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OF
STRUMOUS DISEASE.



[WITH THE AUTHOR'S COMPLIMENTS.]

UPON THE
TREATMENT OF STRUMOUS DISEASE

BY WHAT MAY BE CALLED

THE SOLFATARA METHOD.

BY

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UPON THE TREATMENT OF STRUMOUS DISEASE BY WHAT
MAY BE CALLED THE SOLFATARA METHOD.¹

IN former years I have repeatedly drawn the attention of the society to purely gynæcological points connected with the ætiology, symptomatology, and treatment of phthisis. A means of treatment will now, with a few additional words of introduction, be presented which during last fall was in London thought of sufficient importance for me to bring before the British profession.² The question is one that bears not upon the relief merely, but the possible cure of consumption and other forms of strumous disease; a result that, as proved by dissection, has hitherto occasionally occurred by accident, but by our art has ordinarily not been effected. I shall merely present portions of the paper to which I have referred, and trust that sufficient interest may be excited by them to bring the new method into trial and perhaps practical use in this country.

For the four years 1872-76, and in part at the request of the American Medical Association, I was continuously engaged in investigating the relative claims of certain of the health resorts of Central and Southern Europe. The inquiry was made more particularly with reference to the needs of American invalids, who go abroad in so great numbers, but, differing in national type of constitution, ways of living, etc., from the sick Russians, English, French, and Germans who form the bulk of their traveling companions, by no means always reach the localities best adapted for their respective disorders. Of these American invalids a very large proportion are consumptives.

The winter of 1872 was spent upon the Riviera, chiefly at Mentone; those of 1873, 1874, 1875, and two of the summers were passed in Southern Italy, and the winter of 1876 and summer of 1877 on the English south coast, including the Isle of Wight, and in London.

One of the objections most frequently made to Southern Italy as a residence for invalids by European writers upon climate has been the fact that, save in specially sheltered and usually very limited localities, its winter climate is changeable, and therefore, while borne by some classes of patients, it is particularly unfitted for chest affections. Naples is the only central point of resort upon the main-land south of Rome.

¹ Read before the Gynæcological Society of Boston, February 7, 1878.

² Upon the Arsenical Atmosphere and Arsenical Hot Spring of the Solfatara at Pozzuoli, near Naples, in the Treatment of Strumous Disease. *Lancet*, September 29, 1877, page 456.

The greater portion of the city and most of the towns and villages outside of it that are resorted to by English and Americans for winter residence are directly exposed to the harsh easterly winds, chilled by the snows of the Apennines; as, for instance, the favorite Strada Santa Lucia in Naples, and the whole of Castellamare. Delightful and safe though the latter place may be towards the end of spring and through summer, it is hardly to be recommended during winter for any class of invalids.¹ As regards consumptives, the same is nearly as true of Sorrento. Till within a couple of years the only places in Naples and its neighborhood that have been at all fit for delicate chests during winter have been, in Naples, the Riviera di Chiaia, or plain along the sea in the modern portion of the city, and the westerly extremity of the new Corso Vittorio Emanuele above it, the respective merits of which, so far as concerns the chance of enteric and malarial fever, I have elsewhere discussed; and outside of Naples, Amalfi, Pozzuoli, and the islands of Ischia and Capri, to which latter invalids who go during winter often do so with fear and trembling, over a stormy sea, while Pozzuoli, lying a few miles to the westward of Naples, upon the northern shore of the entrance to the gulf, has been till within the last year wholly unprovided for their reception. Amalfi, on the Gulf of Salerno, is nearly four hours away from Naples, by rail and carriage. The two hours' drive from the nearest station, Vietri, is upon a cliff road far above the sea, and very attractive, fully as much so as the best part of that from Castellamare to Sorrento, or the Corniche road on the Genoese Riviera; the town seems at first sight well sheltered, and there is so much of beauty and novelty about one that the visitor is always charmed. Directly down through Amalfi, however, there comes from the mountains a little river, and its course serves as the channel for fierce winds at times, while the town itself is filthy and ill kept. Pozzuoli, on the other hand, is better protected, lies equally to the south, and is very much more accessible from Naples. Hitherto the question has been decided, so far as their equal sun and warmth are concerned, by the fact that there were two quite comfortable hotels at Amalfi, and nothing whatever in a suitable part of the town that was available for invalids at Pozzuoli.

In a series of letters published at Paris in 1874, and subsequently reprinted at Naples,² after speaking of the climatic and hygienic relations of the latter city, I discussed in similar terms to the present, but at greater length, the respective merits of its neighboring and subordinate curative resorts, dismissing several of these with the brief remark

¹ If I correctly remember the opinion expressed a year or two ago concerning Castellamare in one of the English medical journals, by Dr. Maclean, of Netley, I am compelled to differ from that gentleman, who would probably have modified his favorable views as to this place, perhaps even his unfavorable ones as to Naples, had he but prolonged his visit.

² Southern Italy as a Health Station for Invalids. Naples. R. Marghieri. 1875. Pp. 70.

that they were "hardly fitted for the residence of invalids for the reason that as yet they are not provided with sufficiently comfortable hotels." Among them was Pozzuoli. It became generally known in Naples during 1875 and 1876 that my attention had become forcibly drawn to certain medical peculiarities of Pozzuoli shortly to be described, and it may have been partly in consequence that a comfortable hotel-pension, under English management and especially for invalids, has since been opened, the proprietress, Mrs. Dawes, having been very favorably known to me through her house for convalescents at Vico Equense, on the other side of the Bay of Naples, midway between Castellamare and Sorrento, one of the best-managed places of the kind that I found anywhere in Europe. I may mention also, in passing, that Dr. Cerio, of Capri, long an Italian army surgeon, English speaking, and with strong Anglo-Saxon affinities (through his English wife), has now removed to Pozzuoli for the purpose of thoroughly investigating the subject of the present paper; and from what I have seen of the gentleman and of his practice at Capri I have reason to believe that ere long we shall be put in possession of very important evidence corroborative of the conclusions that may be drawn from the statements I am about to make.

Now as to Pozzuoli and its peculiar merits in the treatment of strumous disease. Assertions very adverse to Pozzuoli will be found in English works upon climate that must, however, have been made as much without personal knowledge of the place as in ignorance of what has lately been discovered at it. For instance, there is mention in the latest edition of Tanner's Manual, by Dr. Broadbent, of London, of "the fatality of phthisis at Pozzuoli."¹ Plainly, patients already moribund may be carried to a place to breathe their last, as is yearly done at Mentone, without justly causing its condemnation; while for a native Italian, once down with pulmonary disease, — in that country considered contagious, and to which their damp houses render them peculiarly prone, — to hope to recover under purely Italian nursing and hygiene is something ordinarily out of the question. That Pozzuoli lies on the road, though on the Naples side, to "the undrained swamps in the neighborhood of Baiæ" is nearly as much to the point as to speak of Hampstead in the same breath as the discharge outlets of the London sewage, or of Beacon Hill and the worst pest holes of Lynn.² An invalid may drive to the one, as he may to the other, if he chooses to do so, but it is not necessary in either case.

During 1873 and 1874 my attention was chiefly given to the ordinary considerations of local climate and a study of the Neapolitan chain of

¹ An Index of Diseases and their Treatment. London. 1876. Page 442.

² Vide Report upon the Sanitary Condition of the City of Lynn, rendered to the Massachusetts State Board of Health, by Prof. J. G. Pinkham, an active member of the Gynæcological Society of Boston; and an editorial in *The Boston Medical and Surgical Journal*, February 7, 1878.

mineral springs, extending from Meta, adjoining Sorrento, through the whole circuit of the gulf, and ranging in temperature from 15° C., or thereabouts, at Meta, Vico Equense, and Castellamare, through from 17° C. to 21° C. in the springs of the city of Naples, to from 30° C. to 95° C. at Pozzuoli, Baiæ, and the adjacent island of Ischia. I then became aware, from chance statements of my friends Dr. J. A. Menzies, of Naples, and Signor Saggese, a skillful chemist, that several of the more noted Neapolitan physicians were commencing to claim for Pozzuoli an exceptional excellence of a wholly different character, asserting that a portion of it had an atmosphere of its own, perceptibly charged not with sulphur merely, but with arsenic, from the semi-extinct volcanic crater known as the Solfatara, which, from but slightly rising above the level of the adjoining country, is easily accessible on foot, by donkey, or by sedan-chair to the most feeble invalid. The breathing of this sulpho-arsenical atmosphere, it was stated, not only theoretically promised to be of benefit in cases of threatened or actual pulmonary tuberculosis, after repeated visits to the crater, extending over a longer or shorter period, but had in fact been proved so by actual experiment.

Such assertions, in such a country, were to be received with great caution, but occasion offered for me to make a practical test of the matter during the winter of 1874-75. A lad of eighteen, my own son, extremely tall for his age, feeble, and ill-nourished, had passed the preceding two winters at Mentone under the supervision of Dr. Henry Bennet, and at Sorrento, going steadily from bad to worse, so that his medical friends had become extremely solicitous as to the result. The patient was now confided to Dr. Menzies, by whose directions, after the late portion of the autumn of 1874 had been spent in the westerly extremity of the Corso Vittorio Emmanuele at Naples (the very sunniest and most sheltered portion of the whole city), he was removed, still failing, to Amalfi. He passed some weeks at this place without noticeable benefit. It was therefore determined to make trial of Pozzuoli, despite the difficulty of obtaining a passably comfortable lodging. An apartment, such as it was, was hired, furnished, and a cook was taken out from Naples. The patient was unable to walk even the short distance from the house to the Solfatara, and was therefore carried into it by a couple of porters, breathing its direct exhalations for a gradually increasing period. Almost immediately he commenced to improve. In addition to the prolonged respiration of this special atmosphere he took also, in minute quantities, the water of a spring arising from within the crater, and very unlike the prevailing mineral sources of the neighborhood, which are alkaline, while this is sharply charged with sulphuric acid, and in use requires large dilution. The spring, and also the atmosphere in the vicinity of the greater vent of the crater, contain by analysis very appreciable quantities of arsenic.

Other and ordinary measures, demanded by the alarming exhaustion of the patient, were meanwhile as hitherto pursued, and a certain amount of the improvement which then set in and became continuous was possibly attributable to them. There could, however, be no question that this improvement began with and was rendered uninterrupted by the special influences of the Solfatara. In the case now reported marked physical signs had been wanting. All the rational symptoms, however, — profuse night sweats and a host of others, — had long been those of progressing pulmonary or at any rate strumous disease.

Though now greatly interested in the subject, I could as yet — in view of a possible relapse in the instance referred to,¹ the impropriety of forming a conclusion from so limited an experience, and the total unfitness of Pozzuoli for the residence of invalids who had been accustomed to average American and English comforts — only say the following in my report to the American Medical Association, made in the spring of 1875: “Regarding the Solfatara at Pozzuoli, which has been recommended as a residence for certain classes of invalids, the Neapolitan physicians are of opinion, and the question is one worth considering, that the arsenical and other emanations given out by the still-smoking crater sensibly and beneficially modify the neighboring atmosphere in a medicinal way.”

In proceeding to investigate the matter still further, I found that perhaps the first attempt to utilize the local atmosphere of the Solfatara was made by Dr. Abele Franza in 1871, as recorded in 1874 by Prof. Sebastiano de Luca, of the University of Naples.² Franza's patient, a Russian, was attended in consultation with Professors Manfrè and Lauro, and the diagnosis was advanced tubercular disease. He had been treated in Naples for four months without benefit, and the case had been pronounced a hopeless one. He was removed to Pozzuoli, and remained there for six weeks, being merely from time to time carried into the Solfatara, and respiring its vapors. The improvement is declared to have been immediate and to have remained permanent. A similar case, of even more interest, was reported at the same time by Dr. Anecchini.³ The patient was seen in consultation with Prof. A. de Mar-

¹ No relapse, however, occurred. The patient was able to pass the winter of 1875-76 continuously in Naples, living upon the Vomero, above the Corso Vittorio Emanuele. He returned to America in October, 1876, convalescent, and went through that winter safely in the harsh climate of Boston. He is now a student in the Massachusetts Institute of Technology.

For the sake of other invalids, it may be well to state that the house occupied in Naples, “Castello Monjoujou,” but recently built for the private residence of Prince Palagonia, and still owned by him, is altogether the most desirable in the entire city for a consumptive stranger, alike for sheltered and sunny situation, cheerful outlook, dry and spacious gardens, and internal comfort.

² Ricerche Sperimentali sulla Solfatara di Pozzuoli. Naples. 1874. Page 13.

³ Ibid, page 43.

tini, of Naples, and considered clearly one of acute tuberculosis (*tisi galoppante*). A year after, the disease having in the mean time greatly progressed, this lady commenced to inhale the air of the Solfatara, and "solely in consequence" (*per virtù esclusiva della potenza medicatrice dell' aria della Solfatara*) she was pronounced "to have been radically cured" (*essa era in uno stato di salute il più soddisfacente, come se nulla avesse sofferto*).

The admirable work upon the medical geography of Italy by Prof. Luigi Marieni, of Milan, which, so far as the mineral springs of that country are concerned, must long remain a chief authority, was published in 1870,¹ a year before these facts occurred. In 1868 and 1869 Professor de Luca had presented three papers to the Academy of Sciences of the Royal Society of Naples upon the Composition of the Thermo-Mineral Water of the Solfatara, and the Temperature of the Greater Throat (*fumarola*) of its Crater, whence the arsenical exhalations escape, and within a limited though constant radius of which they are appreciable by Marsh's test. Other papers, chemical and therapeutical, upon the same subject, to the number of twelve or more, have followed from this gentleman, and are to be found in the *Comptes Rendus* of the Naples Academy; still others have been communicated by him to the Academy of Science at Paris, and he has also published the *brochure* already quoted, entitled Experimental Researches upon the Solfatara of Pozzuoli. The effect has been widely to attract professional attention in Southern Italy, and indeed throughout Europe, guaranteed as Professor de Luca's statements have been by the testimony of many of the physicians and surgeons to the great hospital Degl' Incurabili at Naples, some of whom are also attached to the University.

Whether the hopes of these gentlemen are well grounded can be proved only by continued experiment. They are now, however, even more sanguine than at first, and at the present moment, after, it is said, "the complete and radical cure" of quite a number of additional cases of advanced phthisis, who had been made to reside continuously for several weeks at the Solfatara, a branch of the Incurabili hospital has been established within the crater for the special treatment of pulmonary disease. To make the collateral test upon English-speaking patients has, as already stated, now for the first time been rendered possible at Pozzuoli. It is not unlikely that in the future the crater of the Solfatara may become as famous for its effect upon the prolongation of life as the neighboring Grotto del Cane has been for imperiling it.

It will be very interesting to test for arsenic the atmosphere of the various *stufe*, or volcanic vent holes of steam and dry air, existing upon the neighboring island of Ischia (a famous place of resort for invalids, in the Bay of Naples), which does not yet seem to have been

¹ *Geografia Medica dell' Italia*. Milan. 1870. Pp. 665.

thought of, though they were studied with care by the late Dr. Chevalley de Rivaz, of Casamicciola ;¹ and it would be also well that the same should be done with those at Calistoga and the Geysers, already noted in the treatment of disease, in the vicinity of San Francisco, California, and the similar fumaroles of the Yellowstone.

Whether equal advantage to that mentioned above can be gained by a partial return to the old way of treating phthisis by artificial preparations of arsenic, this time with sulphur or sulphuric acid, — a combination that seems never yet to have been used in medicine,² — and employing them by inhalation, in atomized solutions, either cold or conjoined with steam, is as yet a point to be determined. My own impressions are in their favor.

It may be argued that the as it were camping-out life at the Solfatara has something to do with the effect produced. The freest and most open air is never too pure for consumptives anywhere, but in Italy the ordinary life is an out-of-doors one, and these Solfatara cases had been subjected to it before being carried to Pozzuoli, and yet had rapidly declined.

It may also be said that by the Solfatara method we are not treating a local disease by constitutional measures, but a constitutional one with a local tendency by means that are wholly localized. Though seemingly true in cases of pulmonary disease, the remark cannot be applied to other forms of struma, which appear to derive similar benefit. It would seem probable that the arsenic produces its effect, granting the premises that in Naples are now assumed, in a manifold way : (1) by direct action, in diseases of the respiratory passages ; (2) by increasing nutrition or suspending waste, or both, for which it has long been noted ; (3) as a general alterative ; and (4) as a general tonic.³

In the case observed by me, the arsenical water of the Solfatara was

¹ Description des Eaux minero-thermales et des Étuves de l'Île d'Ischia. Naples. 1859.

² In answer to an inquiry that I addressed him, Mr. Theodore Metcalf, of Boston, has kindly given me the following *résumé* of our present knowledge upon the subject : "The only arsenical preparations used in medicine are the liq. potassæ arsenitis, liq. sodæ arsenitis, liq. arsenici chloridi, and a solution of chloro-phosphide of arsenic, recommended by Dr. Hammond, of New York. The arseniates of ammonia, potassa, and soda are in use ; also Donovan's solution, iodide of arsenic, and arseniates of antimony, copper, iron, quinia, and strychnia. Pastes of arsenic I have never had any occasion to make, nor any fumigations, except in one instance, when I had an order to saturate cigars with liq. potass. arsen. The arsenious acid in pills is also considerably used, and arsenic combined with quinia, iron, etc. Orpiment, a tersulphuret of arsenic, consisting of one equivalent of arsenic and three of sulphur, is used only as a pigment and a depilatory. Realgar, a bisulphuret, one equivalent of arsenic and two of sulphur, is used only as a pigment. Neither of the sulphides, that is sulphurets, of arsenic are supposed to be so poisonous as the arsenic itself, but so far as I know they are never prescribed. The most recent medical literature that I have at hand gives nothing new in arsenical remedies."

³ See Aveling, Decongestive Action of Arsenic upon Mucous Membranes, British Medical Journal, January, 1872, page 10 ; Journal of the Gynæcological Society of Boston, September, 1872, page 221.

used in conjunction with the respiration of its atmosphere, and may have increased the action of the latter, while its own, like that also of the atmosphere, may have been enhanced by the sulphuric acid that it contains. In many of the successful Italian cases, however, the inhalation of the arsenical atmosphere has alone been employed, thus narrowing the question to its ultimate merits. In either case, however, the treatment would chiefly have been constitutional, in accordance with Dr. Henry Bennet's well-expressed formula: "The most advanced minds in the profession more and more recognize the fact that the local manifestations of chronic chest diseases, tubercular or inflammatory, are mere epiphenomena. They require treatment, of course, but their treatment is of secondary importance when compared with the treatment of the constitutional state of the patient, which is at the root of the mischief."¹

Remarks upon the effect of the Solfatara in purely gynæcological cases, functional and organic, I must reserve for a future occasion. Meanwhile the whole question will be still further investigated, from an English stand-point, by Dr. Cerio.

¹ Dobell's Reports on the Progress of Practical and Scientific Medicine in Different Parts of the World. London. 1870. P. 418.

