named even excluding tubercle. The *clinique* of cases like the present is rendered difficult from the frequency with which gout, alcoholism, and syphilis are likely to be found in the same individual.

In conclusion, I would venture to suggest that mucoid infiltration of a thickened inner coat affords an explanation of the rapid improvement often seen in cases of occlusion. Just as external gummata disappear when painted with iodine, so, by absorption of the semifluid mucoid structure in the artery, it may unexpectedly again become patent to the blood-current.

CASES OF ASTHMA NERVOSUM, SUCCESSFULLY AND PERMANENTLY CURED WITH ARSENIC-INHALATIONS AND GALVANISATION OF THE PNEUMOGASTRIC NERVES.*

By ADOLPHE WAHLTUCH, M.D., L.R.C.P.Lond.,
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WITHIN the last six years, seven cases of nervous asthma have come under my observation, and I believe them to be of sufficient interest to be recorded as illustrations of an obstinate and distressing disorder of a true nervous nature having been speedily relieved and permanently arrested by electricity and arsenic-inhalations.

CASE I.—W. M. of Prestwich, near Manchester, consulted me on October 26th, 1871. His age he stated to be twenty-three; he has enjoyed a liberal education and good living, his parents being wealthy merchants in the city. At fourteen, he had pneumonia, and since that time, now nine years, he was subject to frequent attacks of asthma. Lately, he had them every night. They generally came on him suddenly in the evening before bedtime, and lasted through the greater part of the night. The attacks commenced with a sudden feeling of suffocation, want of air, and great anxiety; and ended with coughing and sneezing, and with more or less of thick mucous discharge coming out through the mouth and nose. In daytime and in the interval between the attacks, he felt quite well, and his breathing was free and easy. He had tried various drugs, chiefly narcotics and antispasmodics, but without any good effect. He had frequently changed his residence; travelled and spent some time in France, Germany, Portugal, Italy, Switzerland; but nowhere felt benefited. At Heidelberg, he experienced some relief from the use of compressed air in the pneumatic chamber, and also felt better during a twelvemonths' stay at Lisbon. Whenever he returned home, the attacks came on in a more aggravated form.

My plan of treatment was the following. At first, I ordered a large dose of muriate of quinine (ten grains) to be taken every evening before the expected attack, which periodically reappeared at the same hour before bedtime. The result was a later outbreak of the attack, which awoke him after a few hours of sound sleep. I then ordered spray-inhalations of arsenic twice a day, and in gradually increasing doses, changing now and then the preparations. The following were used in succession: Arseniate of soda (one-sixth to one-half grain); arseniate of potash (Fowler's solution, half a drachm to a drachm); arseniate of ammonia (one-quarter to one-half grain). To the inhalation, I at first added tincture of datura tatula, but soon had to leave it out, as it produced symptoms of narcotic poisoning. The arsenic-inhalations were administered during the first two months twice a day; the third month, once a day; the fourth month, three times a week; the fifth month, twice a week; and after the fifth month, the inhalations were entirely discontinued. Considering my patient's disease to be of a nervous character, and believing the pneumogastric nerve to be the chief actor, I decided from the first to try also the effects of galvanisation. I selected the continuous current derived from Althaus's battery, with fifty small Smee's cells, of which I used at first five, and gradually and carefully increased to thirty cells. A wet sponge, dipped in tepid salt-water, and connected with either of the electrodes, was applied to the skin of the neck; that connected with the positive pole I put to the submaxillary fossa, along the inner edge of the sterno-cleido-mastoid muscle; and the other sponge, connected with the negative pole, I placed close to the trachea and near the sterno-clavicular articulation. I galvanised each nervus vagus separately from two to five minutes. Galvanisation was applied daily for six months.

The attacks at first changed the hour; instead of 7 P.M., they awoke him every day at 4 A.M., but were of a milder character. The attacks returned nightly from October 26th to November 3rd; then again, November 7th, 18th, 20th, 21st, and 25th; December 3rd, 15th,

and 29th; and lastly, January 17th, 1872. He continued the treatment till May, 1872, but had no more attacks since January 17th, 1872; and continues free from any asthmatic symptoms to this day, for more than five years and a half. He is actively engaged in business in Manchester, and frequently travels on the Continent; but continues to enjoy very good health in all seasons and climes. I am, therefore, justified in considering him permanently cured, and believe the chief remedial agents to have been the use of galvanism and arsenic inhalations.

CASE II.—T. W. K. of Bowdon, Cheshire, consulted me September 4th, 1872. He was engaged in the Manchester trade, and twenty-five years old. When a child, he frequently had croupous attacks. When fifteen, he had gastric fever, and subsequently pneumonia. Three years ago, he had slight pleuropneumonia, and since that time he had suffered from frequent attacks of dry nervous asthma. The attacks occurred at all times, but chiefly in the night. Crowded rooms, sea- or mountain-residence, any change of air, would bring on an attack. In the intervals, his breathing was free and easy, and he had no cough. After the attacks, he expectorated thick mucous discharge. His chest was broadly built; respiration was audible and clear all over the thorax; the percussion sound was normal; the cardiac sounds were clear; the uvula and epiglottis were large, but of a healthy appearance.

I ordered arseniate of soda inhalations, and applied daily the continuous current to both nervi vagi, in a similar manner to that described in the first case. The treatment continued during a month, he having had only one mild attack in the beginning. I saw him lately, and he told me that he had no attacks during nearly five years since I attended him.

CASE III.—T. St., a tailor, aged 38, consulted me in March 1874. He had had much mental trouble lately. For a month he had suffered from frequent attacks of sudden oppression in his chest, with shortness of breath, and a feeling of anxiety and distress, and ending with profuse perspiration. The duration of the attack was a quarter of an hour. Sleep was restless, digestion good, no cough. The application of galvanism to both nervi vagi alternately during five minutes, and a few inhalations of conium-spray, arrested the attacks, and after a month's treatment he felt quite well. I saw him again two years afterwards, and he reported himself free of any attack.

CASE IV.—On March 5th, 1876, early in the morning, I was suddenly called to attend Miss M. H., a teacher of music, aged 23. She had been subject for twelve years to frequent attacks of nervous asthma. Her father and younger sister in Germany are likewise subject to asthmatic attacks. She came over to England twelve months ago, expecting to derive benefit from the change of climate, but found herself to be as frequently attacked here as she used to be at home. I saw her just recovering from a severe morning attack, with short and quick respiration, all the cervical muscles in a contracted state, the face bluish, with sibilant râles all over the chest; she coughed and sneezed violently, expectorated thick mucous discharge, vomited and perspired profusely. She then felt exhausted and went to sleep, to awake in half an hour with free and easy breathing, and with no râles anywhere in the thorax.

I ordered spray-inhalations of marine salt with arsenic, and applied the continuous current to each pneumogastric nerve, from March 6th to August 19th, 1876; first month, every morning; second month, every other day; then only twice a week. During the treatment, she had an attack in April, another in July, and lastly three attacks, one daily, from 2nd to 5th of August, when she had catamenia. During the last twelve months, she has had no attack, and is now enjoying very good health.

CASE V.—Miss E. H. of Bowdon, Cheshire, aged 42, has been under my observation since June 1876. She suffered for eight years from severe attacks of nervous asthma, and is also subject to bronchial catarrh. She used to have frequently abscesses in the lower part of her back, but had none since August 1875. Has had ulcerated tonsils eighteen months ago. The asthmatic attacks came suddenly in her sleep, generally between 2.30 and 6 A.M.; but any exertion or a rich supper would bring them on. She has frequently pains in the back of her head and neck. Menses regular. Appetite moderate. Bowels sluggish. I saw her both during the attack and also in the intervals. Dry whistling râles could be heard everywhere during an attack; but in the interval, although the breathing was free and easy, moist râles were audible in the scapular region of the thorax. The attacks resembled those described in my other cases.

The treatment consisted in galvanisation of the nervi vagi, and in spray-inhalations, chiefly of arsenic, and also of various additions at different times, such as chloride of ammonium, tincture of datura tatula, ozonised sea-salt, salicylic acid, and cherry laurel-water. She had attacks June 30th, July 11th and 13th, September 15th, December 4th, 1876, and the last time, January 17th, 1877. She also had two attacks of acute bronchial catarrh in September 1876 and February 1877,

* Read before the Medical Section at the Annual Meeting of the British Medical Association in Manchester, August 1877.

which I treated with Iceland-moss poultices applied to the whole thorax, and the internal administration of expectorants with belladonna; stopping inhalations and galvanisation during the bronchial affection. She is at present in a much better state of health than for years, and had no spasmodic attack since January last.

CASE VI.—Mrs. T. of Ashton-on-Lyne, aged 33, widow, consulted me in July 1876. She had a severe attack of capillary bronchitis a year ago, and had since been frequently a sufferer from nervous asthma with bronchial catarrh. She used, under my direction, spray-inhalations of ozonised sea-salt with arseniate of soda, and galvanisation of both nervi vagi, for a fortnight; and she discontinued the treatment as she felt much benefited, and promised to see me again whenever an asthmatic attack might occur, but I had no opportunity of seeing her any more.

CASE VII.—Mrs. E. C. of Altringham, Cheshire, aged 37, married and a mother of two children, had suffered for fourteen years from nervous asthma and chronic bronchial catarrh. Spray-inhalations of chloride of ammonia, arseniate of ammonia, and cherry-laurel water, and galvanisation of both pneumogastric nerves, used during a month, gave her great relief; but I lost sight of her after December 1876, as she left this neighbourhood, and had no opportunity of persevering with the treatment.

REMARKS.—The treatment of nervous asthma by galvanisation of the pneumogastric nerves, and also by spray-inhalations of arsenic, seem to me to be very efficient, as, of seven cases under my observation, five were permanently cured and two greatly benefited. Four of my patients suffered from nervous asthma only, and three had, in addition, bronchial catarrh. One case was also hereditary, her father and sister being subject to asthma nervosum.

Galvanisation has been used with brilliant success for the treatment of two cases of true nervous asthma by Dr. Althaus (*Treatise on Medical Electricity*, second edition, London, 1870, page 522); also by Dr. Benedikt of Vienna, in one case (*Electrotherapie*, Wien, 1868, page 309); and by Dr. Brunner of Warsaw, in four cases lately published (*Sovremennaja Medicina*, Warsaw, 1877, Nos. 1-4).

Successful cures of nervous asthma have been effected with arsenic-inhalations by Dr. Wistinghausen (*Petersburger Medicinische Zeitschrift*, 1862, page 137), and also by Dr. Lewin (*Inhalationstherapie*, Berlin, 1865, pp. 443, 445).

I am of opinion that the two methods of treatment by galvanisation and inhalation may be safely combined, and ensure permanency in their beneficial effects.

NOTE ON FIBROID CHANGES IN THE LUNG AND THEIR RELATION TO SYPHILIS.

By JAMES F. GOODHART, M.D.,

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IN the number of the BRITISH MEDICAL JOURNAL for September 1st, my friend Dr. A. B. Shepherd, in his Further Remarks on the Natural History of Consumption, alluding to syphilitic disease of the lung, says that the cases upon which I based my remarks at the Pathological Society do not agree with the descriptions of the very few cases quoted in his second Goulstonian lecture, and I may add they certainly do not. The subject is one which has lately been fully discussed, and I do not propose to enter upon it again any further than is necessary to explain any discrepancy that may seem to exist between the one class of cases and the other. But to do this is really necessary, as it seems to me; because, if further observations are to be conducted from Dr. Shepherd's standpoint, a large number of cases will receive no consideration, and the main question—Does syphilis affect the lung?—answered in the affirmative by him, is likely to be negated by others on his own cases. For instance, it is surely no unfair argument to say that if, in the hundreds of cases of syphilis that have been carefully observed and of which the *post mortem* appearances are now recorded, only four or five of peculiar lung-change have been found, the peculiarity of the disease is likely enough due to something other than the syphilitic poison. If no other disease than that be syphilitic, then it is, indeed, very doubtful whether that, from its rarity, can be considered syphilitic. But if others, taking a broader view of the matter, say that fibroid changes in large or small quantity are found in the lung in an undue proportion of the cases of lung-disease in syphilitics, Dr. Shepherd's position is thereby strengthened.

For what is this disease of the lung which is considered as characteristic of syphilis? It is, and I quote from the second Goulstonian lecture of last year (BRITISH MEDICAL JOURNAL, 1876, vol. i, p. 623), "a form very closely resembling that described by Dr. Sutton as

fibroid degeneration of the lung"; and Dr. Sutton closes his article in the *Medico-Chirurgical Transactions* by endorsing the remarks of Dr. Wilks, that this "is merely the extreme development of a morbid condition such as is every day seen in a less degree in phthisical lungs". In this frequently seen gradation between slight and advanced forms of disease, lies the whole strength of my position. The extreme form must have had some beginning; and how else could it begin than by some such changes as those described and exhibited at the Pathological Society? Dr. Shepherd seems to me to take an extreme condition as his type or standard, and to call nothing syphilitic till that extreme is reached. But what was the commencement of this change? Is it any the more syphilitic or characteristic of syphilis in having advanced so far? And should we not expect that, for one such case as this, many others of comparatively trivial disease or of some earlier stage would occur? Again, Dr. Shepherd writes: "The pathological change in this form is quite distinct from that—if I may use the term—accidental occurrence of syphilitic deposits, in which the lung, in common with other organs, reveals the presence of gummata of varying size and shape and in different stages of development." Then, again, referring to my cases, "They include mainly cases of gummata, gangrene, ordinary yellow deposits, with destruction of tissue or partial fibroid change".

But in what, it may be asked, does the difference between the two forms, as thus described, consist? A gumma is a local fibroid change, gangrene is its sequel when it occurs in such cases; and ordinary yellow deposits are found in both forms. Thus, the difference is merely one of degree, not of kind, and this conclusion is further supported by the analogy to be drawn from syphilitic disease in the liver. In the latter, as is of course known to everyone, the usual condition is one of local gummata; but, on examining many of these cases more closely, it is found that there is a spreading interstitial cellular growth (the early stage, in fact, of fibroid disease or cirrhosis) in a large part of the organ. Yet, a true syphilitic cirrhosis is far from common; nay, just as extreme disease of the lung, it is exceedingly rare. But there would, it seems to me, be just as much reason for calling the cirrhosis the essential or specific disease, and the local changes the accident, if we did not by this time know better, as for applying those terms to the changes in the lung. All the extreme changes in such a chronic disease must be rare, because in both cases other viscera become hampered and the patient dies in their course, or (if it be a well founded inference from our present data, that the earlier changes are due to syphilis) because they are arrested by medicines. Moreover, and this does not lessen the force of the evidence which exists in favour of syphilitic disease of the lung, such extreme cases as that recorded by Dr. Pye-Smith, for instance, where one lung was converted into a mass of fibroid tissue and no healthy tissue left, are really not due to the syphilis so much as to the position taken by the disease, and this is determined in most, if not all, cases by local conditions. In Dr. Pye-Smith's case, the general affection of the whole of one lung was due in great part, as I thought when making the *post mortem* examination, to the fact that there was very considerable narrowing of the main bronchus, and which may be presumed to have favoured some collapse. In like manner, other cases may be due to the thickening of the pleura, or effusion, and so on. But these are no characteristics of the syphilis; they are possessed in common by some tumours at the root of the lung and by some old pleurisies; though, if it be essential for its production that complex conditions must concur, the manifestation of a particular form of pathological change must be rare.

It was my great aim at the Pathological Society to strengthen the position of former observers in bringing up further evidence to show that the lung is no exception to the rule observed by syphilis in other viscera; and that in it, as in other parts, nodules, gummata, fibroid changes, cicatrices, or whatever they may be called, were not uncommon. My own sense of right conclusions will be satisfied, even if it be admitted generally, that syphilis modifies other forms of lung-inflammation and tends in them to the production of a fibrous form. Thus, if a syphilitic person get a catarrhal pneumonia or bronchitis from any cause whatever, its course is likely to be modified. I do not know that facts prove more for any other viscus than that. I doubt whether late syphilis has a predilection, so to speak, for any organ any more than I suppose that croupous pneumonia has a predilection for attacking the base of the lung. The outbreak is determined by strictly local conditions, and these are often made more apt by some local cause of inflammation. Thus, one man has his liver affected, another his brain, another his heart or large vessels, another his lungs or skin.

I never attempted to show that the partial fibroid changes were the same in outward appearance as the few recorded cases which alone Dr. Shepherd would call syphilitic. Rather the contrary; entrenching myself behind Dr. Wilks and Dr. Wilson Fox, I professed to be unable to distinguish decisively between chronic forms of tubercular disease