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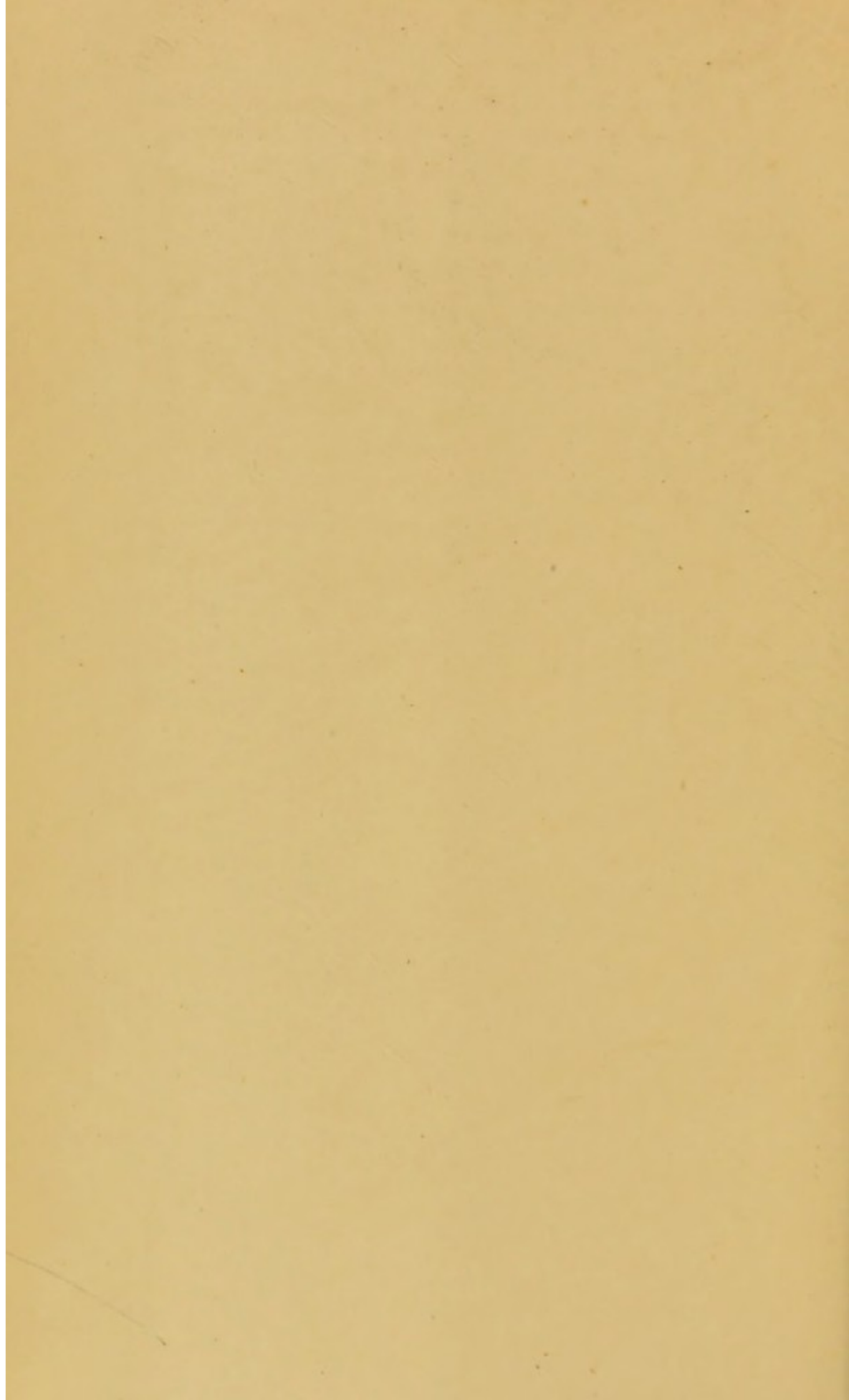
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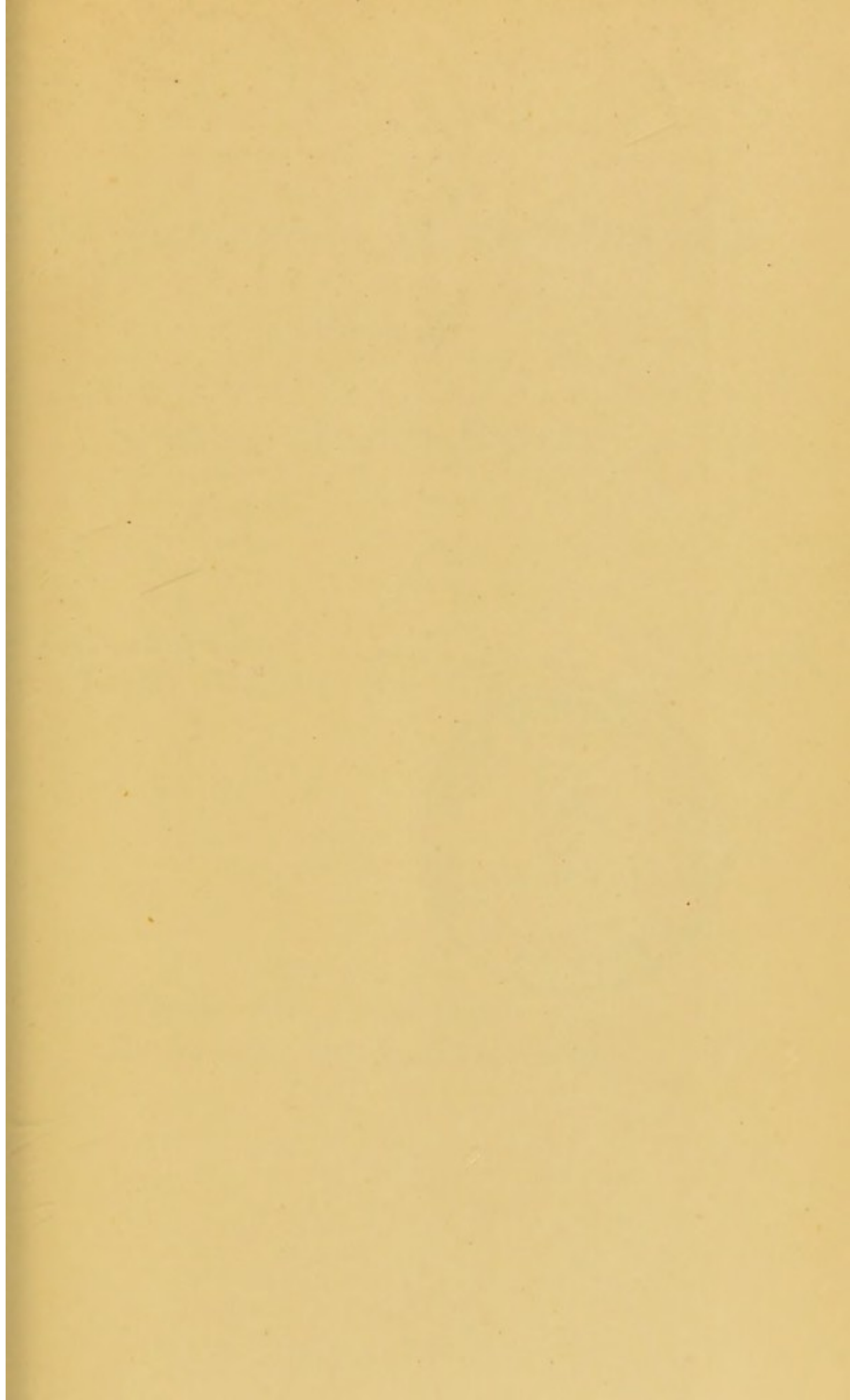
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The Reputation of
the Hotwells (Bristol)
as a Health-Resort,

L. M. Griffiths





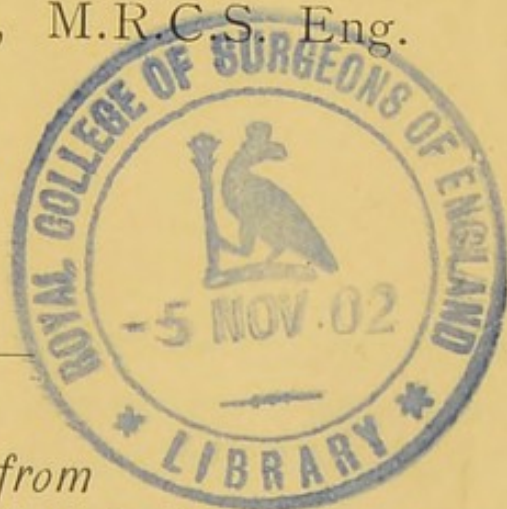


the the writer's compliments

The Reputation of the Hotwells (Bristol) as a Health-Resort

BY

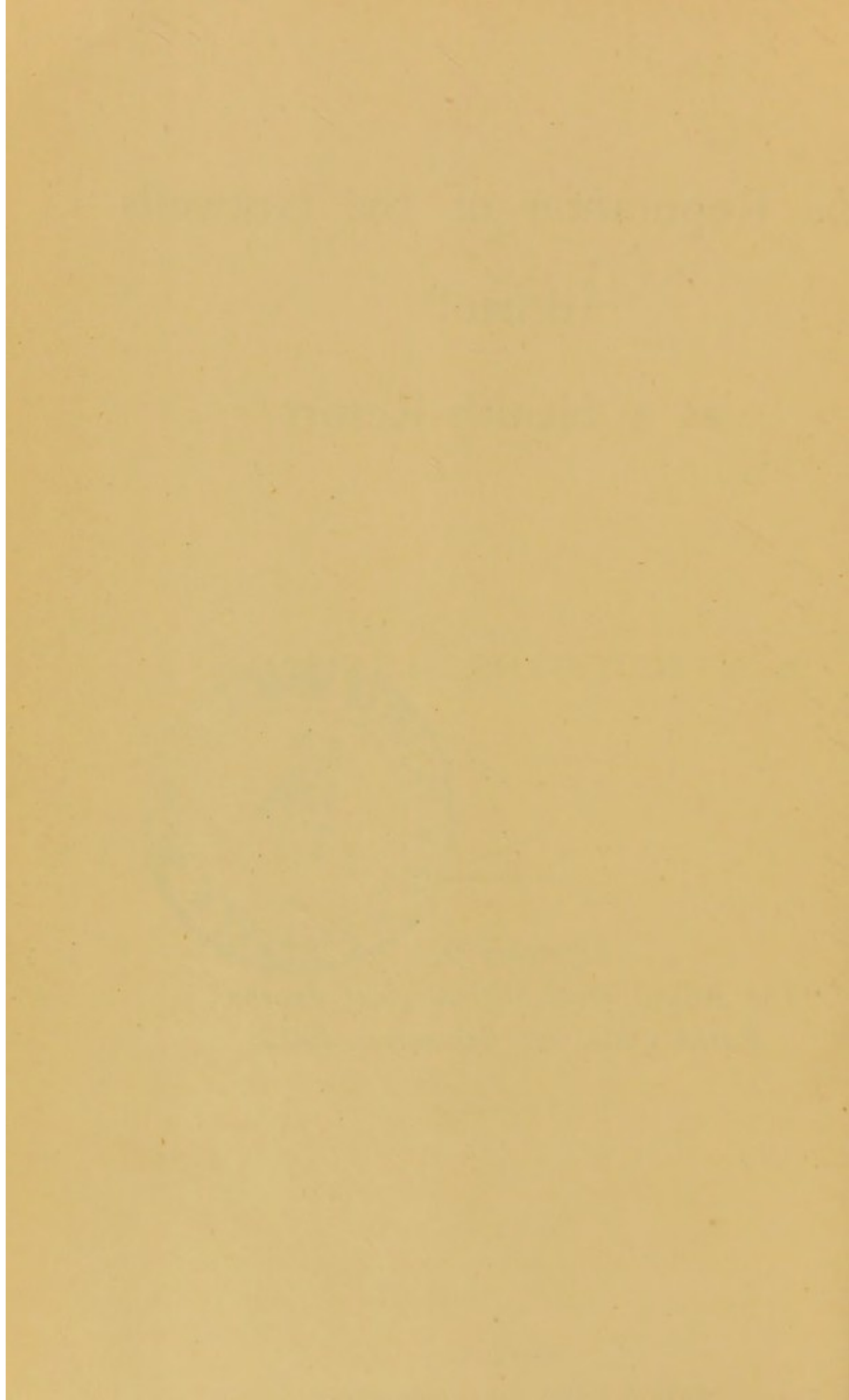
L. M. GRIFFITHS, M.R.C.S. Eng.

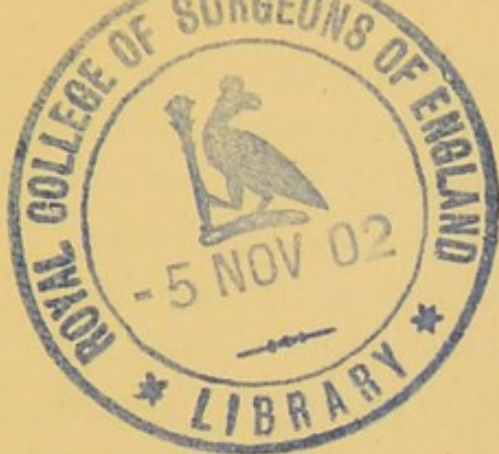


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J. W. ARROWSMITH, 11 QUAY STREET.





The Reputation of the Hotwells (Bristol) as a Health-Resort.

WHEN I was Honorary Librarian of the Bristol Medical Library, I read before the Library Association a paper entitled "Some Things of General Interest in the Bristol Medical Library."¹ This contained much about the social and literary life of the Hotwells when it was a fashionable health-resort. Some passages from that paper are here repeated, and at the request of the Editor of this *Journal* I have added from the books to which reference was then made some matter which could not be mentioned when I read the paper before the members of the Library Association.

The reputation of the Hotwell water goes back to the middle of the fifteenth century, when it was mentioned by William Wyrcestre, who was a Bristol man. From the beginning of the seventeenth century the virtues of the Hotwell water

¹ *Library Association Record*, June and July, 1901.

have been proclaimed by various authorities, medical and otherwise. Dr. Tobias Venner of Bath, whose work,¹ published first in 1620, reached a third edition in 1650, said that the water "is in great request and use against the Stone." Venner had studied the properties and action of the water with much minuteness. In reference to the former, he states that "whatsoever minerals shall lie hid in the passages of this water, it is sufficient, that it partakes of two so good as Sulphur and Niter, and that in such a mixture, as it makes it to be of an excellent temper, and medicinable facultie in potable uses for divers cases."² He considered that the reputation of the water was certain to suffer because patients were resorting to it for objects other than "the drinking of it against the Stone," and that it should only be taken under the advice of a "judicious Physician." Without such guidance "the ill and preposterous use thereof will weaken the stomack, subvert the liver, annoy the head and brest, occasion Cramps, paine in the joynts, breed crudities, rheumes, coughs, Cachexies, the Dropsie itselſe, and Consumption."³ Further emphasis is laid on the necessity of skilful counsel when sick folk were taking the water. Admitting its "excellent faculties," he regarded it as "very effectuall against the burning heat of the stomack, inflammations of the liver and reines, and adustion⁴ of the humors, being taken with fine Sugar in this proportion, as a dram of Sugar or there about to a pint of the Water."⁵ Venner seems to have had little difficulty in diagnosing "purulent ulcers of the kidneys and bladder, and ulcerations of the intestines;" and in these conditions the water, taken with the necessary expert caution, was good. He gives ten rules for its use in cases of vesical calculus. These refer—

(1) To the preparation of the patient, whose body was to be "exquisitely purged";

¹ *Via Recta ad Vitam Longam*, of the 1638 edition of which "A Censvre concerning the Water of Saint Vincents Rocks neere Bristoll" formed part. Of course, censure was used with the meaning which it had not then lost of "opinion" merely. Cf. *The Winter's Tale*, II., i. 36.

² P. 334. ³ P. 335.

⁴ [This word is now obsolete. It signified a burning, and is allied to "combustion."]

⁵ Pp. 335-6.

(2) To the taking of the water fasting;

(3) and (4) To the quantity to be drunk and the duration of the treatment, both of which matters were to be left to the judgment of the physician in charge of the case;

(5) To the temperature at which the water was to be taken, bearing in mind that it was not to lose the heat¹ which it possessed at the spring, and if it were impossible to take it in that way it was to be kept in a stone jug, which was to be heated in a kettle of hot water until it was as hot as the patient could take it. If it was kept it was likely to lose "somewhat of its sulphurous, but not anything of its nitrous quality";

(6) To the time of year when it might be used most advantageously, that being from the beginning of May to the middle of September;

(7) To the diet of the patient whilst undergoing treatment. This should be "slender," and dinner was not to be taken "till the greater part of the Water be avoyded, and the supper must bee alwaies lesse than the dinner, that the Stomack may be the next morning emptie for receiving of the Water againe";²

(8) To the necessity of not allowing the water to "abide in the body after the use of it";

(9) To the ages of the patients, who could be fit recipients of the water. It was to be given cautiously to children under twelve years of age, and not at all to those who had "entered within the limits of old age, because it will abbreviate their life, *calorem innatum extinguendo*";

(10) To the idiosyncrasies of the patients, for on no account was it to be administered to "such as by reason of the smalnesse and straightnesse of their veines, cannot excrete and passe it away by urine." Neither was it to be given to "such as have cold stomacks, weake livers, feeble braines, and subject unto Rhéumes; in a word, not to phlegmatick, nor to any that abound with crudities, or have a cold and moist habit of body: for in all such it will soone infringe the naturall heat, breed Rheumes, annoy the brest, occasion Cramps, and divers other infirmities."³

Venner concludes his directions by again dwelling upon the importance of "the advice and presence of a judicious Physician" in all cases. He thought little was to be gained from the external application of the water, although it "may somewhat asswage the Itch, mundifie⁴ and palliat old Sores." It will be seen from these extracts that Venner was exceed.

¹ According to later observers, who had the Fahrenheit thermometer, this was about 76°. ² Pp. 339-40. ³ P. 341. ⁴ ["Mundifie. To cleanse." Cockeram's *English Dictionarie*. Fifth Edition, 1637.]

ingly careful about details, and probably on that account was a successful practitioner. He is no less precise in his directions about tobacco, which he added in "A Briefe and Accurate Treatise concerning the taking of the Fume of Tobacco, which very many, in these dayes, doe too too licenciously use. In which, the immoderate, irregular, and unseasonable use thereof is reprehended, and the true nature and best manner of using it, perspicuously demonstrated." He approved it "as necessary and profitable for the rheumatick, and such as are of a cold and moist constitution, and in cold and moist seasons, so as it be taken in congruent manner, that is, both moderately and seasonably."¹ Venner evidently felt keenly the competition of the irregular practitioner and apothecary; for, speaking of those who thought the combination of tobacco and sack might often render the services of the physician unnecessary, he deplored the fact that "very many of our people, in their sicknesse, expose their bodies to bee corrupted, I cannot say cured, to ignorant usurping Poticaries, and other base illiterated Empericks, who are (contrary to the Lawes) everywhere permitted to exercise Physick, to the dishonour of God, disgrace to the Faculty, hurt of our people, and shame of our Nation."² His love of detail led him to give those who affected tobacco ten precepts in the use thereof. In these and in his directions concerning the Hotwell water one cannot fail to be struck with the sublime confidence he had in his own judgment, and this must have made him a very acceptable attendant to patients who especially abhor any uncertainty in the opinions and practice of their doctor. Venner was buried in Bath Abbey, where is erected a tablet with a very eulogistic inscription, to the Latinity of which Dr. Thomas Guidott takes exception in some exceedingly quaint criticism.³

Dr. Thomas Johnson, in *Mercurius Botanicus*, published in 1634, stated that the water was of repute both inwardly and outwardly. In 1662, in Fuller's *Worthies of England*, it is declared

¹ P. 349. ² P. 354.

³ "The Lives and Characters of the Physicians of Bath," in *A Discourse of Bath, and the Hot Waters There. Also, Some Enquiries into the Nature of the Water of St. Vincent's Rock, near Bristol, and that of Castle-Cary*. Second Edition, 1725, pp. 189-91.

that "St. *Vincent's Well* is sovereign, for *Sores and Sicknesses*, to be *wash't* in, or drunk of," and the statement is made that "experience proveth that Beer brewed thereof is wholesome against the *Spleen*;" and it is related that Dr. Samuel Ward, of Sidney College, Cambridge, who "was afflicted with that malady, was prescribed the constant drinking thereof, though it was costly to bring it thorough the *Severn*, and *narrow Seas* to *Lin*, and thence by the River to *Cambridge*."¹ The Hotwells received its first royal visitor in 1667, when Queen Catherine, the wife of Charles II., after dinner in Small Street, drove to see the Avon Gorge and drank some of the water.²

A doctor who is known as Claromontius, which was probably a Latin version of an English name, visited the Hotwells, and in 1672 gave his experience of the water in a book entitled *De Aere, Locis, et Aquis terræ Angliæ*. Although he records its good effect generally in "the Gravel, and Obstructions of the Intestines," he did not get much personal benefit; the Waters "made him puke, and did not pass as they should do by Urine," and if this result did occur, there was a danger that they might "gripe the Bowels and cause Ruptures."³ Verily, in the good old times the Hotwell Water was not a thing with which one could trifle!

Dr. Thomas Guidott, of Bath, writing in 1676, considered that the Hotwell Water "may be as effectual as *Tunbridge Waters*, in any Diseases that Water is proper for."⁴ He published the results of an examination of the water which he had made with the help of Mr. Richard Millechamp, an industrious and skilful apothecary in Bristol. As Guidott recognised that the water had "a Name among the useful Mineral Waters of this Land,"⁵ it is of interest to note the method which he took to verify this. A hogshead of the water was, by his direction, evaporated to three or four gallons by Millechamp, who finished it in an evaporating glass and sent the contents, nearly five and a half ounces, to Guidott. Four ounces proved on examination to be "a reddish ferrugineous Earth, somewhat resembling in Colour an Iron Ore,

¹ Part iii., p. 34. ² A copy of the 1661 "Grant of the Hotwell to the Corporation of Bristol" is given in *Gloucestershire Notes and Queries*, 1884, ii. 223-4. ³ Quoted in Dr. George Randolph's *An Enquiry into the Medicinal Virtues of Bristol-Water*, 1750, p. 13. ⁴ *Op. cit.*, p. 141. ⁵ *Op. cit.*, p. 138.

but in Substance very light and friable, with a Mixture of a Lime-stone and somewhat, though much less in Quantity, more white." Guidott then describes his method of dealing with these: "Upon this *Non-Saline* Part, as I call it, to distinguish it from the Saline Part that constitutes the *Lixivium*,¹ being put into a Crucible and calcin'd, I observ'd, That the red Earth was not harder, but more friable, and lost its rusty Colour, becoming more blue; but the white being cold, and mixed with fair Water, did, upon the first Injection, hiss, and afterwards dissolve, leaving the Water white, and a Limy Residence in the Bottom of the Vessel I infused it in; and both white and blue, after Infusion, being dryed again, became very white and Limy. The other Part being Saline, imbibed into a *Lixivium*, I evaporated away to half a Pint, and setting it in a cool Place, found the next Morning it had shot into long small *Stiria's*² to the quantity of 3iij. The remaining Part of the Liquor that did not shoot, I breath'd away, and had 3i. of another kind of Salt;³ so that the Saline Part is here much exceeded by the *non-Saline*, to which it seems to bear proportionably not much more than a 5th Part, and to be contained scarce twelve Grains in a Gallon."⁴ From this examination Guidott judged the virtue of the water "to consist of Iron, a Nitro-Sulphureous Salt, and some Lime-stone," and concluded that there was very little of an acid because "neither the cold Water, nor a strong *Lixivium* made of the Salt, will either turn with Galls, or coagulate Milk; neither doth any Thing glebous⁵ shew itself among the Shoots." Guidott thought so well of the Hotwell water that he "lamented that so *sanative* a Spring had not a better *Situation*, that so the Water

¹ [*Lixivium*. Lye; water impregnated with alkaline salt, produced from the ashes of vegetables; a liquor which has the power of extraction."—Johnson's *Dictionary*.]

² [*Stirious* [*Stiria*, L. an Icicle], hanging, or being in Drops like Icicles"—Bailey's *Dictionary*. Third Edition, 1726.]

³ Of the exact nature of this which he reserved for further examination he says only: "To make it further evident, that this is Lime-stone, after the *non-Saline* part was well calcin'd with a strong Fire, in the Water of which I decocted Sulphur, which it did dissolve, and was precipitated with a fetid smell, both by distill'd Vinegar, Spirit of Vitriol, and Oyl of Tartar, in a considerable Quantity."

⁴ *Op. cit.*, pp. 139-40.

⁵ [*Glebous*. Turfy."—Johnson's *Dictionary*.]

might *expand* itself to the Formation of a *Bath*, which being most temperate in Heat, would be of greater use in all *Tabid*,¹ Emaciating and *Hectic* Diseases, than any other *Bath* in the *Nation* besides."² In his *De Thermis Britannicis Tractatus*, published in 1691, Guidott has a chapter, "De Thermis Bristolensibus," in which he refers to the great value of the water in diabetes.

As the spring issued forth some twenty-six feet below high-water mark, the advantages of its health-giving properties were only obtainable with difficulty. In 1691 a cistern, rising above the level of the highest tide, was constructed to contain the water, but as this came out with much force—at the rate of from forty to sixty gallons in a minute—the arrangement was soon found to be unsatisfactory; and in 1695 a company made an agreement with the Merchant Venturers, who were lords of the manor, for the erection of a pump-room and other facilities for visitors. From this time its popularity grew rapidly, and was promoted by much further medical testimony. A Bristol doctor named John Underhill, practising in College Green, who Latinised his surname into Subtermontanus, published in 1703 a collection of cases³ which had received benefit from the use of the water, and the records of which had been kept at the Well-house. The epistle dedicatory of his book is addressed "to the Right Worshipful Sir William Lewis, Knight, The Present Mayor, and to the Worshipful the Aldermen and Common-Council of the Well Govern'd City of Bristol," whom Underhill considered to be "an Archetype or Pattern for other Corporations." The water he considered to be "the true *Medela* in that fatal Dejection by Urine and dispiriting, the *Diabetes*, as appears by the *Autography* in the *Hot-Well* House." Underhill's picturesque style is sufficiently represented by his narrative of the classic and historic case of the Bristol baker whose recovery about the end of the seventeenth century from diabetes is recorded by so many of the writers on the Hotwells:

"Mr. William Gaggs Case of Bristol Castle-Green, a very Fat Man, at his Prime, aged thirty eight; he was seiz'd with so violent a *Diabeth*, that he made at least three gallons of very sweet Urine with a large quantity of Oil swimming

¹ ["*Tabid*. Wasted by disease; consumptive."—Johnson's *Dictionary*.]

² *Op. cit.*, p. 307. ³ *Thermologia Bristolensis*.

thereon every Night, and could not sleep for either Drinking or Pissing, which in Six Days (his Appetite gone) so run off his Fat and Flesh that he was reduc'd to helpless Skin and Bones, left off by his Physicians (not sparing any Money) and given over by his Wife and Friends for a dead Man (several of his Neighbours then dying of the same Disease, not knowing the Water's Use) resolutely cast himself on God's Mercy and the *Hot-Well* Water (tho' ignorant of its Use) imploring his Friends to support him to the *Hot-Well*, as their last Cast of Kindness, which with Difficulty they perform'd, he fainting every Step and even in drinking the Water, yet to God's Glory and their Astonishment his Strength so came to him every Glass that he made them loose him, pretending to walk, which his Spectators despair'd of and believ'd not, tho' he return'd home without Assistance only aided now and then with a Sip of His Holy-water Bottle, his Trusty Friend at a dead lift, the *Hot-Well* Water, which instantly vanquish'd his insatiable Thirst and stopt his Pissing, and so restor'd his deprav'd Appetite, that at his Return Home he eat a large and savoury Meal and by drinking the Water for some-time perfectly attain'd his former State of Health, in all Respects, living many years after."

If this satisfactory result was obtained by a single visit to the spring as seems to be implied in the record, it would have been well calculated to establish the reputation of the Water. Such a recovery would make Lourdes envious. Later historians relate the case with some variations. The intimation is represented by them as coming to the sick man in a dream; but Underhill, who I think is the first narrator of the case, says nothing of this. He gives the names and addresses of several other people who were said to have been cured of diabetes by the Hotwell water, the value of which had so impressed him that he says: "I'll advise such of the Poor that apply themselves to me on the *College-Green Gratis*; and to the rich that desire it *pro Nummulis*,

Qui caput, & stomachum supponere fontibus audent.

Hor. Lib. 1. Epist. 15."

Perhaps his local connections disqualified Underhill from being an impartial judge; in any case it is difficult to take him seriously when he says that the waters will "Extinguish the devouring Flame in all *Synochi* and *putrid* if not *malignant* and *nervous* Fevers: it's *Instar OMNIUM*, and the last and only Subterfuge in *Hecticks* and *Dyscrasy* of Humours; it's of most

excellent Merit *a Capite usq; ad Calcem* in all *Cephalick* Cases and *Ataxy* of the Spirits, and *Palsies* and other Impotencies." For external use it is a "trusty Assylum in all left-off incurable *Ulcers*, *Fistula's* and eroding Sores, if not *Cancers*."¹

In 1706 Dr. Benjamin Allen instituted some experiments on the qualities of the water, and in *The Natural History of the Mineral-Waters of Great Britain*, published in 1711, he declared it to be "worth trying in Diabetes and where Warmth is useful, and Steel not proper, to make a Constitution firm, as in most Phthises of the Lungs, and wilting² Decays; and perhaps in common Hypochondriacal Cases."³ Allen's analysis produced results which differed from those of Venner and of Guidott. He examined several samples, and in each of them he found that the water gave "a light Golden Yellow and clear with Nutgall, and a bright Claret-red from Logwood boil'd in it. It had so much Acidity, as not to bear Soap; no Liquor disturb'd it by Precipitation or Thickning; it is plainly from a Steam." He goes on to say: "For Matter that enriches it with this Steam; I considered the Rock from under which it proceeds, which is high and large, and this affords Marble in several Places, but near the Spring, a Stone which they burn for Lime; and in some parts a Stone, known by the name of *Bristol* Stone, being a sort of hard Sparr, where the Rock is stain'd with red. The Water not containing a Calcarious Salt, I examin'd the Sparry red part as likely to shew me the Mineral, which with, and without burning, I boil'd in Vinegar, and in the same Distill'd, and extracted a Tincture, as Chymists speak, or enrich'd the Liquor with a taste like white Vitriol, but not very full, tho' plain enough, and which with Nutgall, like that, turn'd a dirty-black: It seems to me to be a Product of Iron and Limestone. The Warmth, since the Rock only lets it out at the Side of it, and is so gentle, may be no Proof of a Sulphur. It appears that the Water contains not any gross Part, or Body of any of the Minerals, or Limestone, and is far enough from Lime VVater, yet

¹ Some of this is quoted by Randolph, 1750, p. 24.

² ["Wilt, *v. i.* To droop, lose energy.—*v. t.* To render limp or pithless. (Cf. Ger. *welk*, withered.)"—Chambers's *Twentieth Century Dictionary*. 1901.]

³ P. 98.

hath a Vital Effect, plain enough in the Diseases that Lime-Water is us'd in; that the Medicinal part consists in a Gas, or Steam, and Impress from the Mine, whether the Minerals have any considerable Share in the Specifick Effects; whether the Aporrhoe¹ be stronger, according to the Firmness of the Stone; whether a Gas from the Iron be necessary, I leave to further Enquiry."²

In 1712 the water received a favourable notice from Sir Robert Atkyns, the historian of Gloucestershire, whose father was Recorder of Bristol from 1662 to 1682. He refers to "the Hot Well, famous for curing divers distempers, especially the diabetes," and to "a very cold stream at Jacob's Well, which is much esteemed for its wholesome waters."³ In a communication presented to the Royal Society in 1723,⁴ Dr. Edward Strother records his "Experiments on Bristol Waters," and concludes that "they are aqueo, salino, alcalino, cretaceo, aluminoso, cupreo, vitriolick, and their effects seem to confirm these experiments."⁵

In a work⁶ published in 1725 Dr. J. Wynter recorded what he professed to be a comparison between the waters of Bath and Bristol, the latter of which he believed to consist "principally of *Chalk*, *Lapis Calcarinus* and *Calaminaris*, and some lixivial Salt." Much of this is given in a very dogmatic form, as may be seen in the quotations given by Randolph in his *Enquiry*.⁷ Wynter's views are summed up by Nott in his 1793 book⁸ as looking upon "Bath water as a stimulant, Bristol water as a sedative." Randolph and Nott were both astonished that Wynter considered the water to be of service in dropsy.

Among the visitors about this time were the Duchess of Marlborough, the Duchess of Kent, Lady Diana Spencer, Lady A. Grey, Lord Romney and Sir D. Bulkeley. That the water was in general request is shown by an advertisement which Mr. Latimer, whose three volumes of *Annals of Bristol* are a store-house of accurate information, quotes from the *London Weekly*

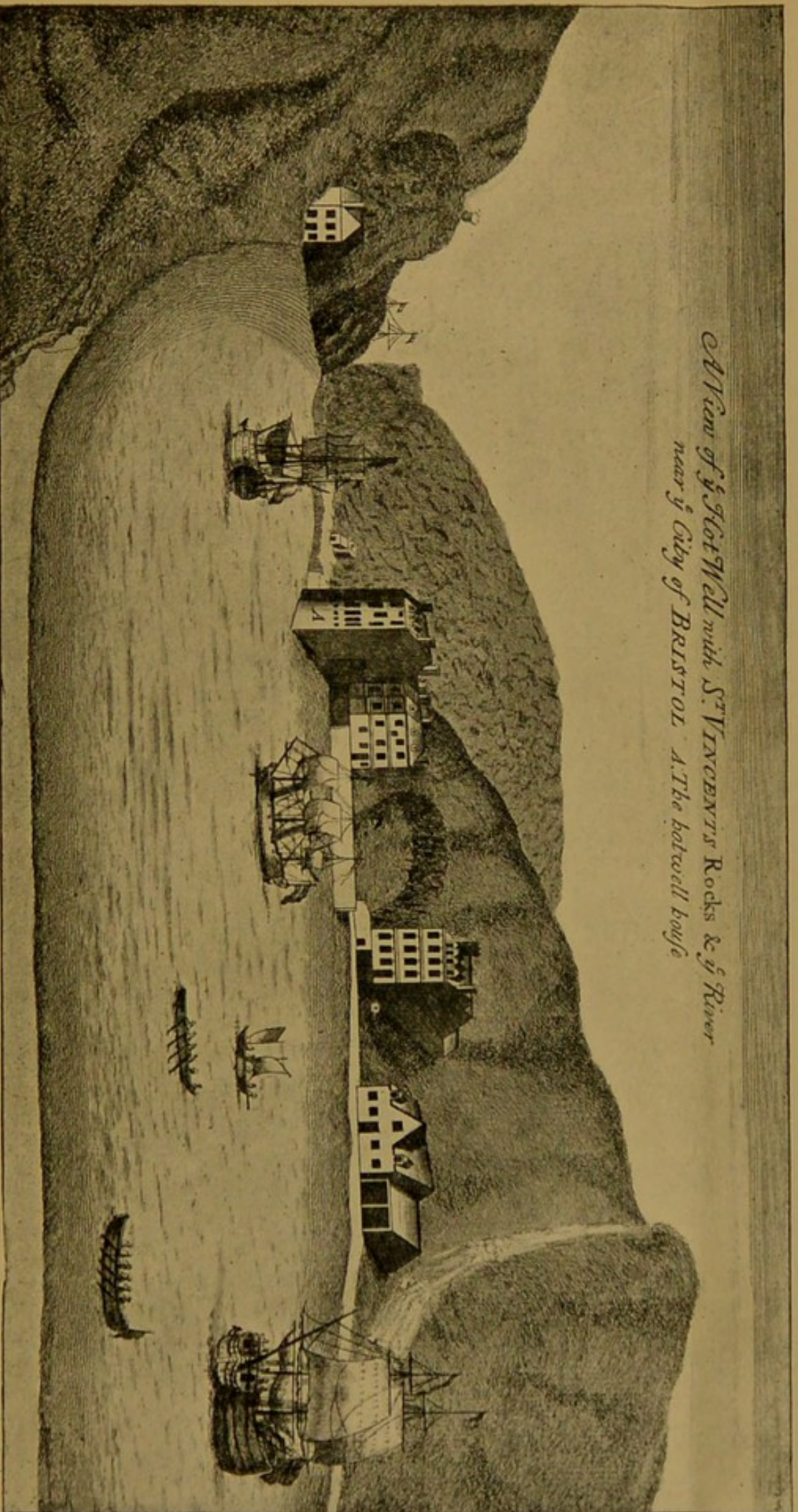
¹ [*"Aporrhoe, a flowing down, or issuing from."*—Bailey's *Dictionary*, 1726.]

² P. 42. ³ *The Ancient and Present State of Gloucestershire*. Second Edition, 1768, p. 187. ⁴ Mr. John Latimer's *The Annals of Bristol in the Eighteenth Century*,

1893, p. 139. ⁵ *Gloucestershire Notes and Queries*, 1884, ii. 240. ⁶ *Cycclus*

Metasyncriticus. ⁷ Edition 1750, pp. 26-8, 147. ⁸ *Of the Hotwell Waters, near Bristol*, p. 18.

*A View of y^e Hot Well with S^t VINCENT'S Rocks & y^e River
near y^e City of BRISTOL. A The hotwell house.*



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by
I I D Wilstar

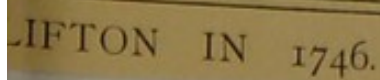
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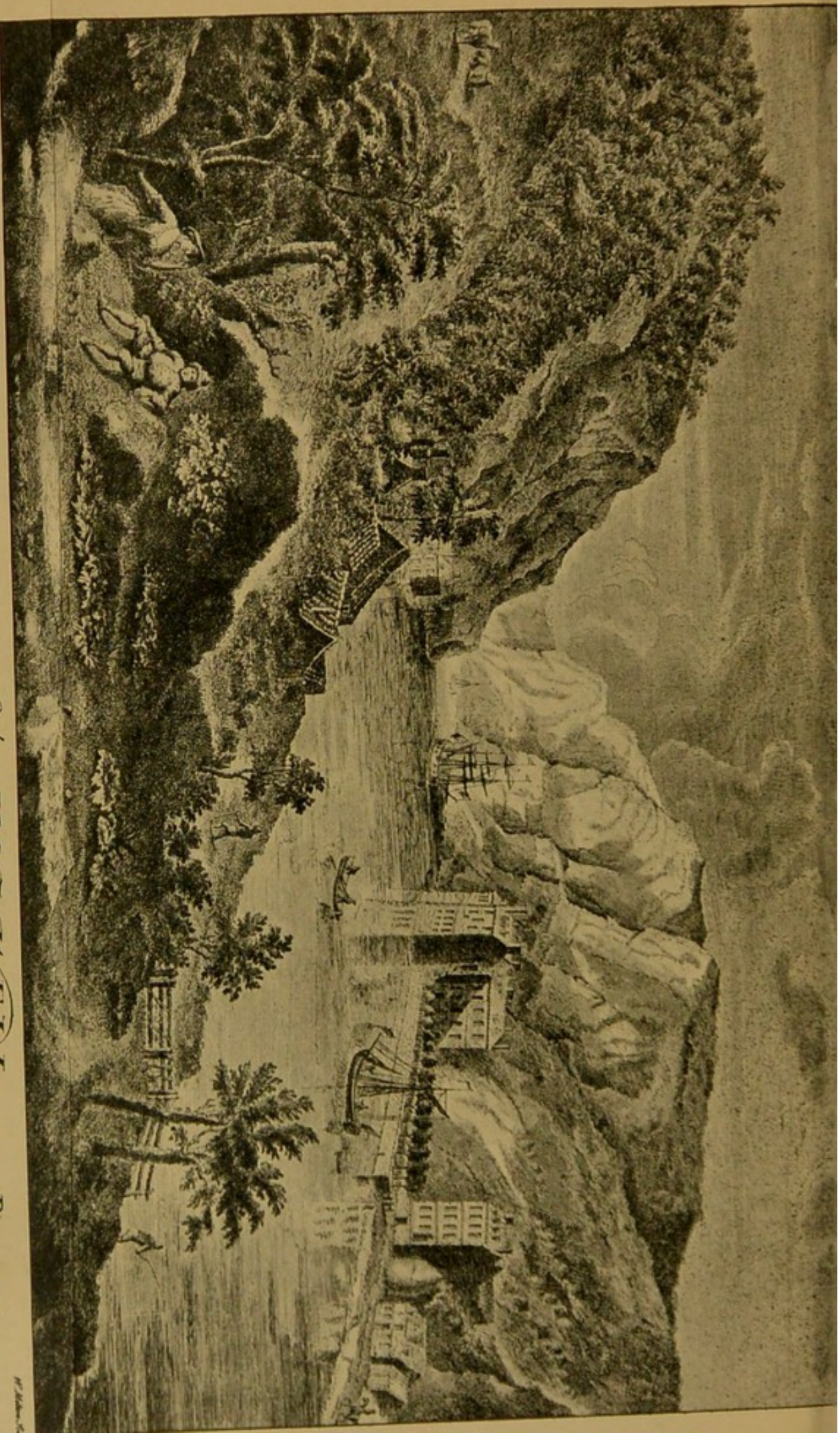
Leigh Wood

River Avon

Vincent's Rock

Bath





Engraved by J. Smith

The NORTH-EAST PROSPECT of the HOT-Well near BRISTOL
— ex hoc fonte salutare —

Published May 1st 1795 according to Act of Parliament.

Journal of 30th April, 1726: "Bristol Hot Well water. Fresh from the wells, will be sold and delivered to any part of the town at six shillings per dozen, with the bottles, from Mr. Richard Bristow's, goldsmith, at the Three Bells near Bride Lane, Fleet Street. . . . These bottles are of the largest size, and by the extraordinary favour of the winds arrived but the last week in eight days from Bristol, the common passage being a month or six weeks." Dramatic performances for the amusement of the visitors were given in the Long Room, a building now used for a National School, and one of the representations of "The Beggars' Opera," in 1728, "was attended by 200 persons of the first rank." The actors had come from Bath, where the nobility had presented them with dresses, and it was announced that Mr. Gay would be present at the following representation. The place was, however, not free from calumniators. Richard Savage, who was buried in St. Peter's Church, Bristol, in August, 1743, had not hesitated to revile the city which had befriended him, and addressed it thus:—

"What smiles thy sons must in their foes excite!
 Thy sons, to whom all discord is delight;
 Thy sons, though crafty, deaf to wisdom's call,
 Despising all men and despised by all;
 Sons, while thy cliffs a ditch-like river laves,
 Rude as thy rocks, and muddy as thy waves,
 Of thoughts as narrow as of words immense,
 As full of turbulence as void of sense."

And Alexander Pope, who came here for the benefit of his health in 1739, has not much to say in its favour, for he declares "there is no living at the Wells without more conveniences in the winter."¹

Randolph says² that, according to Keir, who wrote in 1739, the water was "a compound of Nitre and *Sea-salt*, intimately united with a *calcarious Earth*;" but Nott,³ whilst giving Keir credit for his method, looked upon his doctrines and opinions as obsolete. Shebbeare's⁴ experiments in 1740, to show that the water consisted "of Alum and Lime-stone, or rather Quick-lime

¹ Letter to Martha Blount. *A Supplementary Volume to the Works of Alexander Pope, Esq.*, 1807, p. 367. ² *Op. cit.*, p. 147. ³ *Op. cit.*, p. 18. ⁴ Dr. Shebbeare appears in Hogarth's "Polling" roaring into the voter's ear the name of the candidate to whom he promised his vote (*Cunningham's British Painters*. Second Edition, 1830, vol. i., p. 151).

slaked," are briefly mentioned by Randolph and Nott, the latter of whom considered Shebbeare's deductions as unpardonable.

Some of the gay doings at the Hotwells in the season of 1743 are quoted by Mr. Latimer. The *Oracle* of 11th June of that year states, that on the previous Wednesday the Earl of Jersey gave a breakfast at the Long Room to 150 persons of high life, and that the Hon. Mr. Ponsonby offered a similar entertainment two days later. Public breakfasts, followed by a dance, were given once or twice weekly, and there were also evening balls, and in imitation of the familiar places of amusement in London, "a piece of ground near the Long Room was opened for evening dances, under the name of the New Vauxhall Gardens, the place being gaily illuminated."

The well-known *Enquiry into the Medicinal Virtues of Bristol-Water* by Dr. George Randolph of Bristol appeared in 1745. Randolph's book was the most ambitious and in many ways the most sensible of all the works that had up to his time dealt with the medical uses of the Hotwell water. He was much struck with "the many notorious Contradictions" of the writers who had preceded him, contradictions sufficiently obvious in the quotations I have already given; and freeing himself from the chemical mystifications of which they were fond, and considering that "Chymical Analysis" is by no means the proper method of procedure, and leaving it to subsequent investigation, looked at the effects of the water from a practical point of view. He doubts Venner's powers of diagnosis, is quite positive that it was not "good against the Spleen,"¹ thinks Guidott was much mistaken about the complaints for which the waters were suitable, ridicules Underhill's records in which the cases were signed by the patients and recognises "what a Medley of Conclusions may arise, when People are left to tell their own Case," and freely criticises all previous advocates of the water. Judged by the medicine of to-day, Randolph may perhaps be condemned with the others in being too easily led to think that many of the patients with serious diseases got well by virtue of the water rather than, as was undoubtedly the case, in spite of it; for his own opinion concerning it was :

¹ This is in opposition to the statement in Fuller's *Worthies*, quoted above.

"The *first* and principal Virtue is, that of tempering the bad Effects of hot acrimonious Blood; generally preventing, often curing, Inflammations and Hæmorrhage from this Cause; but more especially those of the Kidneys, Womb, and Lungs.

It has, *secondly*, been found of great service in Gleet of both Sexes, and other seminal and uterine Weaknesses; but it is more particularly famous for a Diabetes, in which it is deemed a Specifick.

Thirdly, It is a sovereign Remedy in a hectic Fever: It is a notable Preservative against the Stone, not only preventing Gravel from gathering, but powerfully discharging it when gathered; and is a friendly Drink in all inward Ulcers, but more especially those of the urinary Passages."¹

The value of the spring is then considered under the heading of the several complaints in which it had been found beneficial. Randolph's examination of the water, which he records with great detail on many pages, led him to conclude "that *Bristol Water*, and *Lime-water*, are two different Things," and that the Hotwell water was "a most pure light Water, as free from Recrements³ as any Water whatsoever; which appears from its carrying uncorrupt round the whole World, and receiving no Alteration, as other Waters will, from hot Climates;" and that its virtues did not "depend upon any Imprægnation of the Water, but upon *imprægnated Air*, which it is very full of, as may be observed at the Pump, by the numerous Air-bubbles that are in it." Dr. Randolph, believing that in great measure he owed his life to this water, offered his book "as a *tabula votiva*, given out in Acknowledgement of the Escape" he had had, and he says in words that may be commended to many an intending author of to-day: "I know the World too well, to commence Author out of Interest; nor am I Fool enough to have any Vanity this Way."

Mr. Latimer records⁴ that in 1745 on one of the country journeys to some of the city property "the officials provided themselves with a quart of rum and several gallons of wine, but

¹ Pp. 30-1. The quotations are made from the 1750 edition.

² Pp. 157, 173.

³ ["**Recrement**, any superfluous thing, as dross, scum of mettals, dregs, or dross of perfume, that which is cut or pared away."]—Blount's *Glossographia*, Second Edition, 1661.]

⁴ *The Annals of Bristol in the Eighteenth Century*, 1893, p. 255.

their stock also included 'six bottles of Hot Well water,' which cost 1s. 6d."

The office of Poet Laureate has been held by many people whose names are well-nigh forgotten. One of these extraordinary creatures, William Whitehead, who received the appointment upon the death of Colley Cibber in 1757, after it had been refused by Gray, had six years before published an allegorical "Hymn to the Nymph of Bristol Spring," belauding the water in the most extravagant manner. It covers eighteen pages in the 1774 edition of his *Plays and Poems*. The author considered the neighbourhood to combine all the beauties of the several English health-resorts which he names.¹ Three years after the date of this poem there is much documentary evidence of the popularity of the Hotwells,² which is quoted in detail by Mr. Latimer. Keepers of fashionable shops at London and Bath opened branch establishments here. It is gratifying to our local pride to learn that in a literary direction Bristol set an example to Bath, where a shop was opened for ladies to read the newspapers "as at the Ladies' Tea Room at the Hotwells, at half a crown the season." In Owen's *Observations on the Earths, Rocks, Stones and Minerals for some Miles about Bristol, and on the Nature of the Hot-Well, and on the Virtues of its Water*, 1754, the statement is made that "no price is paid for the water: all the expence that attends the drinking of it, is, that every one, when he goes away, makes a present to the master, and a trifle to be divided amongst the servants."³ In the same year some interesting light is thrown on social customs,

¹ Addressing Avonia, he says that the poets who seek inspiration in foreign beauty are to be blamed, "Thine is all beauty; every site is thine." The poem was favourably reviewed in the *Gentleman's Magazine*, January, 1751.

² Four of Shakspeare's plays were performed at the Jacob's Wells play-house in 1749. (*Gloucestershire Notes and Queries*, 1884, ii. 329.)

³ P. 134. Of the works which deal with the Hotwells, Owen's book is one of the most interesting I have seen. Amongst other things he says:—

"The people in general are obliging more than in almost any other place I know. Every fine *Sunday* indeed the place is all day long like a fair, vast numbers coming from *Bristol*, and all round, to drink the water; but these go in a back way, and do not interrupt the better sort of company." (Pp. 125-6.) He says that the principal amusements for gentlemen are the river and channel excursions and rides on the Somersetshire side of the river, but of these ladies seldom partake. Their diversions are pretty much confined to the Pump-room

or we are told that "Elizabeth Trinder, from the Lebeck's Head Tavern, Bath, has opened a house at the Hotwells for the reception of company as a tavern or eating-house. An ordinary everyday at three o'clock, at half-a-crown a head . . . the house being the first of the kind attempted here." The house which was called 'The Lebeck' still bears the name, but during recent years it has been used by the Government as a Recruiting Office. A year later the Hotwell water was affected by the Lisbon earthquake. It became discoloured to such an extent that people thought the end of the world was upon them, and "flew to the churches, where prayers were offered to avert the apparent approach of their destruction."

In 1756 Dr. Charles Lucas published *An Essay on Waters*, in which is a section "Of the Baths, or Hot-well Waters, near Bristol." After a description of the charming scenery of the neighbourhood, he gives an elaborate comparative analysis of the three springs which had achieved a reputation more than local. These he calls the Old Hot-well, the New Hot-well, and the Mill-spring.¹ Mr. Latimer traces² the fortunes of the "new" Hotwell spring, at which John Wesley, in 1754, was a visitor because he preferred it to the "noise and hurry" of the older spring. The Mill-spring on the other side of the river furnished a cold supply, and was doubtless that copious flow which has been recently diverted. Lucas was led to his analytical view because there had been "great and irreconcilable diversities of opinion about the nature of the Bristol and the Long-room. But some take great delight in riding upon Durdham-Down, and the best lady attending the Hot-well will not refuse riding behind a man, for such is the custom of the country, and numbers of what they call double horses are kept for that purpose. Owen says that at Bristol it was seldom necessary to drink the water under medical advice, as it was at Bath. Plainly speaking about doctors, he adds: "It were well if those gentlemens fees were all the ill that sometimes attends their officious service." (Pp. 135-6.) For medical men the fashionable life at the Hotwells does not seem to have been a very good thing: "Excepting for now and then a prescription for a bottle of drops to an old lady, or some salts to a fine gentleman who wants to soften his complexion, the doctor seldom picks up many guineas." (P. 136.)

¹ The sites of all these are shown on the 1746 plan.

² *Op. cit.*, pp. 265, 463-4.

Hot-well water." His labours were intended "to compose and solve these doubts," and he introduces his conclusions by saying "Let such nameless authors rest in peace: let us come to facts." These facts he considered were sufficient to justify him in saying "A summary of the impregnation of these three waters, is this: first, the common base of the composition, simple water; by exhalation from decomposing pyrites, at a certain distance, impregnated with some of the grosser, but more of the subtilised, universal acid, and also by those, heated to the degree, set forth. Secondly, water thus charged, meeting with an alkaline and calcarious earth, with some proportion of the mercurial principle, it is not difficult to conceive how the impregnation, we find, should be produced. 1. The grosser, with the volatile acid, meeting with an alkaline earth, or the mineral alkali, give the vitriolate salt discovered in these waters. 2. These acids, with the mercurial principle, and the alkaline base, constitute the sea salt, observed in them. And, 3, these acids, meeting with, and dissolving, absorbent earths, must yield a calcarious earth and a selenite upon evaporation. Agreeable to this theory it is, that these waters appear, by our experiments, to be thus impregnated. And from these principles, their principal virtues are to be adduced."¹ Except in conditions "such as hectics, diabetes, &c." where a water of the particular temperature of the old spring was necessary he preferred "the simple neglected Mill spring."

A Methodical Synopsis of Mineral Waters is a portly quarto of 660 pages which Dr. John Rutty issued in 1757. He deals with the Bristol water mostly from the point of view of analysis for the purposes of which he used samples from the stock which was on sale in Dublin. He records his results with great exactness, and gives also summaries of the methods employed by other experimenters. The water was not "the product of a calcination by a subterraneous fire." Rutty quotes various writers on the use of the water in disease.

In 1758 Dr. A. Sutherland of Bath published a work² on the Bristol water, in which he is very severe on Randolph, who in

¹ Part iii., p. 366.

² *The Nature and Qualities of Bristol Water.*

his opinion was unduly depreciatory of the records upon which Underhill based his observations; he condemns Randolph's "errors and absurdities" and thinks him entitled to the advice contained in the lines—

"Launch not beyond your depth, but be *discreet*,
Mark well the point where Sense and Dulness meet."

Dissatisfied with all previous analyses, he subjected the water to a searching independent examination with the assistance of his friend, Dr. Baylies,¹ the "Master of a neat experimental Apparatus, as well as a cabinet of the *Materia Medica*, which might claim a place in any University, and which the Owner not only possesses, but also understands." These experiments are recorded at great length and the sum of them is given in these words: "1. That those who have deemed *Bristol Water* to be a simple elementary Fluid, have founded their opinion merely upon ignorance. 2. That those who have charged them with *Iron, Nitre, Alum, Vitriol, Sulphur, Lime, &c.*, have either grounded their Opinions without Experiment, or have erred in their Analysis," and he affirms positively that the Bristol Waters are efficacious because "they contain: 1. The Spirit. 2. The pure Element. 3. A Vitriolic Acid. 4. A Marine Acid. 5. A Neutral Salt. 6. An Absorbent Earth."² Sutherland then considers these separately, defining the first as "its subtile *Æther*." He then says the greatest part of the virtue of some medicinal waters is owing to the "pure element." In this perhaps most modern observers would agree with him. But then, apparently quoting from Baylies's observations, he declares that the chief, perhaps the sole, effect of the Water is due to the "Volatile Vitriolic Acid," an exhalation which is said to be continually breathing up from the Vitriol Stone which abounds in the bowels of the earth. The "Marine Acid," more easily recognised as common sea salt, is said to blend with the vitriolic acid, and the two together "remarkably resist putre-

¹ An interesting insight into Bath medical life is given in Dr. Baylies's *Practical Reflections on the Uses and Abuses of Bath Waters* . . . to which is added . . . *A Narrative of Facts relative to the Physical Confederacy in Bath*. 1757.

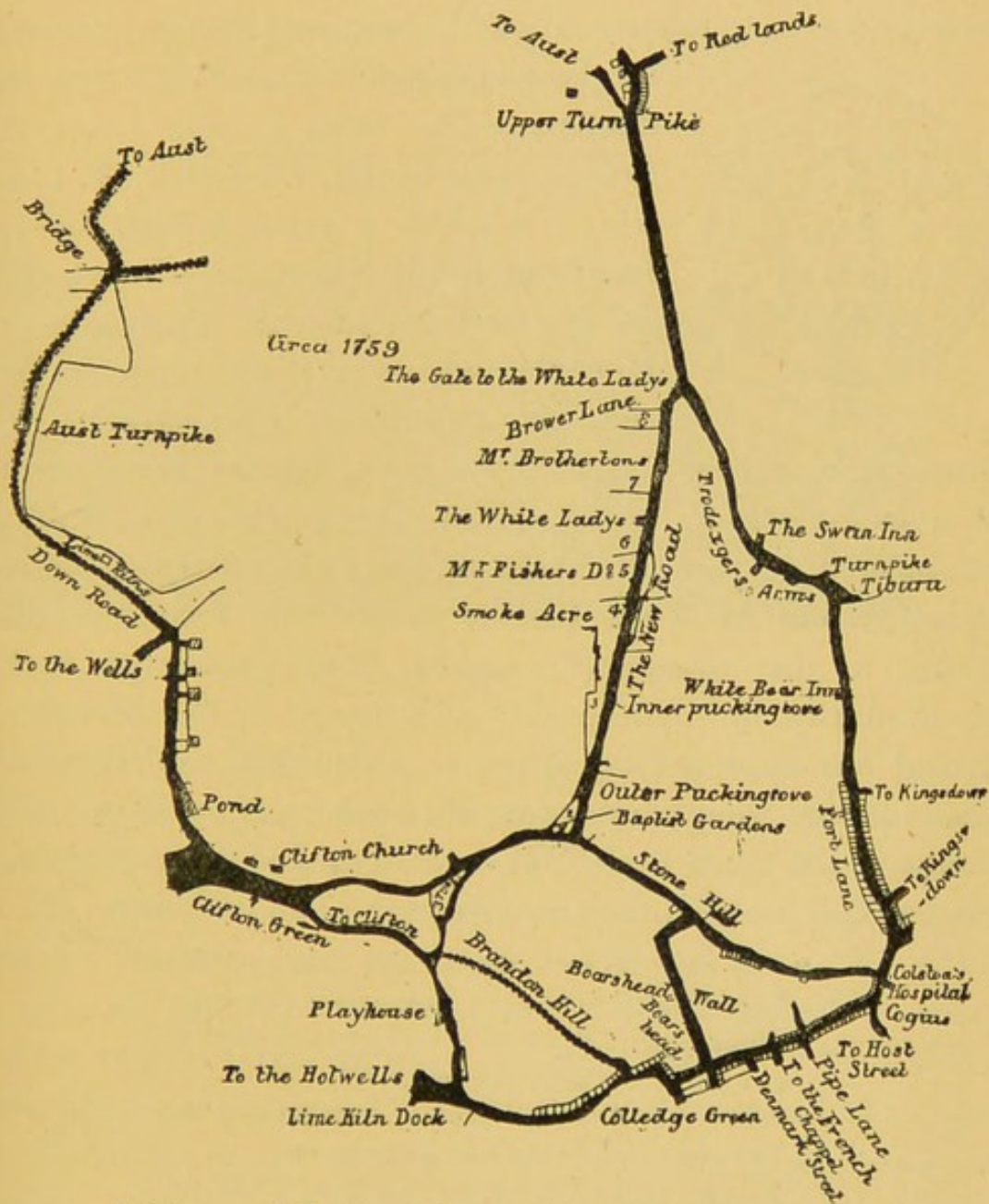
² *Op. cit.* A New Edition, 1788, pp. 63-4.

³ *Op. cit.*, pp. 72-96.

faction, and subdue those fevers which are the consequence of Pus absorbed and carried through the *circulation*." The "simple Calcarious Earth" which was found was said to render the Waters safe and wholesome, and to give them the "property of correcting Acidities in the first passages," and this was sufficient to account "for those cures, which they daily performed in obstinate Fluxes, Gleet, and Female Weaknesses." Sutherland was careful not to promise too much from the use of the waters; "he who expects to find relief at this spring, must submit to a long course of attendance, he must arm himself with a stock of patience and perseverance. To these he must join temperance of every kind."¹ The good results were in constant danger. "The practice of drinking tea twice a day, or even once, is absurd, it answers only one purpose, that of rendering the virtues of the Waters less effectual."² Sutherland believed that "infection" and "translation of morbid matter" often produced consumption, a disease in which the water had proved to be a remedy both easy and effectual, and he had found it useful not only in hæmoptysis but in many other hemorrhages. As a cure for diabetes, "none bids so fair for the name of a *Specific* as Bristol Water,"³ and he narrates how each of the constituents into which he had resolved it played its part in performing this wonder. Sutherland ends his 151 pages with a long list of other diseases, in almost all of which "it will relieve, where it cannot cure." Sutherland came to the conclusion "that as Mineral Waters in general, so Bristol Waters in particular are of such Efficacy, for the *preservation* of health, as well as the *cure* of Diseases, as in the highest degree, to exceed all *Shop Remedies*, and that they approach the nearest in nature to what has vainly been searched after, An Universal Medicine." In reference to the general attraction of the place, Sutherland states that "provisions of all sorts, are to be had in plenty, during the Summer, which is the season allotted, by custom, for drinking these Waters. Garden Stuff is early, and excellent. There are Lodgings near the Wells, convenient for such as are real Invalids; there are magnificent Lodgings in the beautiful village of Clifton, on the top of the hill, for

¹ *Op. cit.*, p. 122.² *Op. cit.*, p. 123.³ *Op. cit.*, p. 142.

such as have carriages, and whose lungs can bear a keener air. There are *Balls* twice a week, and *Card-playing* every night."¹



4.—Clifton and Redland Roads, from MS. plan about 1759.

The impartiality of this Bath physician² is shown by the plea he urges for improvements in order to make the advantages of the place more accessible to visitors.

¹ *Op. cit.*, p. 17.

² Those who are curious to see the style of criticism in vogue about the middle of the eighteenth century should turn to the *Cursory Remarks* of Lucas when considering Sutherland's method of investigating the Bath and Bristol waters. Continental opinion about doctors assumed an anti-British form, and Lucas says that the scandalous practices charged upon many practitioners in Bath and Bristol were only too true, and he gives a long list of the devices which were used to obtain and retain patients. He designates Sutherland as "a man of parts and letters, who has written a larger volume than any of his Contemporaries, which at Bath is the sure test of his being the greatest man,"

There was still great demand for the water from a distance. It was kept on sale, wholesale and retail, by Fairly Jones at the Golden Wheat Sheaf in Tavistock Street, Covent Garden, who stated that the stock was "constantly fresh and certify'd



5.

by the Proprietors of the Well." A reproduction of the label is here given, taken from a book by Dr. Diederick W. Linden, which reached a third edition in 1759.¹ Dr. Linden, who very kindly kept a watchful eye over his patients who came to the Hotwells, where he spent a portion of the summer with them, remonstrated in the

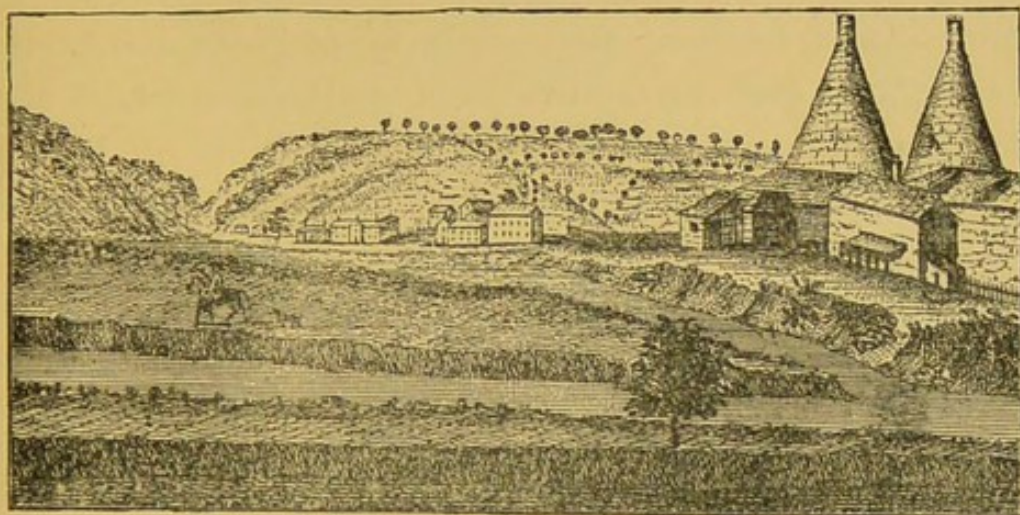
Gentleman's Magazine in August, 1761, against the evil effects of a lead-smelting house which five years before had been established on the other side of the river nearly opposite the Pump Room of what Linden calls "the second medicinal spring in the kingdom." Linden was considered so great an authority on hydropathy that some of his friends celebrated his attainments in verse which his modesty did not preclude him from printing in his book. Amongst the fulsome things which have been said or written about individuals, this extract will unanimously be accorded a bad eminence:—

"And when no more these *Earthly Streams* afford
That Health to him, to others they restor'd;
When *Galen's* Sons shall his sad Loss deplore;
His Skill, in Consultations, reap no more:
When the *Castalian Nymphs*, in mournful Tale,
The *Universal Friend's* Departure wail;
Seraphs, to deck them, and emblaze his Fame,
Shall o'er the Skies bespangle LINDEN'S Name;
In glittering Characters, it there shall shine,
A *Constellation* in the *Watry Sign*:
While, bath'd in Bliss, he wafts at full Content,
In *Heavenly Streams*, above the Firmament."

adding that "the learned gentleman, from pure patriot principles, contends for Sulphur in Bath Waters; well knowing, that since *Solomon* the son of *David* sat upon the throne of Britain, there never was a time, in which there was so great a necessity of having England plentifully stored with Brimstone, as those happy days, in which our Author flourishes." In reference to Sutherland's views about the Bristol water Lucas says very little, pouring out the vials of his wrath upon Sutherland for his opinions on the springs of Bath, "where the Faculty arrogate to themselves more infallibility than the gentlemen of the profession do any where else." (Pp. 5-9.)

¹ The first edition appeared in 1748.

This was written by William Oldys, who was Lord Oxford's librarian. Linden appears with a very thin disguise in Dr. Smollett's *Humphrey Clinker*, in which the social life of the Hotwells is viewed from very different standpoints; a good deal of the scenes of Miss Burney's *Evelina* is also laid at the Hotwells.



6.—A View of St. Vincent's Rocks about 1760.

In 1766 the Duke of York came here to get the benefit of the waters. His visit was commemorated by attaching his name to a well-known inn at the Hotwells. Mr. Latimer says that the author of *The Beauties of England*, which was published in 1767, noticed when in Bristol that the water was not only drunk on the spot at the Pump Room but every morning cried in the streets like milk, and the *St. James's Chronicle* of 1st July, 1769, said: "We hear from the Hot Wells that there is a good deal of very good company already; seldom less than 200 at the public breakfasts, with cotillons, and fuller balls than were last year at the height of the season, which is generally about the third week in July." The place was resorted to not only in the usual season; persons of independent fortune had on account of its many attractions either purchased or taken houses in order to live there winter and summer. "The inhabitants met twice a week last winter to drink tea and play at cards, which encreased its sociability." In 1771 "Stage-coaches began to ply between Bristol and the Hotwells, at sixpenny fares."¹

¹ Evans's *A Chronological Outline of the History of Bristol*, 1824.

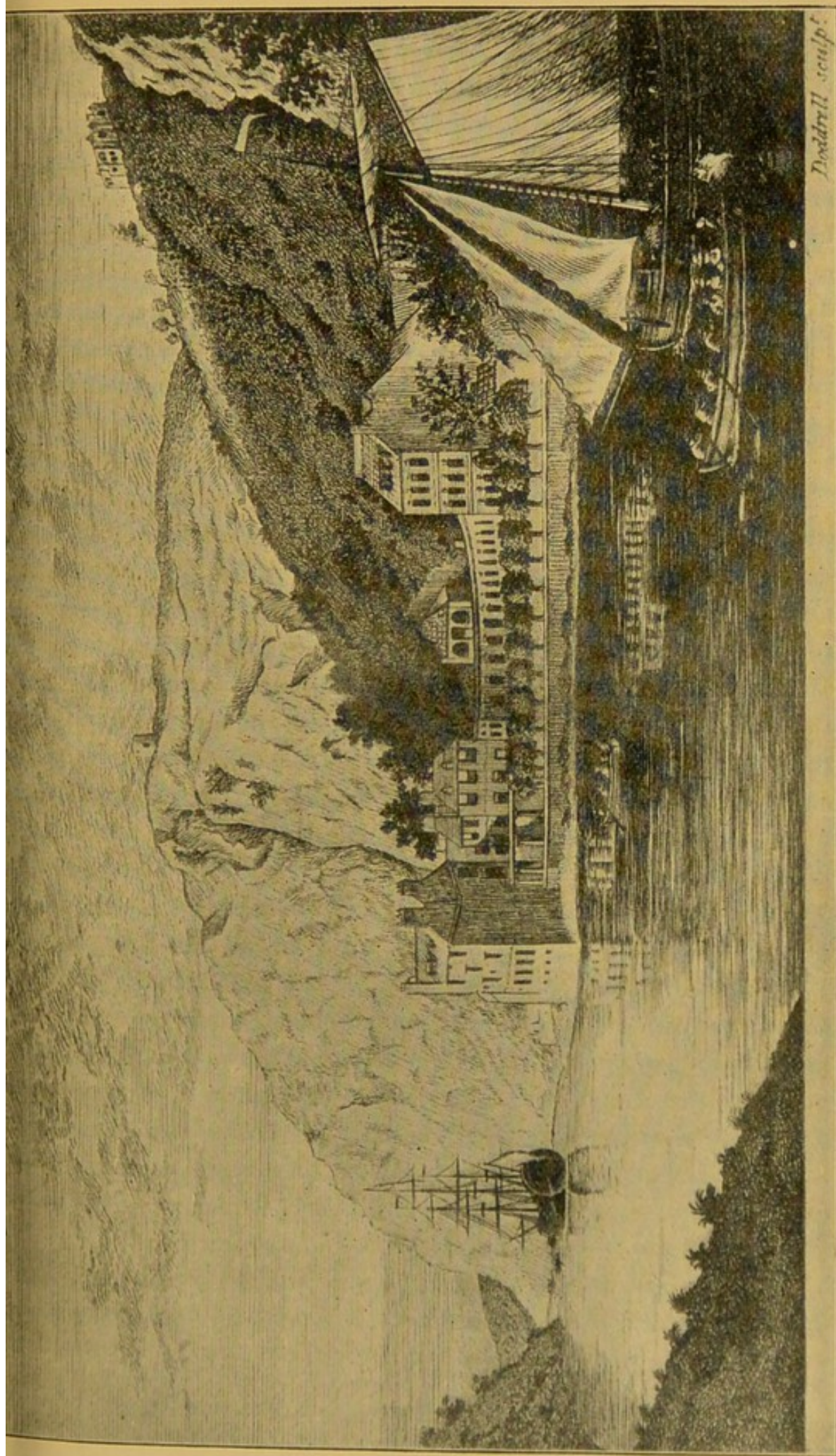
Dr. John Fothergill¹ had seen "many persons recover from pulmonary diseases after drinking the Bristol water, whose cure seemed to be doubtful from any other process." After allowance had been made for better air, change of situation and of objects, and regular mode of living in which fresh air had a considerable part, it still seemed to him "that the water drank fresh at the pump, actually contains principles conducive to the recovery of patients affected with phthisical complaints," and he considered it to be "of signal benefit to consumptive patients," and that when change of air is recommended, Bristol should first of all claim attention.

Dr. John Elliot, of London, in 1781 gave a long list² of the disorders in which the Bristol water had been recommended. He says that "the usual method of drinking the water is a glass or two before breakfast, and about five in the afternoon. The next day three glasses before breakfast, and as many in the afternoon; and this is to be continued during the patient's stay at the Wells. A quarter or half an hour is allowed between each glass. A course of these waters requires no preparation further than to empty the bowels by some gentle purge; and if heat or fever requires, to take away a few ounces of blood. Costiveness, however, should be avoided during the course."

In 1785 the exportation of the water took place with the authority of the Merchant Venturers, and every bottle sent out bore the impression of a seal which had been engraved for the purpose. There was at that time, and for many years after, much to occupy and divert the gay company by which the place was thronged. Its reputation in 1789 may be gathered from a description given by Dr. Andrew Carrick, who says: "The Hotwells during summer was one of the best-frequented and most crowded watering-places in the kingdom. Scores of the first nobility were to be found there every season, and such a crowd of invalids of all ranks resorted to the waters that it was often difficult

¹ "Further Remarks on the Treatment of Consumption, &c." *Medical Observations and Inquiries*. By a Society of Physicians in London. Vol. v., 1776, p. 345.

² *An Account of the Nature and Medicinal Virtues of the Principal Mineral Waters of Great Britain and Ireland*, p. 114.



7.—“View of Bristol Hot-Well,” about 1770.

for them to provide themselves with any sort of lodgings. About that period a considerable number of lodging letters had in the course of a few years realized very handsome fortunes, without any complaint of extortionate exactions. Three extensive taverns were constantly full, and two spacious ballrooms were profitably kept open. There was a well-attended ball, a public breakfast, and a promenade every week, and often twice a week. The pump-room was all day long the resort of invalids, who left with the keeper of the well many hundreds a year in voluntary donations, and from twelve to two o'clock was generally so crowded that there was often some difficulty in getting up to drink the water. The walk adjoining was in the meantime filled with fashionable company, to whom the sublime scenery of the cliffs was enlivened by the sounds of a band of music. The downs and all the avenues to the Hotwells were filled with strings of carriages, and with parties on horseback and on foot."¹ In *Shiercliff's Bristol and Hotwell Guide*, published in 1789, we learn that "no persons need be at a loss for amusement during their residence at the Hotwell." The river excursions are described, and in connection with them it is said "the effect of the music on the water, especially when re-echoed from the rocks, is enchanting, and inspires the most agreeable sensations." The Rev. George Heath, the compiler of Matthews's *New History of Bristol, or Complete Guide and Bristol Directory for the Year, 1793-4*,² who was greatly indebted to Shiercliff for descriptions which he obviously paraphrased, adds that "many ladies and gentlemen, cross the River at *Rownham* Ferry and walk to the sweet and wholesome village of *Ashton* to eat strawberries or raspberries with cream: a delicious and salutary repast." After the public breakfasts there were cotillons and country dances, and for these and the balls, which were held every Tuesday, there was a Master of Ceremonies.

The reputation of the Hotwell water was at this time so great as to become itself a danger, for as a last resource consumptive

¹ *The Annals of Bristol in the Nineteenth Century*, 1887, p. 71.

² A facsimile edition of this was published by Messrs. John Wright & Co. in 1898.

patients in a dying state were often sent here. Echoing a warning note first sounded by Owen in 1754, in reference to this practice which was so likely to affect injuriously the credit of the place, *Shiercliff's Guide* says: "We do not wish to cast any reflection on the gentlemen of the faculty whose advice they have consulted, but we are afraid it is too often a practice with them not to part with a patient, whilst they have the least probability of success; when they find their art ineffectual, and the case desperate, then and not till then, the physician consigns his patient to the Bristol Hotwell to try the effect of the water, by which he avoids the imputation of their dying under his hands."

In 1793 Dr. John Nott, practising in Dowry Square,¹ compiled a little treatise for the use of the various visitants at the Hotwells, which reached a third edition after 1802, but he does not "dwell on analytical minutiae, which are alone interesting to the chymist." Nott devotes a section of his pamphlet to the hot spring which had been newly discovered on Clifton Hill. The water, raised by a fire-engine, proved convenient to the invalids who were beginning to occupy the residences provided for them at the top of the hill.² Nott came to the conclusion that the water came from the spring that supplied the old wells. In relation to the present campaign against tuberculosis, it is interesting to learn from Nott

¹ The *Bristol Directory* of 1799-80 gives his address as 1 Chapel Row, which would be considered part of Dowry Square. It was the house occupied by Elizabeth Trinder in 1754 (see page 15, and *Bristol Directory*, 1809).

² Lady Hesketh, cousin of the poet Cowper, wrote, on September 16, 1799, concerning "this most charming place Clifton Hill, which is just now a high beauty; The Woods which Crown these charming Rocks being as green as in June, and the Verdure of the whole country *Intense!* I think you would be greatly charmed and delighted could you see the sweet sublime yet peaceful Views, which I enjoy from every window in the house, for tho the Bristol people have done all in their power to ruin the Rural beauty's of Clifton Hill by the number of abominable Buildings they have erected all over it, yet *Nature* has been so profuse of her bountys in the disposition of the Ground and the happy Combination of wood, water, Rocks, &c. that it is always preferable to any other place." (*Letters of Lady Hesketh to the Rev. John Johnson, LL.D.*, 1901, p. 91). When Lady Hesketh was here in 1796 she found that "the Sweet and pure air of this Enchanting Spot had greatly taken off that constant Hectic fever which had hung upon her so long" (p. 50).

that "how far consumption is catching agitates the mind of many a friend attendant on the unfortunate. As I do not consider the matter of suppurated lungs as a specific contagion, so I think it cannot positively be communicated. Whether the air of a room be contaminated with the purulent effluvia of pulmonic ulceration, or of a suppurating sore of any other part of the body, it will be equally injurious to the health of attendants; and as such attendants are most often relatives of the sick, and possibly predisposed by inheritance to the same disease, so they more readily than others may have their lungs affected by the effluvia of matter. Perhaps also matter breathed from the lungs may be more largely and intimately diffused through the air, than if it exhaled from an open ulcer, and was simply absorbed; hence it affects with greater facility. Were the matter of consumption a specific poison *sui generis*, a mortality must frequently prevail amongst our Hotwell nurses."¹ Nott considered that the utility of the Bristol water in phthisis was owing to the fact that "the terrene matter corrects all acidities of the primæ viæ; it absorbs all acrimonious humours of the habit; prevents their accumulation, and erosion of the blood-vessels, so as to create hæmorrhage; in which their native stypticity has also its effect; it involves the saline particles, enabling them to pass through the larger tubes of the body without effect, till they arrive at the smaller canals, where this terrene matter, unable from its grossness to pass, quits them; and the salts then act with their destined efficacy," and that therefore the water "prevents, or even resolves those scrofulous obstructions of the infinitely minute glands of the mucous membran of the lungs, which possibly constitute tubercles. It corrects the septic matter of their suppurations, and carries it innoxious out of the constitution. It prevents the hæmorrhage, when the sanguiferous system of the lungs is eroded from matter, or when ruptured from an increase of circulation there determined. And lastly it restrains the night sweats, and mitigates the fever."² But both in phthisis and diabetes, wherein it is of approved efficacy, concomitant aids must

¹ *Of the Hotwell Waters, near Bristol*, 1793, pp. 73-4.

² Pp. 64-5.

not be neglected. The general scheme of regimen which Nott laid down as necessary in the treatment will be seen in what he describes as

THE INVALID'S DAY.

At six in the morning take asses' milk, diluted, or otherwise. Rest about an hour after it in bed; should perspiration ensue, which is frequently the case, rest rather upon the bed, lightly clad. Rise at seven, or earlier. Be at the Wells by half past seven, there take the first glass of water; and, having walked in the open air, if the weather permit, otherwise under the colonade, for twenty or thirty minutes, take the second glass. Ride on horseback, or in a carriage, from eight to nine. Breakfast, and the private avocations of the morning will engage till—Twelve, when a customary medicine is to be taken. At one go to the waters, and drink two glasses in the same way as in the morning. From half past one ride on the downs, or elsewhere, till four. Dinner. Remain quiet after it, or perhaps repose on a couch till six, then repeat the usual medicine. Half hour after six take tea, or such habitual beverage. At seven walk, or, should debility forbid, ride. At eight, or soon after, be returned home. At nine, or soon after, make a light supper, if accustomed to such meal. At eleven take the night medicine, and retire to rest. But this distribution of hours must be varied according to the degree of the disease, and other circumstances. Many invalids cannot rise so early as six, and will wish to be in bed before eleven; neither will they bear the exhibition of the Hotwell water twice in the day.¹

Nott is very emphatic in his praise of the loveliness of the neighbourhood, and speaks of Ashton as a village which "three miles in length, is one continued bed of strawberries." He bears testimony to the sufficiency of the amusements, but he laments "that the female invalids at the Hotwells, who are for the most part at that period of life when public entertainments have their peculiar relish, err in no one instance so much as in the indulgence of dancing; an exercise most salutary to lungs that are sound, but as injurious to those that are unsound."

Dr. Thomas Beddoes, having given up his chemical lecture-ship at Oxford, settled in 1793 in Hope Square at the Hotwells,

¹ Third Edition, pp. 94-6.

a neighbourhood in which, on account of its reputation with consumptive and other patients, he thought he might have exceptional facilities for putting to a practical test his views on the treatment of disease by the inhalation of "factitious airs." In the early part of that year had appeared his *Observations on the Nature and Cure of Calculus, Sea Scurvy, Consumption, &c.*, in which he had put forth the theory that there is "an excess of oxygen in the system of consumptive persons."¹ He therefore thought that in phthisis, and in many other diseases, the line of treatment should be by inhalation of modified air. In *A Letter to Erasmus Darwin, M.D.*, dated June 30th, he gave details of the treatment he proposed to base upon this theory. Of the three airs—"azotic, hydrogen, carbonic acid"—he was hoping "most from the employment of hydrogen to reduce the air of the atmosphere to a lower standard. It was inhaled through a tube, and in consequence of pressure on the reservoir, a strong current set into the mouth."² Beddoes records³ minutely the results of experiments made on himself with oxygen, and on the strength of them he looked forward to the time when an apparatus for its use would be "ranked among the ordinary articles of household furniture."⁴ Darwin, who gave Beddoes much encouragement to persevere with his investigations, took occasion, in his reply, to state his belief that consumption was "infectious to those who sleep with such patients in the last stage of the disease."⁵ An important book soon followed; for in 1794 and 1795 were issued the first and second editions of *Considerations on the Medicinal Use, and on the Production of Factitious Airs*, the medical part of which was written by Beddoes, and the rest by James Watt, the great engineer,

¹ P. 114. This new theory, as a writer in the *Monthly Review* for November, 1793, pointed out, owed its origin (mainly through the work of Priestley) to pneumatic chemistry. The reviewer offers for consideration some suggestions which might modify the opinions that Beddoes held in reference to the question of a diminished proportion of oxygen being the effect of pregnancy, and on the influence of pregnancy in suspending the progress of phthisis.

² Pp. 44, 46.

³ P. 50.

⁴ P. 55.

⁵ P. 64. Beddoes himself, in opposition to much of the medical opinion of the time, did not believe in its contagiousness. (*Hygeia*, vol. ii., 1808; Essay vii., pp. 95-8.)

who devised the apparatus¹ used. In this book first appeared the proposal for a Medical Pneumatic Institution "for the benefit of the wealthy as well as of the indigent."² In 1795 between £800 and £900 had been subscribed³ towards the £1,500 which Beddoes considered was the lowest amount that would justify him in beginning the work.

The three springs mentioned by Lucas were not the only candidates for public favour. In addition to the cold bath at Jacob's Wells, there was the spring which was available at the top of the hill. And towards the close of the eighteenth century, but not earlier than 1794, "A Gentleman of the Faculty" issued an undated pamphlet, entitled *An Impartial Inquiry into the Nature and Qualities of the New Saline Mineral Spa Water at the Tennis Court House, Hotwells Road, Bristol*. The house occupied the site of what is now known as Poole's Coal Wharf. The Gentleman of the Faculty proclaimed the virtues of the Spa with no uncertain sound. The spring is described as the "inimitable Chemistry of Nature," "inestimable Saline Chalybeate Water," and "this surprising Mineral Water Spring." It was said that it did "not contain the quantity of salts found in the Cheltenham Waters, consequently more efficacious in many cases, as it is more readily taken up by the absorbent vessels, and carried through the round of circulation, and enters the whole habit, without passing off so rapidly by the intestinal tube, but at the same time acting as an undeniable alterative, though in the mildest manner, even on the most irritable and delicate constitutions."⁴ Not only were there the usual facilities for its internal use, but provision was made for its external application, and the Gentleman of the Faculty pointed out "that the Hot-Wells nor even the ancient City of Bristol, have never before had any regular

¹ The book contains many drawings of the apparatus. Some of these are reproduced by Mr. George M. Foy, in an article on "The Discovery of Modern Anæsthesia" in the *Dublin Journal of Medical Science* of December, 1896. Mr. Foy says a great deal about the work at the Hotwells.

² Part i., Second Edition, p. 15.*

³ The names of the donors are given on pp. 111-2 of part iii.

⁴ Pp xii., xiii.

establishment of Baths."¹ But as the popularity of the Hotwells as a pleasure-resort was declining, this Spa had only a short existence. Mr. Latimer records that in 1808 "the spa with its 'pleasant garden bordering on the river' was advertised to be let, and in January, 1810, the premises were converted into the 'Mineral Spa coal wharf.'"²

In 1797 Dr. Andrew Carrick issued a *Dissertation on the Bristol Hotwell Water*, in which he recorded his own analysis of it. Part I. of Carrick's work deals at great length with the chemical properties of the water derived from the two springs³ on the right bank of the river and the Sion Spring, the name given to the one on the higher level, all of which, notwithstanding some striking differences, he considered were derived from the same source. He concluded that "a wine gallon of 231 cubic inches is impregnated with—

Muriated magnesia	...	...	...	...	7 $\frac{1}{4}$ grains.
Muriated soda	...	...	...	...	4 „
Vitriolated soda [sulphate of soda]	...	...	...	...	11 $\frac{1}{4}$ „
Vitriolated lime [sulphate of lime]	...	...	...	...	11 $\frac{3}{4}$ „
Carbonated lime	...	...	...	...	13 $\frac{1}{4}$ „

Making together of solid matter..	47 $\frac{3}{4}$ grains
Carbonic acid gas	... .. 30 cubic inches
Respirable air	... .. 3 „

Making together of gaseous }
fluids } 33 cubic inches."⁴

Carrick had no doubt of the general usefulness of the water. He stated that many "Europeans returning from tropical climates would derive much more benefit from the use of this, than any of those mineral waters, in which iron, or any other

¹ Owen (*op. cit.*, p. 159) describing the "old Hot-well," mentions "the little private baths for one person only at a time, for which they pay one shilling each time, the bath being fresh filled for each person. These are chiefly frequented by those afflicted with different kinds of weaknesses. Many persons also in health often make use of these baths, in order to cleanse and refresh themselves, which they do to admiration."

² *The Annals of Bristol in the Eighteenth Century*, 1893, p. 507.

³ Carrick changes the names of Old and New to which Lucas devotes attention.

⁴ P. 51.

active stimulant is an ingredient, whatever their reputation may be. For more than a century, the Hotwell-water has been celebrated as a remedy for Diabetes, comparatively a rare disease, and one of the most obstinate; and the proportion of cures performed by these waters, is highly creditable to their efficacy. But the disease for which the Hotwells are chiefly resorted to is Pulmonary Consumption. It is above a hundred years since they were first brought into notice for the cure of this disorder; and they have ever since continued to rise in reputation.”¹ After giving many details for the guidance of invalids, he concluded with some general “Practical Observations on the Prevention and Treatment of Pulmonary Consumption” intended for the lay public, for whom he narrates its usual clinical course, and affords them information as to the predisposing causes. He combats the opinion held then by some that disease is not hereditary, but admits that consumption is frequently found where no hereditary predisposition can be traced. In many of these cases the origin must be sought in a full diet or strong liquors. Carrick was much vexed with the excess of wine which was common in those days. “In the higher ranks, he who drinks one bottle only, reposes himself a sober man; and he who does not exceed half that quantity daily, is considered as remarkably temperate. It were better, for young men at least so far as health only is concerned, and abstractedly from considerations of morality, to get drunk once a week, and abstain entirely the other six days, than regularly to indulge in what may be called a moderate allowance of Port, or Maderia, or other strong wines, every day. The mother, afraid as it would seem, least her darling child should retain, any portion of vulgar health, carefully initiates him into the mysteries of Bacchus, from the very cradle; and as soon, almost, as little master is capable of swallowing, he is indulged with his regular allowance of wine. No wonder that Gout, Dropsy, Schirrous Liver, &c., should make such a conspicuous figure in the history of his ‘life and sufferings.’”² Carrick also devotes much consideration to the hygiene of education and dress. He says “From almost continual motion, arises the

¹ Pp. 68-9. ² Pp. 103-6

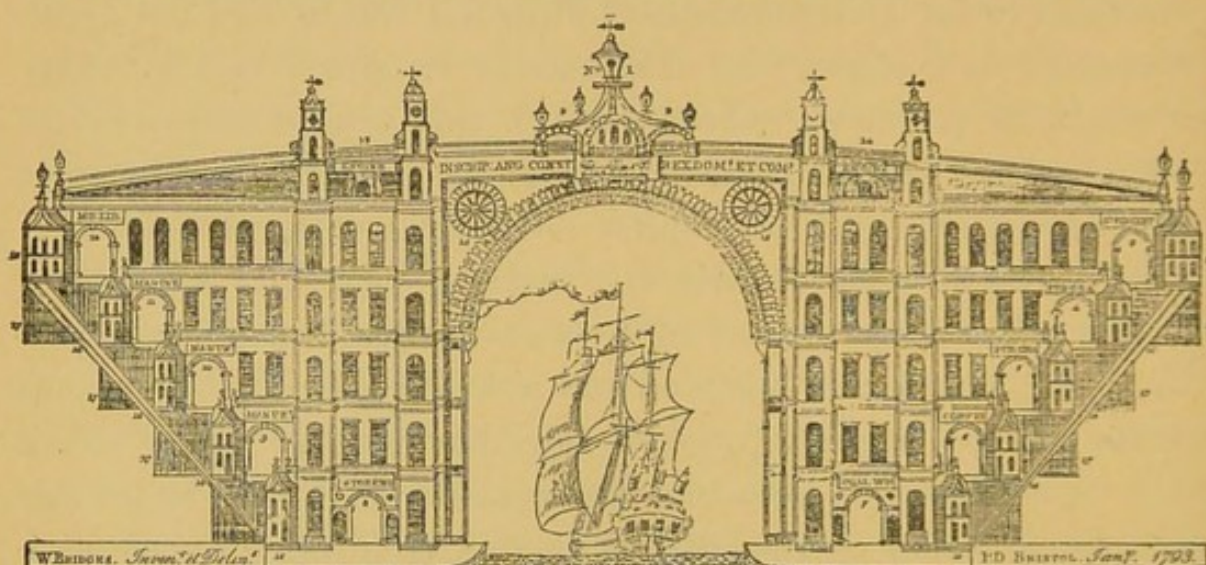
pleasure and the health of childhood: How unnatural then, to send a child of four years of age to be immured in a suffocating school-room, and chained to a bench half the day, merely to be out of harm's way. The quality of the cloathing must likewise possess considerable influence on the health. In modern Europe, a preference is universally given to linen, as an immediate covering for the skin, on account of its superior elegance and cleanliness; but in many respects it is, perhaps, better adapted to the latitude of Egypt, whence it originally came, than the cold regions of the North. Although woollen is less agreeable to the eye, and perhaps less pleasant to the skin, the difficulty with which it suffers either cold or heat to pass, gives it a decided superiority as an article of cloathing, in such a variable climate as ours. Abstractedly from ideas of taste, every thing tight in dress, by compressing the parts and cramping motion, is injurious to health. I have more than once observed a temporary spitting of blood excited by wearing the waistcoat too narrow, or by buttoning the coat over the chest. But the injury to the female sex from the use of long and strait stays *was* much more serious and extensive. The mischievous effects of this absurd and unnatural fashion on the tender frames of young women, could only be equalled by its own innate deformity, and it is to be hoped that long waists will never again disfigure the persons of our fair country women. The loose Grecian dress of the present day is not less conducive to health than to elegance; and although it is not long since the waist has escaped from bondage, a sensible improvement in health and beauty, will, I doubt not, soon be apparent."¹ Among exciting causes of consumption Carrick considered that catarrh was most frequent, and he alludes to the attempts which had been made of "establishing a chemical diagnosis" by early examination of the sputum in all cases of expectoration. His own experiments in this direction were too capricious for any confidence to be placed in them. By attention to preliminary warnings, and by appropriate precautions, he considered that, in at least nine-tenths of the cases, threatening consumption might be warded off, and he laid it down that in

¹ Pp. III-3, 115.

the more early stages of the confirmed as well as in the incipient consumptive the greatest dependence should rest on "the anti-phlogistic regimen, blisters, setons, and particularly the lancet," and that the objection to bleeding as likely to increase the debility was "founded rather on supposition than actual observation." Much space is devoted by Carrick to the various palliative remedies adapted to the relief of particular symptoms, and the desirability of treatment by many "factitious airs" is explained, and these are recommended if they can be used on a thoroughly scientific basis. Carrick had given a good deal of attention to the infectiousness of phthisis; but he had not given contagion as a cause, "no case having occurred to me, where it could be positively traced; and it has always appeared to me more easy and natural, to account for the supposed cases of infection upon other principles. Where several persons of a family become affected with the disorder, one after another, it is in general only a proof of a common hereditary predisposition; and even where husband and wife successively fall victims to the disease, before a proof of infection can be established, it will be necessary to take into the account the great frequency of predisposition to the disease in this country, together with the hurtful effects of fatigue, watching and confinement, which a person in such circumstances usually undergoes, and which might have been equally injurious, and equally productive of consumption in this person, had the former relative died of dropsy or any other lingering distemper. But the strongest negative proof is afforded by the nurses at the Hotwells, who, were the disease infectious, could not possibly escape; whereas I never knew any one of them affected with it."¹ It will be seen that Carrick's views about the infectiousness of phthisis agreed with those of his neighbour Nott. Carrick was careful to emphasise the warning against the practice of

¹ Pp. 126-7. I have quoted Carrick at some length, because he was destined to play an important part in the medical life of Bristol. In 1834, when he was senior physician at the Infirmary, he was President of the Bristol Meeting of the Provincial Medical and Surgical Association, now the British Medical Association. His address received high praise, and in the second volume of the *Transactions*, in conjunction with Dr. Symonds, he published a contribution on "The Medical Topography of Bristol." Carrick, who lived in Clifton Grove for many years, died in 1837.

sending patients in the last stage of consumption from long distances to the Hotwells. He knew "of one consumptive patient, from Scotland, who expired just as the carriage which brought him reached the door of his lodgings; of another who died the morning after his arrival; of five or six who died within the week; and of several more who did not live to reach the end of their journey."¹ Fatalities of this kind were so many in one set of houses that it received the unenviable title of "Death Row." Notwithstanding the great advantages offered to visitors, Carrick thought that there should be



8.—One suggestion for a bridge from St. Vincent's Rocks to Leigh.²

¹ P. 71.

² The original print, in addition to a "Ground Plan and Road," has a description of the details of the scheme. Mr. John Tremayne Lane, the City Treasurer, very kindly lent me a copy of the print from which I have taken the following:—

Dimensions—The Great Arch, 220 ft. high, 180 ft. wide; Base, 400 ft. long, 140 ft. wide; Road on Top, 700 ft. long, 50 ft. wide; Each Story 40 ft. high; Gallery, 6 ft. wide.

Contents—No. 1, A Light House. 2, A Toll House. 3, A Chapel, called St. Vincent's. 4, 5, 6, Publick Granaries, and Corn Exchange for Foreign Grain. 7, Coal Wharf and General Market. 8, A Stone Wharf and Water Mill. 9, 10, Manufactories for Cotton, Wool, &c. 11, A Marine School. 12, A Museum, Library, and Subscription Room. 13, 14, Engine Rooms. 15, Vertical Windmills. 16, Twenty Houses in the Scite of the Bridge. 17, Various Recesses for Out Offices, Stabling, &c. 18, Clock Turret and Stair Case. 19, Watch House and Bellfry."

I presume that the raised structures near the Engine Rooms are intended for Clock Turret and Watch House on each side of the river. The numbers 18 and 19 are not in the print.

further improvements. He suggested (1) a public garden near the Mall; (2) a commodious set of baths; (3) more houses under the hill of a proper size for single families; (4) a new road from Clifton to the Hotwells; (5) a bridge over the Avon, as he did not expect ever to see erected the colossal bridge which was to have connected St. Vincent's Rocks. The picture on the opposite page shows one design for a "colossal" bridge which was put forth in Carrick's time, and may be that to which he alludes.

In 1798, after "much difficulty in finding a home for it, on account of a popular impression that 'medicated airs' were explosive, and that the complaints, which were to be cured by inhaling them, might be infectious,"¹ the contemplated Pneumatic Institution of Beddoes was opened in Dowry Square.² The necessary funds had been completed by a gift of £1,000 from Thomas Wedgwood, who was a patient of Beddoes and

¹ *Thomas Poole and his Friends*. By Mrs. Henry Sandford, 1888, vol. i., pp. 253-4.

² "The house in the corner, forming the north angle of the Square" (Cottle's *Early Recollections*, 1837, ii. 29). The following announcement is in the *Bristol Directory* for 1799-1800:—

HOTWELLS

MEDICAL PNEUMATIC INSTITUTION.

Physicians—T. Beddoes, M.D. R. Kinglake, M.D. P. Roget, M.D.

Medical Superintendant—H. Davy. *Attendant*—P. Dwyer.

Roget, who was then only twenty years of age, afterwards became famous as the compiler of the well-known *Thesaurus of English Words and Phrases*; he lived on or near the premises (*Bristol Directory*, 1799-1800, p. 6). In 1800 out-patients were received every Sunday and Wednesday morning (*The Medical and Physical Journal*, 1800, iii. 488), and accommodation was provided for two or three paralytic in-patients, as the inhalation of nitrous oxide "was peculiarly serviceable to persons labouring under palsy" (*Anti-Jacobin Review and Magazine*, 1800, vi. 425). In the 1805 Directory the word "Pneumatic" did not appear in the title. Beddoes and J. E. Stock, the future biographer of Beddoes, were then physicians, and John King was surgeon. The days of attendance were Sundays at Dowry Square, and Mondays, Wednesdays, and Fridays at Little Tower Court, Broad Quay. In 1806 there is no mention of any attendance at the Hotwells. In 1809, the year after the death of Beddoes, its title is "Preventive Medical Institution," and Broad Quay only is given as the place of the Institution. In the 1813 Directory it is not mentioned.

was then living at Cote House with his brother John. He said that it would be worth that sum to be sure "that the elastic fluids would *not* be serviceable in medicine."¹ Humphry Davy,² then only nineteen years of age, was its superintendent. The treatment was not entirely, or even mainly, pneumatic. That was reserved only for "those patients who seemed to derive no benefit from the administration of medicines in the common form."³ In 1799 Beddoes issued a pamphlet, *Notice of Some Observations made at the Medical Pneumatic Institution*; in this, with his characteristic energy, he defended⁴ his plans, notwithstanding the failures that had occurred. That he himself soon lost faith in his special treatment by inhalation may be gathered from his acknowledgment "that the trials that have been made of factitious airs and vapours, seem, as yet, very far from having

¹ Mrs. Henry Sandford's *Thomas Poole and his Friends*, vol. i., p. 254. Thomas Wedgwood and his other brother Josiah became responsible for an annuity of £150 to Coleridge, the trustee for which was the Rev. John Prior Estlin, Unitarian minister at Lewin's Mead, and master of a successful school on St. Michael's Hill. Mr. Estlin's family had a marked influence on the medical life of the city. Dr. James Cowles Prichard married one of his daughters. His son, John Bishop Estlin, who became famous as an oculist, was the founder of the Bristol Eye Dispensary.

² Davy came to Clifton in October, 1798, and stayed with Beddoes. At the beginning of 1799 he went to live at the Pneumatic Institution (Dr. T. E. Thorpe's *Humphry Davy*, 1896, p. 40). It was here that he made his famous investigations into the properties of nitrous oxide, which had been discovered by Priestley in 1774. In 1799 Maria Edgeworth, a sister of whom Beddoes had married, was staying in Clifton with Mrs. Edgeworth, who, in reference to the experiments, wrote: "A young man, a Mr. Davy, at Dr. Beddoes', who has applied himself much to chemistry, has made some discoveries of importance, and enthusiastically expects wonders will be performed by the use of certain gases, which inebriate in the most delightful manner, having the oblivious effects of Lethe, and at the same time giving rapturous sensations of the Nectar of the Gods!" (*Life and Letters of Maria Edgeworth*, 1894, vol. i., pp. 65-6). And on July 12, 1799, Southey, writing to his brother an excited account of Davy's results, said: "Davy has actually invented a new pleasure, for which language has no name" (*Life and Correspondence of Robert Southey*, 1850, vol. ii., p. 21). Although its capabilities for surgical anæsthesia were recognised, it was, as its popular name implies, mostly used as an amusement. Its application was made the subject of a caricature by Gillray in 1802.

³ *Memoirs of the Life of Thomas Beddoes, M.D.* By John Edmonds Stock M.D., 1811, p. 157.

⁴ *Op. cit.*, p. 177.

produced any thing like a successful mode of treating consumption,"¹ and Dr. Stock, in his biography of Beddoes, says that in 1803 "the pneumatic practice was almost abandoned,"² and the institution became an ordinary dispensary,³ with the special feature of practical instruction in the art of preserving health.⁴

As a remedy in phthisis Beddoes had no faith in the Hotwell water. In his *Essay on Consumption* he says: "As to the efficacy of this or that spring, in any period of consumption, there is nothing in the pagan and popish legends concerning consecrated fountains and holy water, more absurd than such a persuasion."⁵

¹ *Essay on the Causes, Early Signs, and Prevention of Pulmonary Consumption*, 1799, p. 264.

² *Op. cit.*, p. 302.

³ "In order that the trials might be deliberately proceeded in, a fortunate thought occurred to Dr. Beddoes: namely, not to bribe, but to reward all persevering patients; for before the Pneumatic institution was broken up, they allowed every patient sixpence per diem" (Cottle's *Early Recollections*, 1837, ii. 41). Although Cottle states that he learned this from Davy, Miss Meteyard says (*A Group of Englishmen*, 1871, p. 91) it was not exactly the case, and that the money the patients received was the return, under certain conditions, of the half-crown which had to be deposited upon entrance. As an indication of the range of observation at the institution, and of the thoroughness of his work, may be noticed the "Plan of a Public Scrutiny of certain Medicines, lately proposed as anti-venereal, at the Pneumatic Institution near Bristol," which Beddoes put forth in July, 1801 (*The Medical and Physical Journal*, 1801, vi. 165). Vaccination was also done there, and Beddoes, who hesitated at first to adopt it, advocated a national subscription for Jenner, and he said that "probably those very Members of Parliament who from a sense of duty, shewed themselves most sparing of the public purse, will be among the most forward to open their own" (*Ibid.*, 1802, viii. 7). The 122 cases during December, 1801, are specified in *The Medical and Physical Journal*, 1802, vii. 301-2, and a classified list of the cases of the 678 patients who attended from January 1st to April 18th, 1802, is given in *Hygæia*, vol. ii., 1808; *Essay* vi., p. 96.

⁴ On March 3rd, 1800, Beddoes issued a circular announcing a series of "Lectures on the Laws of Animal Nature, and of the Means of preserving the System from Injury upon the most Important Occasions of Life" (*The Medical and Physical Journal*, 1800, iii. 487). In 1803 he put forth "The Rules of the extended Medical Institution for the Benefit of the Sick and Drooping Poor, with an Explanation of its peculiar Design, and various necessary Instructions." (For much interesting information concerning this see *The Medical and Physical Journal*, 1803, x. 571-3, and Stock's *Life of Beddoes*, pp. 318-30.)

⁵ *Loc. cit.*

But accepting the views of Dr. Nathan Drake¹ and of Dr. Richard Fowler² that digitalis, "by its almost uniform effect in rendering the action of the arteries more slow than natural at the same time that it seems to excite the absorbents,"³ and believing that many cases of phthisis had been considerably relieved by its administration, he hoped that "consumption will henceforward as regularly be cured by the fox-glove, as ague by peruvian bark."⁴

Fashions change. But rich and educated persons are ever ready to place themselves under extraordinary and disagreeable conditions in deference to the medical theories of the time. Although Beddoes had practically given up his treatment by factitious airs, he was still strongly of opinion that air modified in some form was essential for the successful treatment of phthisis, and it is interesting to note some of the ways in which this idea was carried out in Clifton under his supervision. Having read that "a lady, in the last stage of consumption, had her distressing symptoms all removed, from living the winter in a room with four cows," and knowing that "in many countries *cow's breath* is a traditionary remedy," Beddoes in 1796⁵ was preparing to give his patients the advantages to be obtained from these proceedings. Starting from the prevailing persuasion that a "residence in hotter countries is beneficial to British invalids," he convinced himself that the cow-house would

¹ Drake was a man of literary tastes. His *Shakespeare and his Times* is a well-known and much-valued book.

² *Contributions to Physical and Medical Knowledge, principally from the West of England*, 1799, pp. 473-520. The profits of this work for the first two years were to be for the benefit of the Pneumatic Institution, and afterwards to "be given to some infirmary within the district" (*Annals of Medicine*, 1798, iii. 464). It was printed by Biggs and Cottle, who also printed other work of Beddoes. Joseph Cottle, who was in business at the corner of High Street and Corn Street, and who so substantially aided Coleridge, Southey, and Wordsworth, was himself a poet of considerable merit. Many of the passages in his *Alfred* are good. Byron made a virulent and an unjustifiable attack upon him in *English Bards and Scotch Reviewers*, but calls him Amos, which was the name of his brother, who also wrote verse. The same mistake is made in *The Anti-Jacobin*. (See Pryce's *History of Bristol*, 1861, p. 547.)

³ *Essay on Consumption*, 1799, p. 269. ⁴ P. 270.

⁵ *Considerations on Factitious Airs*, part iv., 1796, pp. 121-2.

provide "an atmosphere permanently modified, of a regular temperature," supplied by "the gasses, given out by the fermenting mass of vegetable and animal substances."¹ Obviously the proceeding involved difficulties. "A gentleman in the last stage of consumption, mortified by the refusal of the master of a lodging house to admit cows into it, quitted Clifton."² The case of Mrs. Finch, daughter of Dr. Joseph Priestley, is recorded at great length. In 1799 "a stable adjoining to one of the houses in Gloucester Row, twenty feet long, fourteen wide, and nine high, with a small recess, was engaged; and a space sufficient to contain a moderate bed, with a little room to place a table and move about, was partitioned off; and this part was raised, by coarse boards, a few inches above the ground of the stable. Two cows were first placed in the other part of the building, for a few days before Mrs. Finch took up her abode in it"³ about the end of September. Upon her entry her case was looked upon as hopeless. On October 8th she wrote that it was "a much more comfortable abode than she had formed an idea of. So different have been her feelings from those of the last six months, that she should reluctantly change her apartment for the *night*, however she might wish a *cleaner* and more *cheerful* one for the *day*."⁴ She lived there for about six months, with the exception of a few days. In the summer of 1800 she felt perfectly well. During the following winter she "confined herself to an apartment, artificially heated, and continued to enjoy entire freedom from pulmonary complaints till March, 1801, when she got a violent catarrh." She said that till then "I had passed the winter with great credit to the cow-house, the *air* of which I still prefer to my warm room, though it is of a good size, and lies to the sun."⁵ Several other cases are recorded of patients living with cows. The results varied, and Beddoes recommended a modification of some of the conditions. In some instances he excluded the cows, and placed the patient in a stable with two stalls, one of which "was filled very full

¹ *Observations on the Medical and Domestic Management of the Consumptive*, 1801, pp. 21, 22, 68.

² P. 24.

³ P. 46.

⁴ P. 49.

⁵ P. 58.

of the materials used by gardeners for hot-beds; in the other the patient's bed was placed." ¹ And later he said that "vessels containing the fermentable substances could easily be introduced into a warm apartment; the former as easily be regulated by covers, and the vessels removed entirely, the moment the exhalations appeared to disagree." ²

That modern experimenters in the treatment of phthisis have no monopoly of eccentricity in this particular direction is amply shown by the practice of Beddoes. They have his zeal, and, using almost his very words, they are determined, as he was, to fight disease with any weapons that seem to offer the least chance of victory. And like him they are living up to the psychological attitude of the moment. It will be interesting to know what the chronicler of the year 2002 will say about them. Future investigators will find in the work of their predecessors plenty of warning and of example; but as the prophylaxis and treatment of phthisis have not yet nearly reached finality, coming generations should be grateful for all previous independent observations. The world is indebted to every honest and sincere worker, even if a great part of the work has to be superseded.

"The heights by great men reached and kept
Were not attained by sudden flight,
But they, while their companions slept,
Were toiling upward in the night.

* * * *

Nor deem the irrevocable Past
As wholly wasted, wholly vain,
If, rising on its wrecks, at last
To something nobler we attain."³

¹ P. 69.

² Pp. 86-7. The exertions of Beddoes in this direction drew forth an ardent eulogy from a writer in *The Medical and Physical Journal* (1802, vii. 8), who praised him for his efforts in protesting against "the unavailing slavery of routine practice, and for having taught that the province of medicine must be a great and generous science, never a contending trade." Southey, writing in 1799, said: "The faculty dislike Beddoes, because he is more able, and more successful, and more celebrated, than themselves, and because he labours to reconcile the art of healing with common sense, instead of all the parade of mystery with which it is usually enveloped. Beddoes is a candid man, trusting more to facts than reasonings: I understand him when he talks to me, and, in case of illness, should rather trust myself to his experiments than be killed off *secundem artem*, and in the ordinary course of practice" (*Life and Correspondence of Robert Southey*, 1850, vol. ii., pp. 23-4).

³ Longfellow, "The Ladder of St. Augustine."

Dangers to be avoided in each age are generalising on insufficient data and thinking that the last word is being said. Scientific knowledge seems to be no guarantee against erratic developments; for not only are the observers of to-day in the front rank, but Beddoes also was a man of exceptional attainments, and he "spared neither his faculties nor his credit in behalf of the sick." His writings, enforced with much eloquence, combined with satire and also the saving grace of humour, show that he was a man of rare insight into human nature, with its marvellous alternations of health and disease,¹ but he had in a marked degree the defects of his qualities. His enthusiasm² in his work often led him to attribute virtues to remedies which further observation showed they did not possess. Beddoes was busy with his investigations and with his pen up to the time of his death, which took place in 1808, at 3 Rodney Place, where he had been in practice for some years. He was only 48.³

The literary requirements of the fashionable throng that frequented the Hotwells were not great, but they were not

¹ The application of external cold in the treatment of disease had his earnest support. "The public might advantageously forego a considerable proportion of the rare exotic articles in any existing pharmacopœia for the sake of so vulgar a domestic production as ice. When men are better instructed in the laws of their own nature, they will be less eager about ice as a luxury than as a powerful instrument of health. Public ice-houses will be constructed in our cities, towns, and villages" (*Observations on the Medical and Domestic Management of the Consumptive*, 1801, pp. 16-7). He considered it "practicable to acquire measures of irritability and sensibility," and had an instrument "so constructed, as when applied to some artery, to shew the force of its stroke" (*op. cit.*, p. 197).

² Attention should be given to his collective investigation on Influenza, the record of which covers about 130 pages of *The Medical and Physical Journal*, 1803; but his promised Commentary on the returns, which numbered over 120 from various districts, did not appear. There had been a good deal of influenza in Bristol in the early part of 1803, an account of which Nott had published (see *Ibid.*, 1803, x. 80-2).

³ Those who wish to see an impartial and candid survey of the life and work of Beddoes should read the obituary notice which appeared in *The Medical and Physical Journal*, 1809, xxi. 183-92. Coleridge, referring to the death of Beddoes, says in a letter to Thomas Poole, Feb. 3, 1809: "Poor Beddoes! he was good and beneficent to all men, but to me he was, moreover, affectionate and loving" (*Letters of Samuel Taylor Coleridge*, 1895, vol. ii., p. 544).

altogether overlooked. The 5s. subscription which enabled the visitor to walk in the rooms and gardens also included the privilege of reading the newspapers which were supplied. In addition there was a circulating library kept by Mrs. Ann Yearsley, who, born about 1756, was in early life a milkwoman, but who left that useful but humble occupation and became a minor poet. Some of her verse attracted the favourable notices of Hannah More, by whose aid she published a volume of poems, and with the proceeds of this she started the library. Other books, including a play and a novel, followed later. A portrait which is in the possession of the Bristol Museum and Library shows Mrs. Ann Yearsley as the possessor of considerable personal attractions. She died in 1806.

If it is true that Jack Cade considered that the man who had erected a grammar school had most traitorously corrupted the youth of the realm, that any one who caused printing to be used or a paper mill to be built had committed a grave offence, and that those were most worthy to live who could not read, he had a like-minded successor in one who would have disclaimed any relationship to him. For the same spirit breathes in Sir Anthony Absolute, who declared that "a circulating library is as an evergreen tree of diabolical knowledge." If there is any truth in this dictum, the dwellers in Clifton about this time must have been in a parlous state, for there were at least two institutions of the kind. The clients of these could also make their purchases from "an extensive assortment of foreign and English perfumery, jewellery, hardwares, toys and stationery."

The Bristol Library Society, which had been formed in 1772 on subscription lines and which was housed in the City Library¹ in King Street, had among its members at the end of

¹ Only men could use the library. Maria Edgeworth (*op. cit.*, vol. i., p. 18), writing on December 29th, 1791, says that her "father has got a transfer of a ticket for the Bristol library, which is an extremely fine one; and what makes it appear ten times finer is, that it is very difficult for strangers to get into. From thence he can get almost any book for us he pleases, except a few of the most scarce, which are by the laws of the library immovable. No ladies go to the library, but Mr. Johns, the librarian, is very civil, and my mother went to his rooms and saw the beautiful prints in Boydell's Shakespear."

the century Southey and Coleridge and Humphry Davy. The Registers which are still in existence give the names of books taken out by them.¹

But the glories of the Hotwells were now about to vanish. Soon after 1790, when new arrangements were made between the Merchants' Society and the tenant, necessitating on the latter's part a considerable charge for drinking the water, the pleasure-seekers departed to other places, and the Hotwells was the resort of invalids only, and although the praises of the site were sounded in 1800 by Dr. William Saunders in his book on mineral waters,² and endorsed by Dr. William Nisbet in 1804 in *A Medical Guide for the Invalid*, it was all of no avail. Saunders pointed out that "Bristol water, besides being employed medicinally at the spring head, which is in fact but a small part of its consumption, is used largely at the table at the Hotwells, and for all domestic purposes. Its softness, or freedom from earthy salts, is almost proverbially known; and from its excellent quality of keeping untainted for a great length of time in hot climates, it forms a most valuable water for long voyages, and is accordingly exported in great quantities to distant parts."³ He showed that supposing half a pint of the water to be taken four times in the day, "the patient will have added to his daily ingesta about five grains and a half of purgative salts; six grains and a half of calcareous salts; and about a quarter of a pint in bulk of carbonic acid; the whole dissolved in a quart of water of the temperature of 74°."⁴ By Saunders's time a view somewhat saner than that of most of its earlier eulogists⁵ was being taken. He says: "It is not easy to determine how much may be owing to the favourable situation and mild temperate climate which Bristol enjoys; but it cannot be doubted that the Hotwell water, though by no means a cure for consumption, alleviates some of the most harassing symptoms in this formidable disease. We are not yet fully acquainted

¹ See *Chambers's Journal*, 1 Feb., 1890, and *The Library*, vol. v., 1893.

² *A Treatise on the Chemical History and Medical Powers of some of the most celebrated Mineral Waters.*

³ Second Edition, 1805, p. 115.

⁴ Pp. 122-3.

⁵ Fothergill was notably one whose views were fairly rational.

with the medical virtues which we may expect from the union of a small quantity of carbonic acid with water; but from comparing the effects resulting from this gaseous acid when in a larger dose, and giving very sensible properties to the water with which it is combined, there appears to be some reason for attributing to this substance, a part at least of the virtues of Bristol water."¹ Nisbet endorses the views of his "respectable friend, Dr. Saunders," and corroborates his opinion that "in those affections of the alimentary canal which arise from a residence in a warm climate, whether attended with bilious symptoms or not, the waters are eminently useful. The same advantage they display in diarrhoea and slight attacks or dysentery. In diabetes, if not curing, they are at least a serviceable palliative, and give effect to the powers of other remedies. In consumption, there are some authenticated cases of cure where the disease was in its commencement, and the constitution was [not] broken down; but where it has made progress, and hectic symptoms are far advanced, little is to be expected from this mineral, or any other remedy. But even in these deplorable circumstances it will have some palliative influence over the hectic symptoms, and tend to allay the thirst, feverish heat, and other symptoms of increased temperature."² In words taken direct from "*Phillips's Guide*,"³ Nisbet recommends invalids of every description to resort to Clifton, which is said to be a "beautiful village, which for the purity and salubrity of its air, has been denominated the Montpelier of England, from its elevated situation furnishes the most charming views over the western part of Bristol, and of the Avon for a considerable way, with its moving scene of ships. It stands on a hill, which rises by a gradual ascent from the river, and is, in a great measure, covered with villas, and elegant piles of buildings. The principal situations for those invalids who prefer this airy abode, are Sun [? Sion] -row and Gloucester-place, on Clifton Down; the Prince of Wales's Crescent; The Mall, which may be regarded as the principal beauty of

¹ Pp. 124-5.² P. 46.³ *A Guide to all the Watering and Sea-Bathing Places.* By the Editor of the Picture of London. Printed for Richard Phillips. [1803.]

Clifton; Rodney-place; Boyce's-buildings; York-buildings, etc., etc."¹

In 1816, according to Carrick, "many houses, and even whole rows, are unoccupied." Notwithstanding the strong protests of Carrick and others against the evil policy of sending patients in advanced phthisis to the Hotwells, the practice of doing so became more common, with, of course, as a result, a high death-rate, which gradually made the place unpopular. The condition of things is thus pictured by Carrick:—"From the day that the Hotwell became practically a fountain sealed to the lips of every one but the actually moribund, the fame of the place began rapidly to decline. None who drank of the Lethean waters were thenceforth found to recover; because none did drink of them but such as were past recovery. It was now one uniform black list of disappointment and death; and in the course of a very few years it became all over the kingdom a source of horror and despair, instead of hope and confidence, to be ordered to the Hotwells, from whose awful bourne no traveller now returned."²

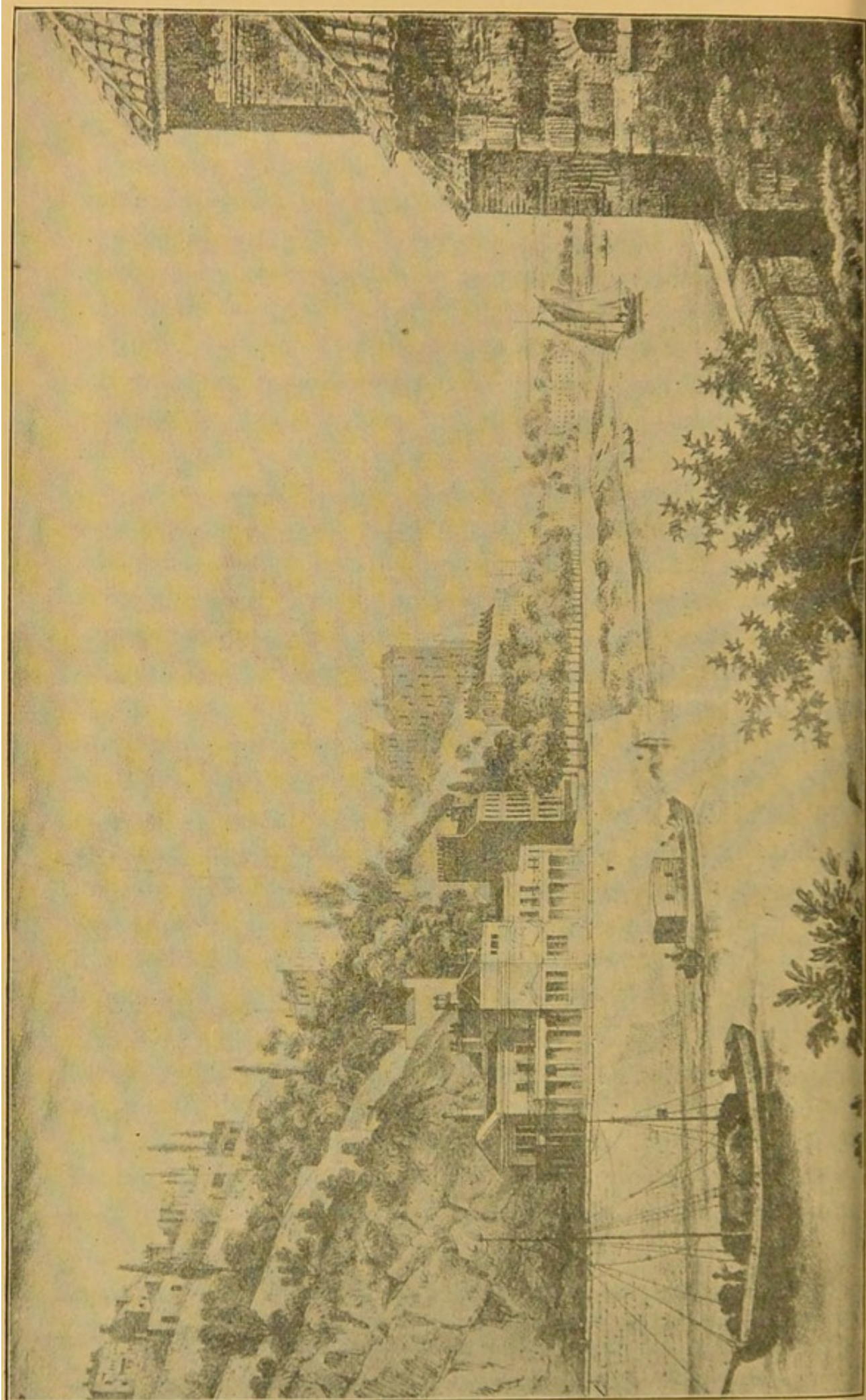
In spite of better facilities of approach and the building of an improved Pump-Room,³ with the provision of baths, the place became practically deserted. The decay of the Hotwells as a fashionable resort seems to date from the Merchants' Society's new lease in 1790, and the exorbitant charges which were then the rule for all visitors' requirements; but its end no doubt was hastened, as Mr. Latimer points out, by the quieter condition of European politics which enabled persons to visit the continental spas in safety.

In this *Journal* for June, 1889, Dr. John Beddoe summarises the more recent views concerning the Hotwell water, in which "the chief constituent, the carbonate of lime, preponderates over the sulphate," thus varying the relation of those ingredients in the Bath water. Dr. Beddoe quotes

¹ P. 264.

² Extract from letter by Carrick to the Merchants' Society in 1816, "first published in the *Bristol Times* of October 18, 1862."—Mr. Latimer's *The Annals of Bristol in the Nineteenth Century*, 1887, p. 72.

³ River improvements necessitated the demolition of the New Pump-Room in 1867.

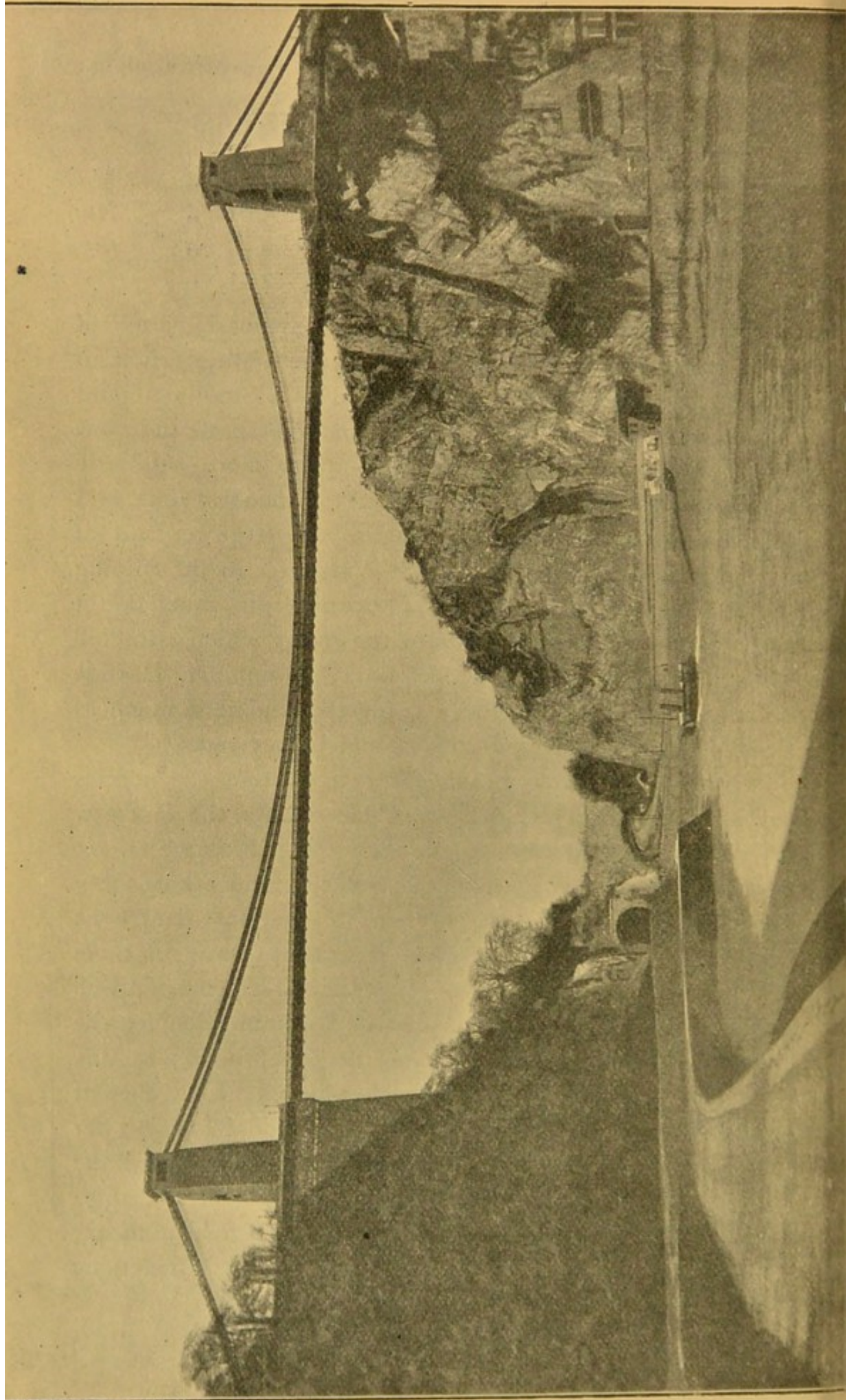


Herapath's analysis of the Bristol water, which gave per gallon :

" Carbonate of lime	...	...	...	...	17.7 grains
Sulphate of lime	...	...	...	...	9.87 „
Chloride of sodium	...	...	...	...	5.89 „
Sulphate of soda	...	...	...	...	3.01 „
Chloride of magnesium	...	...	...	...	2.18 „
Nitrate of magnesia	...	...	...	...	2.91 „

with smaller quantities of carbonate of magnesia, and of iron, of bitumen, and of silica, and some impregnation of carbonic acid and of nitrogen gas. Mr. F. W. Stoddart found the same aggregate amount of solids as Herapath did, but with slight differences in proportion—rather more sulphuric acid, and less of nitric acid and chlorine; rather less lime, and more magnesia and silica." Owing to the large amount of quarrying that has been done at St. Vincent's Rocks ruining the place at which the water originally came forth, much doubt has been expressed about the site of the spring which attracted to the Hotwells its fashionable crowds; but Dr. Beddoe considers that the well has been recovered, and it is much to be desired that its old popularity should be revived.

A vigorous and well-meant effort to restore the glories connected with the Hotwell spring has within the last few years been made by the erection of the Clifton Spa, an institution replete with modern luxury, and thoroughly equipped with an elaborate system of baths. But even if persons do not require medical treatment, many of them might, for their holiday resort or permanent residence, do well to choose Clifton, a place which can be recommended for the magnificent scenery of its immediate neighbourhood; for the rare interest attaching to so much that is left of an ancient city which has taken a large share in the national history; for the ever-varying incidents of a commercial seaport, and the facilities afforded for a variety of charming river and sea trips; for its interesting churches, of which there are a great number; for its many educational advantages; and for the attractions of the surrounding country.



NOTES ON THE ILLUSTRATIONS.

For enabling me to give some of the illustrations which accompany this paper I am indebted to the courtesy of the authorities of the Bristol Museum and Library, to Mr. J. W. Arrowsmith (the publisher of *Bristol: Past and Present*), to Mr. A. E. Hudd (the Honorary Secretary of the Clifton Antiquarian Club), and to Mr. J. E. Pritchard.

1 (Inset). This is a representation, about the year 1735, of the pump-room that was erected in 1696, and of the buildings in the immediate neighbourhood. Barrett in his list (*History of Bristol* [1789], p. 112) does not mention this view, although he refers to one of the Drawbridge by Halfpenny and Mynde, and one of the Infirmary by Halfpenny. Neither in designer nor in engraver was this illustration fortunate. William Halfpenny was a London "architect and carpenter," (see *Dictionary of National Biography*), indications of whose profession and work can be seen in the formal outlines of the drawing. J. Mynde was an engraver of small reputation whose work was principally done for the booksellers. (See Bryan's *Dictionary of Painters and Engravers*.) Beginning in 1722, William Halfpenny published several books on Building and Architecture. For some of these he had the help of John Halfpenny, who "is said to have built 1744, Coopers' Hall and 1789-94, S. Paul's Church, Portland Square, both at Bristol" (*Dictionary of Architecture*). The dates render this statement somewhat improbable, and in reference to the Church, Evans says (*A Chronological Outline of the History of Bristol*, 1824) that "the architect and builder was Daniel Hague."

2 (Inset). In 1746 the Merchant Venturers' Society had a coloured plan made to show their Clifton property. A copy that was made for one of the Goldney family appears in a reduced form in vol. v. of the *Proceedings of the Clifton Antiquarian Club*, with a description by Mr. John Latimer. The illustration here given is a portion of this (slightly enlarged), but without the colouring of the copy from which it was taken. The places can easily be made out by noting one or two landmarks. Clifton Church is shown by ZO, and F represents nearly the situation of the present post-office. Clifton Vale is indicated by the Mead Lane. The position of some of the lettering has been slightly altered in order to bring it within the portion reproduced.

3 (Inset). Whilst No. 1 is almost diagrammatic, this, which gives much the same view in 1747, probably errs in being too picturesque. It was most likely drawn by Milton, who was no doubt the William Milton mentioned by Redgrave (*Dictionary of Artists*). Barrett (*loc. cit.*) refers to a view of the Infirmary drawn and engraved by Milton. That which is now known as the Colonnade was not then in existence. The bearer of the cost of the original engraving was a Bristol surgeon, the line of whose practice was referred to by Chatterton (see Greig Smith's *Abdominal Surgery*, section on "Supra-pubic Cystotomy."):

"The home-bred documents of old Sam. Pye
Were standing rules to treat their buboes by."

In 1724 Pye published *Some Observations on the several Methods of Lithotomy*.

The use of the hay-mow is explained by the following remarks of Owen (*op. cit.*, pp. 161-2): "I would by all means advise

those gentlemen who ride on horseback to the Hot-well, as many do, to put up their horses in the stable over-against the beginning of the walk, for which they pay only one penny a time for each horse, and not to tie them up to the rails while they drink the waters. This last is a very common practice; you see a whole range of them together; and the consequence is, that almost every morning one or other of them is obliged, by the backing of coaches or chariots against them, either to break his bridle, or to pull down part of the rails. By this penny-saving scheme of the owner, the horse is greatly frightened, and often receives an injury, while his master is sitting in the Pump-room, or is got to the coffee-house adjoining to it to read the news papers, and knows nothing of the matter. Many a good horse has been hurt by this bad practice, and the company, who are in the walk, are frequently alarmed by it." The building near the hay-mow appears more distinctly as a stable in the first of the illustrations.

The prints from which Nos. 1 and 3 were taken are in the Museum and Library.

- 4 (p. 19). This plan comes from *Bristol: Past and Present* (iii. 194), and represents the principal Clifton roads about the year 1759. With the exception of the roads which led to Jacob's Wells, one only is shown from the higher ground to the Hotwells, going somewhat on the line of Beaufort Buildings and leading to Granby Hill. That which is marked on the 1746 plan as the Mead Lane was probably not of sufficient importance to be called a road and was no doubt unfitted for wheel traffic.
- 5 (p. 20). "Those whose affairs will not permit them to leave *London*, and whose constitutions require its assistance, have it at five-pence the bottle, if they write to Mr. *Barratt*, the master of the Hot-well, for a hamper of it to come by sea." (Owen, *op. cit.*, p. 132).
- 6 (p. 21). This is also from *Bristol: Past and Present* (iii. 225). It is a reduced illustration from a picture in Barrett (*op. cit.*, p. 92). The low building on the right is Mr. Warren's house, the site of which is also indicated on the 1746 plan, occupying ground somewhere near the present Clift House before the New Cut was made. This view appears on Rocque's 1750 and 1759 plans of Bristol. It was from the plate of the later issue, the lettering of which differs slightly from that of the earlier one, that Barrett's view was printed.
- 7 (p. 23). In this view, taken direct from Barrett, the Spa buildings are shown between 1766 and 1789, after the Colonnade had been built. The "colonnade" referred to by Nott (*Of the Hotwell Waters near Bristol*, 1793, p. 91) was probably a piazza connected with the pump-room, indications of which are to be seen in this view. It also gives the snuff-mill which was erected, about 1766, on the site of the present Observatory. The snuff-mill was burned down in 1777. The Observatory dates from 1828. The name of John Doddrell appears in the Bristol Directories down to 1813 as carrying on his work as engraver in Avon Street, Great Gardens.

All these views of the Hotwells give a very inadequate idea of the extent of the accommodation that existed for visitors, both pleasure-taking and invalid. Barrett says (p. 94) "the buildings lately erected

there give it more the appearance of a large town than of lodgings for the sick alone, and have so increased of late as to join the Hotwells quite to Bristol, by an uninterrupted chain of houses."

- 8 (p. 34). Many schemes for a high bridge across the Avon were before the public at the end of the eighteenth and the beginning of the nineteenth century. This illustration, bearing on it the date of 1793, represents a suggestion from the designer of the 1768 Bristol Bridge. It comes from *Bristol: Past and Present* (iii. 316).
- 9 (p. 46). This shows the pump-room built in 1822 and taken down in 1867. It was "sketched from Nature by T. Hulley" and "drawn on stone by H. Jones, R.I.A."
- 10 (p. 48). This gives a view of a portion of the Hotwells as it appears to-day. It is from a photograph taken by Messrs. Marion and Co. for *Picturesque Bristol and Clifton*, published by the Scholastic Trading Co., Bristol, and to their kindness I am indebted for permission to use it. The view shows a portion of the Colonnade which was erected about 1760. (See illustration on p. 23.) The bridge was finished in 1864. Its height from low water is 280 feet, and the span is 702 feet.

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Mr. F. W. Stoddart, the Public Analyst of Bristol, has very kindly supplied me with these Notes on some of the Analyses of the Hotwell Water which are referred to in the foregoing paper:—

The earliest account by Venner notes the presence of sulphur (*i.e.* sulphuretted hydrogen) and nitre, and further that it was likely to lose the former on keeping.

Guidott's analysis excluded volatile matters; but that the water to his knowledge contained sulphuretted hydrogen appears from his opinion that "a nitro-sulphureous salt" was present. The mode of identification of the carbonate of lime by igniting the insoluble residue to the oxide, slaking and combining with sulphur, and finally decomposing the resulting sulphide with an acid, is ingenious and correct. The method of analysis at this date consisted practically of separation by solvents, just as the proximate analysis of organic substance does at the present time.

It is noticeable that from Guidott's time, and after the erection of a pump-room, no mention is made of "sulphur." Was the true spring lost at this time? Allen's account is very obscure and hardly recognisable as referring to this water, which has by every other authority been found to contain much carbonate of lime and other salts, if not altogether deserving of Strother's grandiose description.

Sutherland's analysis is also much opposed to ancient and modern investigation. It is difficult to understand what is meant by "volatile vitriolic acid." Sulphur dioxide would

seem to fit in best with the description, but would probably have been identified more distinctly.

Carrick's analysis, the first in modern form, represents the water as being of much the same character as at present though there is more combined sulphuric acid.

Saunders's remarks, contradictory as they are, are an illustration of the curious fact that certain hard waters do undoubtedly get the reputation of being soft. In modern times the water has certainly maintained with great uniformity the composition given by Dr. Herapath, and has probably remained constant in this respect since the end of the seventeenth century.





NARROW GUTTERS
TIGHT BINDING

