinner. If he dine in a large company of well-bred persons, wishing to please and to be pleased; enjoy two hours of enlivening free conversation, with a few glasses of wine, and often an agreeable song; if he meet a party of friends at tea in the house of some of the ladies, or drink tea in public, and partake of a public dance; and if, after a light supper, he go early to bed; what wonder is it if cheerfulness, sound sleep, and forgetfulness of care be the consequence; and if a continuance of a similar plan; for several weeks, be followed by an increase of health, and spirits, and constitution? Far be it from me to deny the good effects of these things. On the contrary, I have often seen them with pleasure; and am convinced, that if ever the Peterhead-well company should greatly depart from these salutary practices, they would miss a considerable part of what they hoped to find there. But still, let it be allowed in the first place, that the well has the merit of collecting together all these advantages. Let it be allowed, that though other cold water might produce similar good effects upon the stomach, if it did not first produce bad effects; yet there is no kind of water known in this country of which half the quantity might be drank with impunity. Let it be considered, that there are numbers who every year reap the greatest advantages from this water, in that rank of life which can afford few or none of the assistances now mentioned: and that there are many who, though they can afford them, yet through bodily weakness cannot partake of them, and still receive very  
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great benefit \*. It is usual with many persons in the town to send for a bottle of the water in the morning, and drink it through the day. Nay, it has long been a practice with some families, dwelling at the distance of many miles from Peterhead, to send for a small cask of the water every week, and drink it for health : and as they were all sensible persons, it is not to be supposed they would have continued the practice for many years, if they had not found benefit by it. Yet here the water not only wanted all the advantages which it would have at Peterhead ; but before it was used, it must have lost the fixed air and the aerated iron, and nothing medicinal could remain in it, but the salts, and that modification of iron which is the distinguishing excellency of this water.

Enough has been said to shew that this water has great and salutary powers. It is now proper to point out to what purposes its powers are adapted.

*SECT. III. Of the disorders which the Peterhead water is fitted to remedy.*

The virtues commonly expected from this water are its strengthening and its cleansing powers : and accord-

\* Out of many instances of this nature I shall mention only two. The one was a lady of very high rank, who after having done every thing that the best physicians could suggest, without any alleviation of her weakness and distress, came at length to Peterhead, as a last resource : where, by the use of the water alone, without being able to enjoy the benefit of company, exercise, or any other aid, she quickly recovered her strength ; and has since enjoyed health for many years. The other was also a lady, whose extreme weakness attracted the attention of all persons in the town. When she came hither, she would be put out of breath, by uttering a few words ; and she was supported to and from her carriage on the hands of two maids. In the space of three weeks, she recovered her health so much, by the use of the water alone, as to be able to entertain company, and to walk to the well, and wherever else she pleased, with much ease. Similar instances are frequently observed at Peterhead ; and from their frequency soon forgotten.

ingly it is applied for curing such disorders as require strengthening, and such as require cleansing.

1. *Of disorders that require strengthening.*

Of all the diseased states to which the human body is liable, none is so general as debility; the adventitious and accidental weakness either of some of the principal organs, or of the whole body. This weakness is not so much one particular disease, as it is an especial predisposing cause of most diseases, and one of the most grievous consequences of almost every disease. No doubt diseases of debility may begin in any part of the constitution: but by far the most common seat of debility, and the source from which it is propagated to any part through the whole system, is the stomach. This is not only one of those important parts on whose action the health and even the subsistence of animal nature depend; but it is, in a manner, the *regulator* of the body, by that wonderful and extensive mutual communication with, and power over, every part, which it has; by its good or bad condition determining the good or bad condition of the whole body. This may be well known to every one, who reflects upon his own experience: and it must be particularly known to every physician. For he must daily meet with disorders that that put on the form of almost every disease that has a name; and yet turn out to be nothing else than symptoms of a bad state of the stomach, to be cured certainly, and only, by the removal of that state. A considerable difficulty will always lie in detecting those diseases of the stomach, under their various disguises, a difficulty much to be lamented, because many, owing to those symptomatic disorders being mistaken for original ones, either

either languish out a life of wretchedness, \* or perhaps die more suddenly, † when they might have been expeditiously cured at the beginning, if the disease had been known to be only a symptom of a disordered stomach. Doubtless it is one of the most frequently required exertions of medical skill, to make this distinction : and though the most skilful and sagacious physicians will generally make this discovery, yet the best may sometimes fail to make it. If then any plan of remedy could be

\* A girl about twelve years, of good health in general, but of an irritable temper, was seized with a disorder about the throat threatening suffocation, which came on always after drinking tea in the afternoon. There were some appearances like convulsions, as froth at the mouth, turning up the eyes, and a necessity of sitting or falling down. Physicians were consulted, and various remedies, as *flowers of zinc, cuprum ammoniacum, &c.* were advised. These things seeming to promise but a slow and uncertain cure, and the power of habit in fixing this disease being much to be dreaded; her parent wished an emetic to be tried, hoping that the source of the disease might lie in the *stomach*. It did so, as appeared by the corrosive acrimony of what was thrown up. Proper correctors, a course of Peterhead water, repeated occasionally for a year or two, and a due attention to regimen for ever after, [by which I mean, the proper management of *diet, air, sleep, exercise, cloathing, evacuations, and the passions* ;] restored her to her usual state of health : and she now is, and has long been, strong and healthy. Had not this plan been tried, she might have been liable to convulsions for life.—The acrimony being *four*, the correctors used were, *salt of tartar* an hundred and thirty grains, *compound spirit of lavender* a table spoonful, *water* an English quart : of which a tea-cupful was taken twice a day.

† A man had every appearance of *consumption* ; utter loss of strength and appetite ; constant quick, small, hard pulse, with regular aggravations daily, with cold fits, hot fits, and profuse sweatings, which last continued through most part of the day and night ; severe and continual cough, with expectoration of matter sometimes salt and sometimes sweet. Little hope seemed to remain, and little good likely to be done, unless by opiates, &c. to alleviate the symptoms. It soon occurred that even this might be a stomach case : but an emetic could not be ventured on. Being asked, he said he had *pains in the stomach* and *four eruptions*, some time ago ; but that they had *worn off* as the disease advanced. He therefore got the medicine mentioned in the preceding note. The consequence can hardly appear more astonishing to those who read this than it did to those who saw the fact : but it was, that by using two quarts of the *solution*, and afterwards Peterhead water, he perfectly recovered his health : and within twenty days after his case had appeared desperate, he was working at his business, which was that of a weaver.

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found, that would cure a debilitated and vitiated state of the stomach, in all its stages and forms, whether recent and simple, or inveterate and disguised; that would also carry off its evil consequences; that would, in its operation, proceed so gently, as to give us opportunity to observe whether our plan were right, before any harm ensued; what a salutary discovery would it be! Such a discovery is perhaps, in its full extent, beyond the reach of mortal hopes: but without doubt, what comes nearest to this is mineral water, and particularly that of Peterhead; which in almost all disorders proceeding from the stomach has been very generally found an effectual remedy.

These disorders are of various degrees, both of inveteracy and of severity.

1. The stomach may be originally weak; able indeed tolerably to discharge its office, when all circumstances of *regimen* are favourable; but which, on the use of food that disagrees with it either by quantity or quality, by a sudden or great change of heat or cold, by neglect of sufficient covering or of usual exercise, by allowing the bowels to be irregular by the obstruction of any natural evacuation, or by the improper suppression even of unnatural evacuations that have become necessary by habit or otherwise, by any violent, sudden, or long continued exertion of body or mind, or by a great attack of anger, grief, or any other passion, is apt to be thrown into disorder. When this happens, some degree of pain, hardness, or swelling, commonly appears in the region of the stomach; the appetite is diminished; or there may be a vomiting, either of the food unchanged, or of tough slime, or of sour or bitter liquid; the stomach may be distended with wind, by a discharge of which it is relieved for the mean time, but the uneasiness soon returns; the action of the bowels is de-

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praved,

praved, the taste is vitiated, there is a general uneasiness over the whole body; sometimes there is a constant teasing cough, of a fore throat, with a sense of something rising to it; often there is pain in the head, especially on one side of it, or with some persons that very severe disorder which has been called *the nail in the brow*; and often, in consequence of these disorders, even the vigour and serenity of the mind are affected. If a person in this situation applies for medical assistance, he commonly recovers by the help of some gentle evacuations from the stomach and bowels, followed by the use of *bitters*, and careful attention to *regimen*. But even then, if the stomach be originally very delicate, and if its disorders have been too long neglected, it will remain for a long time in a weak state, liable to be affected even by slight causes; and by more violent causes ready to bring on fevers or other diseases, unless a more effectual plan of cure be followed. And here the use of Peterhead mineral water is generally a more effectual remedy than any other; carrying off all remains of the disorder; often in a short time, and in any season of the year: and leaving the person in possession of good appetite and digestion, strength and spirits.

2. But disorders of this nature are often more violent, owing either to the greater original weakness of the constitution, to the greater force of the disordering cause, or to longer neglect of the means of cure. The causes that violently disorder the stomach are many. All those mentioned in the foregoing article, when in an intense degree; to which we may add, sedentary occupations, a studious life, unwholesome food, damp ill-aired or cold beds, the skin and particularly the feet long wet, hot climates, intemperance, debauchery, acrimonious or poisonous things swallowed, the bad custom of using tobacco,

tobacco, the unfortunate habit of drinking *spirits*, excessive evacuations of any kind, or living under the influence of grief, peevishness, or any ill-natured or depressing affection. The disorders arising from these causes, especially if they have been long continued, are more grievous; and so many that it would be tedious to enumerate them. Sometimes they produce that complication of lamentable affections both of body and mind, called *hypochondriacal* and *hysterical* disorders; which last complaint is usually nothing else than a debilitated stomach, in an irritable constitution, disordered accidentally by passion, or some excess or irregularity. Sometimes the consequences appear in habitual head-achs, giddiness, sinking of the spirits, \*, palpitation of the heart, loathing or rejection of food, flatulency, worms, indigestion, acid or bilious vomiting, costiveness either constant or alternating with diarrhea. Sometimes the disordered state brings on convulsions [v. p. 32. note] †; sometimes a total decay of strength and a wasting of the body. At other times I have known this disorder appear as a palsy, and often as a consumption, in which form, I have no doubt, it is often taken for a consumption of the lungs, [v. p. 32. note.] and proves fatal to many. To these we may add that long and melancholy list of disorders commonly called *nervous*; which are generally nothing else than the

\* I have known this symptom cured by this water, when it has subsisted to a alarming degree: but there might be instances where this remedy would be very improper; for example, if the cause should lie in a dilatation of any part of the heart or arteries near it.

† I remember long ago a very striking instance of what is called *St. Vitus' dance*, in a young lady of about twelve years, who was sent by her physician to Peterhead, after he had tried in vain bark, electricity, and every thing else he could think of. By the use of the bath and water she recovered perfect health.

consequences of a disordered state of the stomach and bowels, affecting other parts of the constitution by *sympathy*: and most fevers that do not proceed from infection arise from this source. These, and many more, are the consequences of stomach disorders; which are often too long neglected, till one symptom by its violence produces other symptoms, and these again others, by an indefinite propagation and combination: till at last the original disease is hid under adventitious appearances which sometimes render the physician doubtful what judgment to form, and oftener what advice to give with any confidence of success. In most disorders of this kind the mineral water of Peterhead, applied after the body is duly prepared for it, is very generally successful, producing many cures every season where there was no hope from any other medicine.

3. There are disorders of debility, or perhaps of spasm \* arising from debility, where the stomach is not always the source of the disease, however it may suffer along with the rest of the body; and yet these disorders will generally disappear, if the stomach, and consequently the constitution can be brought into a state of strength. To most of the disorders formerly mentioned both sexes are pretty equally liable; or perhaps the female sex may be rather more so, on account of the greater delicacy of their frame: and doubtless on this account they would suffer much more, comparatively, than they do, if it were not that their condition and character lead to a greater regularity of conduct, to the command of all the tumultuous passions, and to the constant action of the pious and benevolent affections,

\* An unnatural construction of the muscular fibres, when they are unable to discharge their office duly.

which

which save them from numberless evils, and in which the other sex is too generally excelled by them. But there also weakneses and disorders, to which they are peculiarly liable. Of these it would be out of place here, to give any particular account. I shall only observe, that in every disorder to which this division of the human race is peculiarly liable, however different the form may be, and however some may imagine the contrary, no other plan of cure is found so generally effectual as a course of Peterhead water and bathing. Of this truth every year affords many instances. I do not say that complete cures in every variety of these disorders are so numerous in proportion, as in those under the foregoing head. But still they are numerous: and even when the cure is not immediately complete, the constitution is generally much amended, so as to give present comfort, and to prepare the persons for the operation of time and patience, which often completes what was wanting.

Even here however the water is not universally proper. In all disorders in which the patients are full of blood, have a hard pulse, and firm flesh, they are unfit for this remedy: at least till these circumstances, by proper measures, be changed.

4. Other diseases of debility there are, which arise from the weakened state of particular parts, or of the whole body, in some of which this water is a remedy.

Internal ulcers of any part, and especially those of the kidneys, are of this kind: and of this last I have a remarkable case under my eye at present, where the whole benefit arises from the water alone.

Dropfy also is a disease of debility; wherein the vessels exhaling a fluid into the various cavities of the body for moistening them, from weakness, as is supposed, al-

low too great a quantity of the fluid to escape through them ; while the vessels that ought to take up that fluid, and convey it again into the mass of blood, fail to do their office from want of power. This points out the propriety of Peterhead water, as a tonic and *stimulant*. And the modern practice confirms the use of it on another ground ; for the sick of the dropy are now, not only allowed, but even encouraged to drink, as it is found that plenty of liquid swallowed produces a still more plentiful discharge. But Peterhead water has this last property in an eminent degree. And as on this account it ought to be excellent drink during the time of the cure ; so it ought to be no less beneficial, after the water is discharged by whatever means, for preventing a relapse. Reasoning thus would lead one to expect great benefits from this water : but, I acknowledge, I have not found so much good from it as I expected ; perhaps from having expected from it, in some cases, what could not be performed by any thing, and by being thus disappointed, prescribing it seldom. Still however it seems so promising a medicine, that it ought not to be given up : but rather the greater attention should be used, to find out, and obviate, the circumstances that prevent a cure.

*Rickets* is a disorder in which benefit ought to be expected from this water : and I have seen it so happen.

The same things are true of *incontinence of urine* : which I have once known cured, by a season of this water ; even in an aged man, and where it had been brought on by excessive drinking. At other times, this disease has been much alleviated, though not cured.

In short, there is not any disease consisting essentially in weakness, in which Peterhead water may not be looked upon as a probable remedy.

2. *Of such disorders as require cleansing.*

1. Scrofula seems to be one of this kind: and it might also have been considered as a disease of debility. On the first account Dr. Cullen says of it, “The remedy which seems to be most successful, and which our practitioners chiefly trust to and employ, is the use of mineral waters; and indeed the washing out by means of these, the lymphatic system, would seem to be a measure promising success.” After this however, the doctor declines giving the preference to any kind of mineral water above the rest, alledging, that as all kinds, chalybeate, sulphureous, and saline, have been equally successful, the cure, if they perform any, must depend upon what is common to them all, the water. If there were nothing to do but to wash out the lymphatic system, any kind of water might be equally serviceable, of which an equal quantity might be safely swallowed. But it seems at least as necessary to provide a remedy, if possible, for preventing the subsequent generation of that matter which needed to be washed out. And this consideration may enable us to see which kind of mineral water ought to be preferred. Now as a debility of the whole body is generally evident in this disorder, and a particular debility of the *lymphatic system* probable; therefore such a *chalybeate* water as that of Peterhead, which possesses the *strengthening* along with the *cleansing* power, ought in reason to have the preference. As to Dr. Cullen’s doubt whether mineral waters ever do good in this disease, it seems to me unnecessary; at least in regard to that water with which I am best acquainted. This well has maintained a high reputation, for a great number of years, for its efficacy

ficacy in this disorder : many resort to it every year for that purpose, and go home well pleased with the benefit they have received : and in some cases I have seen benefit plainly derived from it. Here the *aerated iron*, the *neutral salts*, and the *muriated iron*, which is the most powerful of them all, united to the water, promise a powerful medicine in this disease. The abundance of the *muriatic acid* in this water gives us a probable way of accounting for its good effects in *scrofula*, on another ground ; if we allow that the success of the *muriated barytes* \* (or *salited terra ponderosa*) in this disease has been established on a sufficient number of experiments. For it is probable that the efficacy of this new medicine is not confined to the union of the *muriatic acid* with the *terra ponderosa* ; but that it extends also to the combination of this acid with other bases. And if so, its combination with iron may probably afford a medicine of singular efficacy. Whatever be in this supposition, its agreement in effect with common opinion, and with experience, seems to add somewhat to the confidence with which persons in this disorder may apply to the Peterhead water. The opportunity of using sea-bathing, and of drinking sea-water, will be to some an additional encouragement.

2. Gravel is another disease requiring cleansing, for which this water is used. What particular fault of the kidneys it is that produces this formidable disease, or whether the fault be not confined to the kidneys, but

\* I have under my care at present two very remarkable instances of the effect of this new medicine in *scrofula*, which would lead one to expect great things from it, if begun in proper time, used in sufficient doses, and long enough continued. I had written a full account of these cases to be inserted here : but omit it, as not being directly to the present purpose.

extend also to the organs of digestion, and other solids, producing a depraved state of the fluids, I do not pretend to know: but it seems probable that want of tone in the kidneys may be one part of this fault; because those parts are frequently on dissection found loose and flabby, in calculous cases; and because this disorder is most apt to attack the feeble, the fat, and the aged. If there is any truth in this notion, Peterhead water must be useful in gravel as a *tonic*: and at any rate it must be so on another account, because if feebleness be not a cause of this disorder, it is a pretty certain consequence; and this water would be one of the best cures for over fatness. But it is certainly useful here, by its power of washing away every particle of stony matter before it could be deposited, and concrete. But in whatever way it happens, there is no doubt that benefit is often received from this water. Common opinion founded on experience shows it: and in such a painful disease, the difference between health and disorder is so sensibly marked, that any person who has experienced the state can be a good enough judge of it. I have known the return of fits of the gravel entirely carried off by the use of this water, assisted by a proper regimen, in a man who had experienced many of them, and whose brother had undergone the operation for the stone: and instances of benefit from this water, in this disease, are very common.

Yet one can easily conceive states of gravel, in which the use of this water, both as a tonic and as a *diuretic*, would be improper: so that in doubtful situations, in this disease, the advice of a physician should be had.

These are some of the most common and remarkable disorders, in which the Peterhead water is ordinarily used with success. I do not pretend to have number-

ed up all those in which it may do good : nor do I think it necessary to do so, if it could be done. Every now and then diseases are occurring, which, without proving quickly fatal, baffle all the ordinary means of cure. In such cases Peterhead water, which possesses so much power of doing good, will naturally offer consolation, both to the patient and to the physician. And there are not wanting many examples, which for the sake of brevity I forbear to relate, that serve to justify such a practice.

3. *Of some other situations in which benefit is found at Peterhead.*

There are cases, wherein persons often receive great benefit from the strengthening powers of the Peterhead regimen, who cannot be said to have any disease. Such are those of a delicate constitution who are confined to a town life, and perhaps close application to business, or to studious employments during the winter ; persons of a feeble temperament of body who are not able to go on in the ordinary business of life but with some struggle ; those who are recovering from almost every kind of disorders, provided the disorders, if they were of an inflammatory nature, are truly gone, so that there be no risk of a relapse from tonic medicines ; persons who are apt to be affected with colds from slight causes, provided the lungs be sound ; pregnant women who have reason to fear a miscarriage, if it be not from fullness ; those who have been exhausted with nursing ; and in short, those who, on any account whatever, find their constitution stands in need of strengthening.

Sect. IV. *Of some disorders and states for which this water is unfit.*

As there are many disorders for which the Peterhead water is a precious medicine ; so it is to be believed there may be others in which it might be improper, or even dangerous. This is no more than what happens to every other active medicine, and indeed to every other thing on earth ; namely, that being fit for some particular purpose, it will be unfit for the contrary purpose. Thus abundant blood-letting will cure an inflammatory fever, even where there is great pain in the breast ; but it would kill one in a putrid fever : and wine and bark, the chief medicines in the latter case, would in the former be fatal.

What the particular disorders and states are in which this water would be improper, has been partly mentioned in the foregoing section. It would be improper in high health : in all inflammatory states of the body, internal, or even external, where it is not wished to promote inflammation and suppuration ; or where the disorder has a tendency to go into an inflammatory state. Hence it is prohibited in cough, or hoarseness, arising from cold ; in rheumatism with fever ; and in erysipelas : in a spitting of blood, in a threatening of real consumption of the lungs, and in all stages of such a consumption itself. There are other cases in which it would be improper from its *binding* power ; as in cholick, asthma, a stomach loaded with impurities ; or where a stone is fixed in the kidneys, or in the ureters, or any other part of the passage. For the same reason, it might not be adviseable, where *jaundice* is supposed to be occasioned by a gall stone. In short,

wherever there is sharp or violent pain, a hard pulse, a florid face, or a fulness of blood, this water ought not to be rashly ventured upon.

There are also some diseases in which, though the water is useful in particular cases of them, it would be improper to recommend it in general terms; as in *palsy*, or a constitution liable to *gout*, or *apoplexy*. In such cases it ought not to be applied without medical advice.

I know indeed, that among the great numbers who come to this well every year, with almost every complaint that does not confine them to bed, we may be assured that some of the disorders for which it is here said to be improper or doubtful, will frequently be tried with it: and yet we never hear of any bad accidents happening from it. This may be accounted for, as formerly mentioned, from the sedative powers of the cold water, fixed air, and neutral salts, preventing the inflammatory effects of the iron, and allowing only the astringent and strengthening powers of the water to appear. It would therefore perhaps be injustice to throw out too many scruples, which might discourage the poor from seeking after the probable benefit of this water. However, what has been suggested points out the propriety of medical advice, on many occasions: a benefit to which people in good circumstances will naturally have recourse, and from which I hope the poor will never be debarred by their poverty.

#### Sect. V. *Of the cold bath.*

1. The use of the cold bath is frequently joined to that of the mineral water, and very properly, for they are both of a strengthening nature, and excellent assistants

ants to each other. But there are also cases in which they ought not to be joined. Cold bathing is known to be one of the strongest *bracers* of the human frame: and sea-water is justly preferred for this purpose. The reason of this preference some place entirely in the greater weight of the sea-water, by which it presses more upon the body, and thereby braces it more than fresh water does; in the same manner as a moderately tight bandage will strengthen a relaxed part more than a slacker bandage. Perhaps a considerable part of the preference is also due to two other causes; the moderate temperature of the sea-water, and the *stimulus* it gives to the skin. From the vastness of its quantity sea-water heats and cools slowly; and therefore never departs far from the mean temperature of the atmosphere ( $48^{\circ}$  Farenheit). Whereas fresh water, exposed to the sun and air, is too warm in summer, and too cold in winter: and water issuing from a spring, and kept covered, is too cold, at least in summer, the chief season of bathing. Water that is too warm will rather relax the skin, than brace it: and water that is too cold gives a shock that is very disagreeable, and may be hurtful, by the violent effect it produces upon the nerves and blood vessels of the skin, and, by the medium of them, upon the whole body. Those very cold fresh water baths then, which some gentlemen prepare for themselves, and value the more for their intense coldness, may, at least to some delicate constitutions, be hurtful, as they are very disagreeable. The stimulus also of the small quantity of salt remaining on the skin, after it is dried, probably contributes to the superior effect of sea-bathing: by gently irritating its nerves and blood vessels, and thereby producing that glow and sensible perspiration on the skin, which are so agreeable after cold bathing, and justly reckoned

ed a sign that the bath agrees with the constitution. But from whatever cause the superiority of sea-water to fresh-water arises, the superiority is certain and acknowledged.

2. As the tonic power of the cold bath is very considerable; however usual it may be for persons in high health to bathe for mere recreation, it should seem that even more caution is necessary in the use of it, than in that of our mineral water. Not that the bath is, on the whole, more powerful in its operation than the water is: but that the effects of the bath, great or small, good or bad, are more sudden, and therefore not so governable. The cold bath is known to be improper for one who labours under an inflammatory state of any of the parts contained in the head, breast, or belly; or where there is a particular determination of the blood to any of those parts; that is, in a tendency to inflammation in them. And certainly it is also improper in the highest state of health and vigour, where, every vessel being on the stretch with its fulness, a sudden contraction might cause some of them to give way. In actual inflammation the bath and mineral water are equally improper: in a tendency to inflammation, the water may *sometimes* be useful: but in good health no medicine at all is surely best. But with the exceptions now mentioned, in all disorders for which the mineral water is here commended, the cold bath will generally prove an useful auxiliary.

Further, as it now known that the cold bath is not universally even innocent; so it is found useful, in at least one case, in which it would formerly have been dreaded: I mean in the case of pregnant women, who, from nervous irritability, debility, or habit, have been liable to miscarry at a certain period of gestation.

Sect.

Sect. VI. *Of the preparation for, and manner of, using the mineral water.*

1. The first thing to be done is, to see that the situation of a person be fit for the Peterhead water and bath. This, I hope, may pretty generally be done from the consideration of the things that have been mentioned : but if any doubt remain, a person of good sense will undoubtedly consult a physician, rather than depend on the opinion of one who pretends to give advice, merely because he himself has used the water, or has known it used, with success, in a case which he conjectures to be similar.

2. Before using such powerful bracers, it will be needful to take care that nothing improper be contained in the stomach and bowels. A gentle purgative, perhaps best of rhubarb, should first be used : and after that, a moderate dose of ipecacuanha for an emetic. To begin a course of any tonic medicine, without first cleansing the stomach and bowels, is very improper : not only as the medicine then very generally fails, at least for a time, to produce the due salutary effects : but also as various bad effects often are the consequences. To the purgative there can generally be little objection, from the state of the patient : but if there be, a gentle dose of castor oil, or some doses of flour of sulphur mixed with honey or treacle, may answer pretty well. But some make greater objection to the emetic : saying that it cannot be absolutely necessary, as there are many who do not use it. Absolutely necessary it is not ; for the water itself very often produces those evacuations which ought to have been made before : but not without unnecessary trouble and loss of time ; and sometimes the advantages

advantages hoped for are lost from this neglect. If therefore the reluctance can be got over, it should in general be done: as there are few so weak, who think of coming to Peterhead, as to be unable to bear an emetic: and the disorders for which it is absolutely improper are rare, and when they happen, are commonly under the care of a physician. But when great reluctance to an emetic, or doubt of its safety, occurs, I have generally found rhubarb and alkaline salts \* the best substitute. There are also cases where blood letting may be necessary, before using the bath and water; as in considerable fulness, or in obstructions: but here advice may be proper.

3. The time of using both the water and the bath, is when the stomach is not loaded with food: otherwise, either of them would probably cause indigestion. The proper way for those who are using the bath and water, is to rise between five and seven in the morning; to go first and bathe, then to take some exercise, and afterwards to proceed to drink the water. Those who only drink the water, begin about the same time, take the quantity which they are to use, divided into several portions, at different times, with an interval of from a quarter of an hour to half an hour; walk about in the open air, during the intermediate times; and finish the morning quantity, at least half an hour before the hour of breakfast †. About half an hour

\* Take every night and every morning, for several days, from 12 to 15 grains of rhubarb: and during the two days, use one quart bottle of the solution, page 32.

† Some have frightened themselves and others, by showing that *tea* mixed with the water grows black, like ink; and "One would not like," say they, "to have ink in one's stomach." Why not, if that ink be found to do no harm, but on the contrary, good? But if no water has been taken for half an hour before, it will have left the stomach; and so no ink will be made.

after

after eleven in the forenoon the water is drank again, in nearly the same manner and quantity : and in the evening, before seven o'clock, the same course is repeated.

Though the morning is, in general, the best time for bathing, and for beginning to drink the water ; yet there are found constitutions sometimes, in which the forenoon hours answer best for both purposes. But if no real harm arise to the constitution from using the morning hours, indolence should never be allowed to prevent the greater benefit of that season. Some few have drank the water in bed, and slept after it : alledging that thus it agreed with them, when it disagreed every other way. Perhaps if all the proper rules were followed, this would seldom be the case.

4. The *quantity* of the water to be drank is various, according to various circumstances. It is a good *general rule*, to *begin with small quantities*, and *advance gradually to greater quantities*, as the *stomach becomes able to bear them*. In the very weakest states, half a gill may be taken at first in a forenoon, and if that should lie heavy on the stomach, the mineral water may afterwards be mixed with half its quantity of common spring water, or rather perhaps with water impregnated with fixed air. The same quantity may be again taken at the evening hour : and as soon as possible it should be taken before breakfast. It is proper next to increase the dose, not so much by augmenting the quantity taken at once, as by repeating the draught, after an interval. Then the quantity taken at a draught may be gradually augmented, till it amount to about half a pint (two gills) : and this quantity taken three times, at each of the times of drinking, [that is about four English pints and a half, a day,] is, I believe, as far as any person needs

to go : and on many occasions it might be better not to go so far \*. Those who are not very weak, after the body is prepared as before mentioned, begin with a gill at a draught, thrice a day ; and may soon bring themselves to the quantity above mentioned.

The *time of continuing at the water* has its limits commonly set by other circumstances, those of business, or family concerns, rather than by the consideration of the space requisite for the plan producing its full effect. If nothing hinder, it might be right to spend several months at Peterhead. Six weeks however are reckoned a moderate trial : but less than three weeks, or two at the least, no one should reckon any sort of fair trial of the benefit to be had from this water : although I have seen great good done, in even less than one week.

Sometimes, when one continues long at the water, it is not amiss to intermit the use of it occasionally for two or three days. This time should be well employed in some excursion : and this will prevent the Peterhead regimen from becoming habitual, and therefore inactive, to the constitution.

It is proper to observe, that some persons find little sensible benefit, even after continuing many weeks at the bath and water : who yet, after returning home, receive the advantages wished for.

\* Yet many use much larger quantities, apparently without harm. An eminent gentleman, who lately died at a great age, attended this well every season, for perhaps the last thirty years of his life : who drank daily about two wine gallons and a half, and reaped great benefit from it ; though probably the benefit might have been greater, if he had drank less of it. And of the great crowds of country people who frequent this well, many are affirmed to drink with benefit four gallons and a half daily : under the notion, that, as they can stay but a short time, it will answer the same end if the quantity of water be taken, whether the time be long or short. In this they are certainly mistaken : but the fact is surprising, and shows uncommon qualities in the water.

5. The *effects* produced by the water must be attended to, and, if inconvenient, obviated. It is usual and proper, after each draught of the water, to eat something of the warm and cordial kind; commonly caraways, or ginger tablet, or peppermint drops; in order to prevent the cooling effect of the water from disordering the stomach. If this should be found insufficient, a glass of peppermint water, or some drops of essence of peppermint, or a tea spoonful or two of the *bitter tincture*, on a bit of sugar, may be taken: and, unless in cases of extreme necessity, *drams* ought not to be used, not only as it is a dangerous practice, the beginning of which ought to be dreaded; but also, as they might do full as much harm to the stomach as the water could do it good.

When at any time the water cannot be retained on the stomach, it may proceed from having neglected previously to cleanse the stomach and bowels: in which case, what was omitted then ought still to be done. Or it may proceed from great weakness and irritability of the stomach; and then, diluting the water with a little common water, or using some of the cordial things above mentioned, will often be of service: and sometimes perseverance will answer the end, when other things have failed.

Although it is usually reckoned a sign that the water will do good, when it produces costiveness; yet this habit of body, being always hurtful, must not be allowed to continue. For counteracting it, some use a small quantity of sea-water, from one to two or more gills, every morning. If the water is used for any scrophulous or eruptive complaint, this plan may be useful: but if weakness of stomach is the disorder, sea-water seems not well calculated for it, as being generally disagreeable. DULSE [*Fucus Palmatus*, Linnæi], is commonly

monly a more acceptable help of this kind. But though long custom has, with many, fixed the use of these two articles, to the exclusion of all others; yet there is no reason why a little rhubarb, aloes, sulphur, or castor oil, according to the situation of the person, may not be used with fully as great advantage.

On the other hand, the contrary extreme would be no less improper. Some persons, especially of the lower ranks, think that this must be the certain effect of the water, if it is to do good: and accordingly, they drink sea-water, in large quantities, along with it. That robust people are not hurt, but rather helped in various disorders, by this course, is no sort of reason why weak or delicate persons should use it. Whatever were to produce such an effect upon them ought to be abstained from; as being the sure means of bringing down their strength, and perhaps of rendering their disorder irremediable. If this inconveniency do not arise from the neglect of the precautions formerly recommended (2.), it may go off in a day or two: and if this do not happen, the dose of the water may be lessened; some cordial thing may be taken with it; it may be drank in a warm chamber; an under waistcoat of a single fold of flannel may be added to the former apparel; and due care must be taken, by warm stockings and shoes, that the feet be not cold. If all these things fail, and the disorders continue to a hurtful degree, then five or six drops of *thebaic tincture* may be taken on a bit of sugar, immediately after drinking the water.

6. In regard to the cold bath, all the previous attentions recommended above, in the use of the water, ought to be applied: That the bath may produce its full

full salutary effects, it is necessary that the cold water should have immediate access to every part of the skin equally : and therefore no coverings should be used.

The practice established on reason is, to jump into the water head foremost : and as this should be done immediately and with spirit, all contrivances of ropes, or the hand of another person to hold by, ought to be rejected as inconvenient, producing delay, timidity, and even danger. To creep into the water with the feet foremost, is to suffer many severe dispiriting shocks, for fear of encountering one brisk enlivening shock : and besides, that practice may be hurtful, in various ways. There is no danger in jumping head foremost into sea-water as high as the breast : the head cannot touch the bottom : the body can come up no way, but with the head above and the feet below ; because the upper part of the body, including the breast, of which a considerable part is filled with air only, is lighter, bulk for bulk, than the lower part of the body consisting of solid flesh and bone : and when once the head has got uppermost, the person, without any sensible exertion, takes footing. The wrong ways of bathing therefore are the bad effects of unreasonable timidity, founded on inexperience only : for whoever has once tried the right way, finds it to such a degree the most easy and pleasant, that he could not be prevailed on to alter it.

As to the *frequency* of bathing, attention must be used. In every plan for strengthening the human body, we ought to exert ourselves only in proportion to the strength of the patient at the time then present : otherwise, we defeat our own aim. I have known the strength *reduced* by too frequent bathing. A weak person should, at first, bathe only twice a week : after the strength has a little increased, he may bathe once in two days, and

and once in three days, alternately : then, when the strength is considerable, he may bathe once in two days ; and beyond this in frequency most persons of a really feeble frame ought not to go. Others again, of a constitution naturally strong, but only accidentally somewhat reduced, may come to bathe every day, for several days successively : though even in that case the better way is not to continue long at that rate, without intermission.

7. It is often enquired what is the proper diet for one drinking the water. When we desire to strengthen the body, generous food and drink are preferable to the contrary kind. But in effect those kinds are best which are found to agree best with the constitution : and the common effect of the water is, to make the stomach agree with almost every kind of food. But more attention is due to the quantity than to the quality of what is eaten and drank. Too large a quantity either of food or drink, instead of strengthening the body, weakens it : and therefore, neither the sharpening effect of the water and air, nor the desire of shewing the great effect they have had, should ever induce one to eat beyond the moderate bounds of reason. The supper in particular should be light ; and both it and the going to bed ought to be early. The necessity of sobriety needs hardly be mentioned. For any person to come hither in quest of health, and yet to drink wine daily beyond the bounds of moderation, would be the greatest imprudence. It would be to act in direct contradiction to one's own professed purpose. Temperance and sobriety, an active useful life, and early hours, would be our interest at all times, as conducing to health of body, serenity of mind, and long life : but to neglect them at Peterhead, would be particularly absurd.

## CHAPTER III.

OF THE TOWN OF PETERHEAD, ITS NEIGHBOURHOOD, AND ITS  
AIR.

AS the satisfaction of the mind contributes to the acquisition of health ; and as all the objects around us, with which we are connected for the meantime, have an influence on the satisfaction of our minds ; therefore the town in which they are to live, its inhabitants, and all the things relating to it cannot, but be, in some measure, interesting to those who come hither for health ; and for this reason some account of them may be expected here.

Sect. I. *Of the Town of Peterhead.*

This is a clean, neat, little town, built upon a peninsula, inclosed by the sea almost three-fourths round. The greater part of the shores about this peninsula are composed, either of granite rocks, or of a beach of small stones, which, in general, have a delightful purity. The streets are open, straight, generally clean and dry below, and giving a free course to the fresh air above. Nothing is allowed to remain on them that can contaminate the air, or offend any of the senses. Most part of the houses stand in regular order, especially the latest built : which are generally of hewn granite, and neatly finished. And in the inside of the houses of people in every rank, if you do not always find costly furniture, you will for the most part meet with cleanness and neatness.

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The *Public Buildings* are all decent, and suited to the proposed ends : and some of them are elegant.

There are four places of publick worship ; the Parish Church, a Church of England Chapel, a Scots Episcopal Chapel, and a Seceder Meeting-House : all of them are neat buildings, and each of the episcopal chapels is furnished with an organ.

The harbour is a beautiful and important work. Being situated on the most easterly land in Scotland, ships can get into it when they can touch no other part on the east coast. It is the best harbour on the east coast of Britain for ships bound to the southward to take shelter in ; as they can get out with any wind that can carry them to the southward, however strong it blows. Close by it is a fine bay, nearly of a square form, about a mile in length, and three quarters of a mile in breadth : where ships of any burden, and in vast number, can ride at anchor, safe from every land wind, that is from all winds except such as blow between the south and N. N. E. On account of these advantages this harbour appeared of so great importance, that some years ago government gave 3,500 l. the royal boroughs of Scotland gave 500 l. and the governors of the Merchant Maiden Hospital (the superiors of the place) gave 300 l. to assist the town in erecting a harbour more commodious than it had before. Accordingly there is now a very fine basin, capable of containing from forty to fifty sail of vessels : inclosed by two beautiful piers of hewn granite, of excellent workmanship, with all kinds of accommodation for shipping. In this harbour ships now lie without beating, in whatever agitation the sea may be without : which was not the case till the present harbour was built. The depth of water in the harbour is eight feet at neap tides,

tides, and fourteen feet at spring tides ; much less indeed than were to be wished in a place of so much public utility : but the inhabitants of the town have spent much money and labour in deepening the basin, and no doubt will continue to do so.

Close by the harbour is a good battery of eight guns, which was built for the defence of ships in the bay and harbour, in the time of the late American war : and for which government gave eight fine pieces of cannon, four eighteen pounders, and four twelve pounders. Of this gift the people shewed themselves not unworthy, by beating off the noted pirate Fall, who was coming to seize some vessels that were riding at anchor in the bay. As this battery, which serves well for the defence of the bay, harbour, and town on the south-side, could be no protection to the town from ships that could fire upon it on the north side, with the view of extorting a ransom ; a battery for four guns was built on the north side of the small peninsula on which the greater battery stands, commanding the whole extent of sea to which the town is exposed : and to this cannon were occasionally moved from the greater battery.

The Town-House is reckoned an elegant building : and its spire, which is about an hundred and twenty-five feet high, built from a plan of Mr. Baxter architect, all of hewn granite, is esteemed a fine ornament to the place. The lowest floor of this house is given for a market-place : the middle or principal is dedicated to one of the most important uses in society, the education of youth ; and affords two of the largest and best lighted school rooms in this country. These are filled with classes learning the Latin and English languages, writing, arithmetic, navigation, and geography ; each article at its proper hours, under two learn-

ed and attentive masters. The steeple is furnished with a clock and bell, both of the finest quality.

The Mineral Well is contained in a small reservoir of stone, situated at the end of an oblong inclosed space; round which are seats of free-stone, for the accommodation of such as choose to drink the water in the open air. Adjoining to this space is the Mason-Lodge, in the lower story of which are the water room, and the baths. The water (or pump) room is constantly attended, at all the hours of drinking the water, by a decent, cleanly, attentive, elderly woman, who keeps the well in good order, serves the company with water, orders fire in the rooms when cold or rainy weather makes it necessary, and assists the ladies in bathing; and who has her living from the gratuities given her by the well-company for these services. Near to the water room is the ladies bath, which is made of wood, four feet deep, and contains when filled about 228 cubic feet of water. The gentlemens bath is entered by another external door, at a greater distance; is of free-stone, four feet and a half deep, and contains about 225 cubic feet. Adjoining to each of the bathing rooms there are dressing closets. On the floor above these rooms there is a large hall, of which the company have the use for dancing, and sometimes for a tea-room. The dues for the pump-room and bath are, a crown for the former, and a guinea for the latter during the season, or a shilling for each time of bathing. There is also a billiard-room on the same floor with the dancing-room: but it is private property, and those who use it pay for it. Over against the Mason Lodge stands the New Inn, where the ordinary for dinner, and sometimes for supper, is kept. The dining-room is a large hall, of forty-four feet long, twenty-two feet wide, and twelve feet

feet high ; which has, on many occasions, contained near sixty persons at dinner.

The company are all accommodated in private lodgings through the town, which are let at a very reasonable rate per week : and the only shadow of contest between the strangers and the town's people is, who shall excel the others in all manner of obliging behaviour. In this manner the company have hitherto been lodged : but if ever the number resorting to the well should be greater than the town's people can accommodate in their houses, it would probably be right that the Merchant Maiden Hospital should erect public buildings for this purpose, and engage proper persons as a superintendent and servants for the season.

The inhabitants of this town are taken notice of by strangers, as an obliging, decent, sober, industrious set of people. Though the advantages arising from the well-company are confined to people in some particular situations, while many others rather suffer by the rise of the price of provisions, and other necessaries, which they occasion ; yet all persons are pleased with their coming, and delight to show them every good office in their power. Nor is this good will to the strangers influenced even by the hope of pleasure from their society : for the town's-people, conscious of the ridiculous folly of desiring the company, or imitating the manners of people whose fortunes are above theirs, avoid all intercourse of entertainments and other expensive communications with the strangers, and, happy in their own stations and employments, have no interference but in the respectful and kind interchange of good offices.

Being thus attentive, every person to his own business, they are, in general, opulent for their respective

ranks. Having no expensive follies to gratify, and being industrious and active, they can generally afford all the comforts of a decent, moderate, civilized life. Drunkards, or wasters of any kind, are hardly known; and accordingly there are few indigent persons. And though in the summer beggars often appear in the streets; yet they are not natives, but commonly indigent Highlanders, allured by the hope of reaping something from the bounty of the affluent. Idleness, the parent of most vices and of most diseases, being almost unknown, the people are, in general, healthy and virtuous — The same sobriety and attention has its influence upon the civil life of the inhabitants. Their artists are admired for ingenuity and dexterity in their professions. One cabinet-maker has made two organs, celebrated for the fineness of their tones; and another has made one. There is a famous turner in this place, whose beautiful works in ivory, and in ebony and other fine woods, are sold, to a considerable yearly amount, chiefly in England. And Peterhead has long been in repute for the best bread any where to be found, that of London or Paris not excepted.

To this sober and industrious spirit of the inhabitants, joined to the great advantages the town receives from the harbour, and the very considerable benefit it has from the mineral well, it is owing, that Peterhead, which has long been looked upon as a thriving small town, has of late years advanced with a rapid progress, in trade, size, and number of inhabitants. About twenty years ago there were only two manufactures in this town; one of fine sewing thread, the other of thin woolen cloth. There are now three considerable manufactures of white sewing thread, which import yearly 2483 mats of rough flax from Holland, and employ

218 persons, besides spinners in great numbers, but not easily ascertained. There are two woolen manufactures, of narrow cloths, thin woolen stuffs, and temmies; which employ from 55 to 65 looms, from 200 to 250 spinners, besides *jennies*; and make yearly from 46,000 to 58,000 yards of cloth. There is one small manufacture of linen cloth, which employs 10 looms, 14 shop-men, from 30 to 40 spinners; and prepares about 15,000 yards of cloth annually. There is a branch of a cotton manufacture lately established here, which employs 10 looms with the fly-shuttle, and 4 assistants; and prepares at the rate of 6 yards of cotton cloth per day, each loom: the cotton is spun in Aberdeen. There are two small manufactures of coloured thread; which import yearly 350 mats of flax, and employ 22 persons, besides spinners. And there are some small manufactures of other articles, which I need not mention. All these branches of business have sprung up within the last twenty years; and we hear of various others soon to be established. The good effects of these are evident, in the employment of many persons that would have been little useful to society, and the comfortable maintenance of many families.

Ship-building has long been carried on here; and of late has increased.

One ship, belonging to some gentlemen in Peterhead, is employed in the Greenland whale-fishery, and has 36 men. Of five voyages made by this vessel, two have been tolerably successful.—In the Barra-head fishing, begun 1773, there are employed two, and sometimes three ships, each having about fifteen men, and bringing home each from ten to fifteen tons of cod and ling fish, which are usually exported to Spain.

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The shipping belonging to the harbour amounts to about 2,600 tons, and employs about 300 or 400 seamen.

The town employs, in the Baltic trade, about two vessels; in the Norway trade, five or six vessels. There are made, in the London trade, twelve or fourteen voyages, yearly; in the Newcastle and Sunderland trade, ten or twelve voyages; and one or two voyages to Holland for flax.

The *exports* are, of fish caught on the coast and exported, 400 barrels of cod, and 60 barrels of salmon; of kelp 60 tons, commonly sent to Leith; of granite stones about 1000 tons, sent to London; of butter 44 tons, value 2772 l.; of cheese, 24 tons, value 432 l.; of grain, at an average of the three last years, (of which the last was very deficient,) in meal, malt, oats, *barley*, and pease, 14,531 bolls, yearly.

The *imports* are, wood from Norway, value 1500 l.; wood from Spey, Inverness, &c. value 500 l.; iron, from Sweden, 30 tons; and a larger quantity is brought from Leith, and other places; coals, from Newcastle, Sunderland, and the Firth of Forth, 2500 bolls; salt 4000 bushels; lime 3000 bolls.

From the increase of the trade of the place, the number of its inhabitants must also increase. In the year 1764 their number was 1500: and by a very accurate enumeration made in the year 1790, they were found to amount to 2,550; of which 1097 were males, and 1453 were females. At that time there were in the town 21 persons from 80 to 85 years, two of 85, one of 86, one of 87, two from 90 to 95, and in the parish one beggar woman of 105. Most of these aged persons are still alive.

The number of houses, in 1790, was about 500:  
and

and the value of the house rents, about 1500*l*. These three articles have made a rapid increase since the last mentioned period. Within twenty years the size of the town is almost doubled: owing not solely to the increased number of inhabitants, but also partly to the increased spaciousness of the new buildings and of the new streets. The same growing state seems likely to continue: for the houses are extending along the former highways, and two new streets are about to be opened into the fields.

This town has a weekly market on Friday, which is well supplied with most kinds of provisions; from a plentiful country, and a sea well stocked with excellent fish, around it. Beef, mutton, lamb, veal, pork, poultry, butter, cheese, and eggs; haddock, cod, whiting, salmon, turbot, halibut, flounder, skate, mackerel, crab, and lobster, &c. are to be had in abundance, and most of them in the greatest excellency. The prices of most of these articles are raised from one half to three or four times more than they were twenty years ago: yet in all articles of flesh-meat the prices here are much the same as in other towns in Scotland: and, in many articles of fish, they are less than in most towns. Most articles of vegetable food, whether the produce of the field or of the garden, are to be had: but it has often been matter of complaint, that of these there is, as yet, neither that variety nor that plenty that could be wished. The excellency of the bread has been mentioned before. Other accommodations, of grocery ware, wines, drugs, cloths, and most other things expected in retail shops, are to be found in abundance.

Sect. 2. *Of the Neighbourhood of the Town.*

The pleasing scenes that every where surround this place are a great inducement to strangers to be much in the open air, which is of great importance to the acquisition of health. On the south-side we have the bay, which is a very beautiful piece of water. Along the side of it there is an extensive walk, where one enjoys the benefit of air immediately fresh from the sea, which has a powerful effect in promoting appetite for food and digestion; and often is amused with the view of many ships riding at anchor hard by. On this piece of water some of the company, in fine weather, take the exercise and amusement of sailing: and sometimes extend their excursion further along the rocky and romantic coast that lies to the southward. In the recesses of these rocks a party sometimes chooses for a frolick to dine, in apartments inexpressibly grand, and on gigantic tables, formed out of the rock by the hand of nature; enjoying at the same time the view of the clear sky and ocean, the voice of the various sea-fowl, and the murmur of the water gently rising and falling among the rocks. At other times they visit the *Bullers of Buchan*, and other grotesque places of the neighbouring coast; of which, there is a description, with plates, in the Reverend Mr Cordiner's *Antiquities and Scenery of the north of Scotland*.

Towards the east, we have, from the mineral-well, an excellent and much frequented walk; first along the harbour, frequently filled with ships from many different ports, and the sides of which always abound with men busied in various employments; then into the small peninsula called Keith Inch and the Quinzie,  
(Scotch

(Scotch pronunciation of the French word *coin*, corner,) where you first meet with the South Pier, which on its broad platform affords an excellent walk, always dry under foot, being paved with hewn stone, and sheltered from easterly and southerly winds; and next you have the Castle, an old lofty edifice, noticeable for having been an ancient mansion of the Marischal family. It is still intire, but now converted into a store-house for goods. Then you find the Guard-house and the Battery adorned with eight cannon, and a palisade round it. Proceeding onward you have a very pleasant walk, much frequented by many of the strangers, especially those of the more contemplative sort. From this walk, which is on the Buchan-ness, one may see the meridian line cut by the German Ocean, both to the southward, and to the northward: and here you enjoy, in good weather, a very extensive sea-prospect, and as fine, refreshing air as can be had any where. Next you may proceed round this small peninsula, by the little battery, and so return into the town.

On the west side of the town, and partly along the head of the bay, lies a fine sandy common covered with short grass, called the Links. Here the gentlemen often enjoy the salutary exercise of Golf: and here also might be used the exercise of shooting with the long bow, now, happily for health, become again fashionable. This ground also affords an excellent plain for walking; as the sand immediately absorbs water, and renders it dry under foot in a very short time after the heaviest rain.

From the town, roads spread out in every direction through the country, amidst fertile fields, and along gently rising grounds; and these are in summer very smooth, so as to afford convenience either for walking or riding. At about the distance of a mile from

the town, towards the north, lies a beautiful though small river, the Ugie, on which is a salmon fishing. Its water is stored with trouts, and its winding banks are covered with a great variety of plants; thus offering the amusement, either of angling, or of botanising, to those who delight in them. On the other side of the river, in territories formerly belonging to the earl of Marischal, lies a most beautiful down, extending nearly six miles in length, and from a quarter of a mile to half a mile in breadth. Here is the finest ground imaginable, for the exercise of golf, shooting, or riding.

For those who cannot bear such distant excursions, the roads about the town, and even the streets within it, being open and clean, afford walks both agreeable to the view, and useful for fine air.

There are also several places in the neighbourhood that answer as *terminations*, or proposed *objects*, of a walk or ride. On the south, at the distance of a mile and a half, there is the *Meet-hill*, as it is called, which is a large artificial tumulus, on the top of a little hill; whence there is an excellent prospect of the town, bay, harbour, and both of the sea and of the country for a great extent. About three miles further, in the same direction, lies Boddam Castle, the once hospitable seat of a family of the name of Keith, and of the rank of baronet. This house has no proper claim to the name of Castle: but it is a respectable ruin, and makes a good appearance from Peterhead. It is situated on a small tongue of land, divided from that on every side, by long narrow deep precipitous gulfs. This place stands at the *bottom* of the *Stirling Hill*; from which circumstance its name may possibly be derived. From it the Stirling Hill rises suddenly to a considerable height, and from its summit gives a very extensive prospect;

prospect; reaching to the head-land to the southward of Aberdeen, 28 miles; and to Rattray Head northward about 14 miles, as well as far over the sea and over the land.

On the north-side of Peterhead, you have first a wind-mill, upon the top of a fine eminence, and from it you enjoy a beautiful prospect of the town, bay, and adjacent sea. Close by the mill there are the ruins of an abbey. Whether it has happened from the great length of time since this abbey was destroyed, or from its never having been a place of much consequence, I cannot tell; but so it is that it is not much known, even in Peterhead. All that now remains of it is very little: some pieces of very thick wall built with what is called *run lime*; vast heaps of grey flates that have once covered it; the foundations of one large house, which were lately more conspicuous; and a very indifferent spring at a little distance, called the Abbot's Well. A stone coffin full of bones, the pavement of a court, the foundation of the houses forming the court, and a monumental stone with figures and letters on it, were lately seen, but are now covered with earth. — Further on the same road you come to the bridge of Inverugie, which has two large arches, and is of some antiquity; and proceeding about half a mile further, you come to the castle of Inverugie. This lofty and venerable ruin was once the princely mansion of the noble and renowned family of Marischal; the founders and patrons of Marischal College Aberdeen, and of the town of Peterhead: and the owners of a great estate in this neighbourhood. This stately building stands at the distance of a mile and a half from the sea, and two miles and a half from Peterhead. It is situated on the bank of the river Ugie, which forms a sort of semicircle before it: and the area

of this semicircle, which has been laid out in the way of utility and ornament to this Castle, is terminated by a beautiful sweep of a steep rising ground, immediately beyond the river, which bears a great variety of plants. Some of the trees that anciently graced the Castle still remain. But from the strange reverses that take place in *this changeful state below*, this once superb mansion is now converted into a brewery of porter and beer, and the pleasure-ground near the house into a very fine bleachfield. About half a mile further up the river appears Raven's Craig, a beautiful ruin of a very old castle. This house in latter days belonged to the family of Marischal. It must have been intended for a place of defence; as appears from its very thick walls, its situation on a rock hanging over the river, its loop-holes for shooting through with bows and arrows, and some remains of intrenchments around it.—Neither of these two houses was the most ancient seat of the Marischal family: for on a rising ground near the mouth of the river, we find some heaps of stones almost overgrown with the sandy earth; and this, it is said, (not without probability from the name, which signifies a place near the end or mouth of the Ugie,) was the site of the original house of Inverugie. Proceeding from the Castle on the north road, we come to a bye-road, leading to the links of Inverugie, formerly mentioned: and on this extensive plain, at the distance of five miles from Peterhead, lies a very ancient church yard, filled with tombs of uncommon structure. Here is the monument of the grandfather of the famous wit, philosopher, and physician, Dr. John Arbuthnot; who derived his origin from this place, and does it honour. Hither contemplative persons often direct their ride; for the beauty of the scenery by the way, and to enjoy  
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half an hour of melancholy pleasure among the tombs, in perusing the memorials of those who have long been in that state in which we shall soon be.

Sect. 3. *Of the Air of Peterhead.*

This is perhaps one of the most important circumstances belonging to the place. Most people, on coming to Peterhead, say they feel something very keen and cold in the air. This coldness is partly owing to the sea vapour, and partly also to the greater freshness and purity of the atmosphere of this place; for in summer foul and stagnant air is sultry. The purity of the Peterhead air is attended to by every person of observation: and is easily accounted for. There is no marsh, or any other cause to taint it within many miles, on the land side: and as the town is on three sides surrounded by the sea, and as the wind blows the greatest part of the year over sea-water towards the town, its air will generally have all the purity of sea air. Here then the valetudinarian enjoys almost all the advantages both of the sea and of the land, without being exposed to the inconveniencies of either. It has indeed been disputed whether sea air be purer than land air; and whether it be more fit for sickly people. As to the purity there appears to me little room for dispute. Land air is contaminated by noxious vapours that arise from fermentations, from the putrefaction of animal and vegetable substances, from excrementitious matter, from the respiration and perspiration of animals, from the effects of fire on minerals and metals, from many operations on animal and oily substances; by marsh effluvia, and by human contagion: from all  
which

which sea air is in a great measure free. And though numberless animals and vegetables live and die in the sea as well as on land: yet the whole economy of their life and death is carried on in a manner so different from what takes place on land, that I believe there is no comparative proportion of noxious air extricated.

But the effluvia abovementioned are the things that taint the air, and render it nauseous, and pernicious to animal life, in proportion as they abound in it \*. Thus sea air is purer than land air.—At the same time the air of Peterhead, as being sea air, is more moist than the air of many parts of the land †. But moisture does not necessarily render air unwholesome: it is so only when the moisture is accompanied with some of the noxious exhalations lately mentioned; as in ill-aired and uncleanly dwellings, in crowded houses and narrow streets, in marshy situations, in places incumbered with woods, &c. And experience shows that the moisture of sea air is by no means insalubrious, where people are defended from excessive cold, and enjoy the benefits of cleanliness, good food, due exercise, and sufficient clothing. This is evident from the general vigour, health, and longevity, that appear in the inhabitants of towns well situated on the sea-coast; and in

\* If the things I have mentioned should not be allowed to make the difference here contended for; yet the freshness of the sea air, which is so delightful to the organs of smell and respiration, and so powerful a stimulus to appetite for food, convince me of its greater purity, though it could no otherwise be accounted for, than by some, as yet unknown, operation in nature, whereby a great body of water, and especially of sea-water, in contact with air, either absorbs its noxious air, or gives out pure air to it.

† Sometimes in summer there appear thick fogs at Peterhead, when the air within a little distance, on the land, is clear: and these fogs have at first alarmed some persons, who had never seen any fog, but what arose from marshes or fresh water. But these sea fogs are known by every body to be perfectly innocent; and require no farther attention, than that delicate persons may for the time add a great coat, or cloak, to their clothing.

failors who make short voyages, and therefore are not subjected to violent change of climate, to salt provisions, or want of clean clothes. Nay it is evident that sea air has very strong *antiseptic* \* powers: since no other cause can be assigned for the excellent health of fishing people, even when they live among masses of animal substances in the highest degree of putrefaction. Sea air must therefore be allowed to be more salutary than land air, in many cases. Still however it is not universally more salutary: for there are different disorders that require pure air, with qualities, in other respects different, and even opposite. Thus the consumptive, the gouty, the rheumatic, find their complaints greatly alleviated by the *pure and warm* air of Gibraltar, Madeira, Hyeres, while, on the other hand, those afflicted with the disorders for which Peterhead is recommended, find great relief from a *pure and cool air*.

But that the air of Peterhead is pleasant and salutary to most kinds of valetudinarians, appears from experience, a much better proof than any reasoning. The persuasion of its salubrity prevails everywhere through the country; and the sick who come to Peterhead place great dependence upon it: which could not be the case, unless constant experience kept up the impression. I have heard several persons, who came hither for health, declare, that they were no sooner arrived in the neighbourhood, than they felt the enlivening influence of the air pervade their whole frame. Of many instances that might be given of this, I shall mention only a very few. A clergyman of great worth and good sense, whose constitution was almost destroyed by a long continued violent pain in his head, brought

\* This, in general, means, *preventing putrefaction*; but here it is used to signify, *preventing the ill effects of the effluvia of putrid substances on the human frame*.

on by a rheumatic fever, declared to me, that he found himself refreshed by the air of the place, even before he had reached the town: and that, before he could enjoy the benefit of the bath or water, his strength and spirits were much restored. A much more certain, as being a much more lasting and constant instance of the same, we have in the learned and benevolent Dr. B\*\*\* my most respected friend. Naturally healthy, but not robust, from much literary application he became valetudinary; and usually found it proper to spend some part of the summer at Peterhead. For a long time he persisted in using the bath and water; because though neither of them agreed with him in the meantime, he found himself better for them afterwards. At last he gave them both up, and now depending on the air of the place alone, he finds more benefit merely by living in Peterhead, than he ever did while he used the bath and water. Hence it is no wonder if we enjoy the credit and gratification of his company during a considerable part of every summer. And that most excellent Youth, author of the beautiful poem at the end of this treatise, used, chiefly for the sake of its pure air, to prefer Peterhead to every other part of the island, with many parts of which he was well acquainted. Here he chose to live as much as he could: here he acquired some of his many extraordinary accomplishments; here he composed some of his poems, and other literary works: and here have I often enjoyed, from his company and conversation, a degree of pleasure that is seldom to be looked for in this world. And he had reason to be pleased with the air of this place: for by it he two several times recovered from an assault of that cruel disorder, [consumption,] from whose fatality at last, neither this air, nor the advice of  
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the best physicians, nor his own piety, patience, fortitude, and other virtues, could deliver him. To the irreparable loss of his friends, and deeply regretted by all who knew his character, he died the nineteenth of November 1790, a few days after he had completed his twenty-second year.

Many other notable instances could be brought to prove the pleasantness and salubrity of the Peterhead air : but I shall only mention one, stronger indeed than all the rest ; I mean, the general healthiness and longevity of the inhabitants. *Endemic* \* diseases this place has none : and except small-pox, measles, whooping-cough, and influenza, which go everywhere, no *epidemic* † diseases reach this place ; or if they come to it, they soon become mild, and then disappear. This was the case with a putrid sore throat, that lately raged through most parts of Buchan, with great mortality ; and after reaching Peterhead, cut off more persons than I ever knew to die here in the same length of time, except from the small-pox : yet even this dreadful disease soon vanished. Fevers are rare, solitary, and simple : consumptions are seldom heard of ; apoplexies and palsies still seldomer : and even rheumatism, which, from the moisture of the air, might be expected to be frequent, is yet by no means so. In short, if the proportional number of sick were compared to that of most other towns, I am persuaded an advantage in favour of Peterhead would be very apparent.

After these advantages, in some sense appropriated to Peterhead, I may just mention some of those which are common to it with other watering places.

\* Diseases peculiar to the place : or to which the place is peculiarly liable.

† Diseases which attack many persons at once.

Few things contribute more immediately and powerfully to the cure of bodily disorders, than a mind free from anxiety and intense thinking. The good effects of this takes place in diseases of every kind ; but in those cases where the mind seems to be the seat of the evil, or at least to be much affected by a disordered bodily frame, this must be true in an especial manner. Accordingly it is one of the things which physicians study with the greatest attention, to remove their patients from every object, every circumstance, that causes anxiety, care, sorrow, or any other uneasy sensation ; and on the other hand, to get them into such situations as will dispel disagreeable thoughts, and promote tranquillity, hope, and joy. When these things can be done, many kinds of disorders vanish without any medicine, and in many others, medicines that had before been used in vain quickly take effect. But there are few situations more favourable for relaxing and clearing the mind, than Peterhead ; where a great deal of entertainment may be had, without any further trouble, than of going a few steps out of doors to receive it : and where, at the same time, degrees of amusement and exercise may generally be had, suited to the various capacities of different persons for receiving them. The mere change of scene must have very considerable good effects. All the cares and perplexities of business, of study, of a family, are either left behind, or soon disappear, by the operation of that kind power of nature which makes us be less affected by distant than by present care. The perpetual sameness of the objects around us, which perhaps have grown tedious by habit, and in a diseased state have been associated in the mind with painful sensations, is changed for a set of things at least new, and probably pleasant. Thus the mind, by being unbent,

bent, recovers its tone : while the imperfection of the things around us in this, as in every other sublunary situation, makes us see advantages in being at home which we had before overlooked. Again, *company*, when suited to one's mind, is highly useful, as contributing to dissipate melancholy reflections, and to engage the mind in new and pleasant trains of thought. To some, a mere crowd is company ; to others, there must be a choice ; and to some, there must be an exquisite selection. But it must be a great advantage where there is such a general collection of people, that almost all may chuse those who are agreeable to them : and where yet there are no compulsive circumstances, forcing any to associate but with whom they please. Such a variety of company is generally to be found among the numbers of all ranks and classes of men that annually resort to Peterhead. Often I have seen at our public table a company, in the highest degree respectable, where ladies and gentlemen of all ranks and titles, senators, judges, philosophers, military officers, clergy, merchants, were assembled ; where all felt themselves of importance, through the consciousness of equal right ; where none claimed superiority, while yet the deference due to rank and to merit of every kind was voluntarily paid ; where all suspicion of rudeness, of rivalry, or opposition, being removed, by the rules of good breeding habitually established, the most enlightened conversation, the most chastised wit and humour, and the graces of musick, alternately instructed and enlivened the society : and where, of course, persons of a refined taste could not fail to receive gratification, while those who had less experience found themselves exercised and improved in polite behaviour.

Such a company as this cannot be hoped for, every year, at Peterhead: for it implies an assemblage of persons, collected, not merely for health, but also for society, and genteel amusement: and collections of such persons will often be regulated by fashion; moving sometimes to one place of resort, sometimes to another, as happens to be the humour for the time. But as the chief reason of coming to Peterhead is founded, not on fancy, as is the case of many other places, but on real and permanent qualities; there is no chance that it can ever be deserted. Weakness and disease are but too certainly the lot of man, at all times: and wherever men can hope for relief, thither, without regard to fashion, they will resort. The natural benefits of this place are unchangeable: and while the sober, obliging, and virtuous character of the inhabitants remains, (and may it ever remain!) strangers will, among them, meet with an agreeable reception. What further is necessary for the enjoyment of society, they have it in their power to bring along with them.

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I make no apology for subjoining the following Ode; which one acquainted with the place would be apt to guess had been composed, as it really was, upon the spot. It was written, in the seventeenth year of his age, by my pious, learned, and amiable friend, Mr. James Hay Beattie, afterwards Professor of Moral Philosophy in Marischal College, Aberdeen. He also translated it into English verse, at the desire of Dr. Beattie, who, it is hoped, may be prevailed on to favour the public with more of his Son's compositions.

## AD PETRIPROMONTORIUM INVITATIO:

**Q**UICUNQUE nôstis turbida gaudia  
 Tuto quieti pectoris otio,  
 Silentio qui ruris urbem  
 Posthabuisse tumultuantem ;

Queis fana fano in corpore mens placet ;  
 Excelsa quorum corda vel evehit  
 Sublime, vel mulcet venustum ;  
 Huc celeres properate gressus.

Hic fundit urnâ divite nam Salus  
 Fontes, amoeni et frigora balnei,  
 Arvosque laetâ vestit herbâ,  
 Et gelidis agitavit auris.

—At nulla venti sibila personant  
 Arbusta nobis, neve per arborum  
 Umbrosa late regna, longum et  
 Dat querulum liquida unda murmur.

Fatemur : at non talia poscimus ;  
 Patente campo laeta Salubritas  
 Gaudet, nec humenti sub umbrâ  
 Pestiferam ciet alma noctem.

Sed non fluenti florea ripa, non  
 Repens susurrus per cava littora  
 Desunt, freti vel glauca, longe  
 Purpureis decorata velis ;

Non

Non luna curru argentea lucido  
 Per cana collis visa cacumina ;  
 Non flamma matutina Phoebi  
 Per tremulum radiata pontum.

Sublime quaeras ; hic tumidum mare,  
 Hic aestuantum verbera fluctuum  
 Cernes, resultantumque in auras  
 Nubila cana abiisse rorum.

Hic risus, hic convivia laeta sunt,  
 Sermo, sodales, otia, literae ;  
 Quaecunque tristi, vel jocofo,  
 Philosopho, aut placeant poetae.

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### INVITATION TO PETERHEAD.

**Y**E, who for sweets that never cloy  
 Can quit wild Pleasure's toilsome strife ;  
 For rural peace, and silent joy,  
 Can quit the storms of city life ;

Whom languor or whom pain alarms ;  
 Who seek a mind from trouble freed ;  
 On Nature's mild or awful charms  
 Who gaze in rapture ; hither speed.

Here Health her bath's enlivening tide,  
 And fountain's sparkling nectar, pours ;  
 Fields fluctuate in flowery pride,  
 While cool gales fan the quiet shores.

What,

What, though for us no tainted breeze  
Along the vocal thicket rove ; \*  
No rivulet glance through whispering trees,  
And murmur down a depth of grove !

Th' expanded plain Health joys to tread,  
To drink heaven's free, fresh-blowing breath ;  
Not pent in woods and watery shade,  
Exhaling pestilence and death.

Nor daised bank of silver stream,  
Nor sounding beach our fates deny ;  
Nor floating sails, that lightly gleam  
Where ocean melts in the blue sky ;

Nor moon, in solemn splendour born  
Slow o'er the hoar hill's shadowy steep ;  
Nor the gay beam that fires the morn,  
Shooting along the tremulous deep.

Or seek ye greatness ? See the tide  
Whirl'd in tempestuous eddies rave ;  
See from the brown rock's foamy side  
Burst high in air the thundering wave.

Here friendship warms, here smiles engage,  
Here converse, quiet, learning, leisure,  
Feed mirth, sooth care, afford the Sage  
Instruction, and the Poet pleasure.

\* There are no woods in this neighbourhood, and very few trees.

What, though far as no human power  
Along the vocal thicker tower?  
No mortal glance through a lightning-flash  
And manner shows a depth of soul.

The expanded plain itself says to tread,  
To drink heaven's face with blowing breath;  
Not pen in words; and every shade  
Exalting brilliance and light.

For daffled bank of silver stream,  
For sun-bright beach and sea-bay;  
For flaming lake, that highly gleams  
Where ocean meets in the blue bay.

Not upon its solemn solemn form  
Show of the heart's (sister) deep;  
For the eye can see the moon,  
Though along the river it is deep.

Or look to heaven, for the river is deep  
Which is a mystery to the eye;  
For from the river's rocky bed  
Rise high in air the floating waves.

Here, friends, where, for a while, we stay,  
Here, can you find the heart's deep;  
And mind, which, when the organ is  
Still, and the heart is deep.

There, in the heart's deep, the heart is deep,  
There, in the heart's deep, the heart is deep,  
There, in the heart's deep, the heart is deep,  
There, in the heart's deep, the heart is deep.

