

other respects the eyes appeared quite alike, and the pupils were equally contractile. Pressure over the retina gave rise to luminous appearances in both eyes, but on the right side he ascribed the light as being less vivid than on the left.

Case 4. Mrs P——, eye-sight very imperfect. On the left side is a cataract which prevents her from distinguishing the form of objects however bright, although she is able to distinguish light from darkness. On the other side is another cataract, but less advanced, the vision much more distinct, although more imperfect than natural. Compression of the eye-balls causes two bright circles equally brilliant on both sides. This patient intends to be operated upon for cataract, when I shall have still farther occasion to ascertain how far the sensibility of the retina to pressure coincides with its sensibility to light.

Case 5. Elizabeth E——, has paralysis of the right arm. Vision on the right side more dim and imperfect than on the left. Pressure of the eye caused a bright circle on the left, but nothing on the right side.

Case 6. Madame P—— had a sudden attack of hemiplegia, which lasted for several days, after which sensation and muscular power were entirely recovered. At the commencement of the attack the eye-sight on the left side was much impaired, while that on the opposite side remained as usual. At this period compression of the retina caused a luminous circle much more vivid than on the right. The eye-sight afterwards recovered its former vigour simultaneously with the recovery of the muscular power and sensibility of the limb. Retinian pressure after recovery was found to create equally bright circles in both eyes.

ART. VI.—*On the Antagonism of Miasmatic Fever and Pulmonary Consumption, and the alleged incompatibility of Ague or its Causes with Pulmonary Consumption.* By M. Boudin, Horace Green, M. D., and Dr Helfft.

FOR nearly fifty years an idea has been more or less strongly entertained by many members of the profession, that pulmonary consumption is a disease either uncommon or not known in miasmatic districts, productive of malaria and intermittent and remittent fever. It is not very easy to trace the original source of this notion, as at first it merely appeared in the form of the observation, that pulmonary consumption, which was so common in other parts of the island, was not much observed in certain fenny districts.

Bang, a physician of considerable note at Copenhagen, and who published, in 1789, *Clinical Reports of the Hospital Practice* there, records the fact, that a person labouring under symptoms of pulmonary consumption, was attacked by quotidian ague, and thus got rid of his pulmonary disorder.

This case, Frederic Ludovic Bang gives in a manner very brief, and perhaps too vague to demand much confidence either in a diagnostic or therapeutic point of view. "The incipient stage of phthisis," he states, "indicated by cough, mucous expectoration, wandering pain in the chest, breathlessness, loss of appetite, wasting of the person and strength, and hoarseness, with which a man aged 40 years was for six months afflicted, all happily disappeared upon the approach of a quotidian fever, which, after seven accessions, was cured by the exhibition of bark."*

Marx, also, in a treatise on pulmonary consumption, published in 1784, states, that persons labouring under that disease have, in some instances, recovered from it, in consequence of being attacked by ague.

The first person who appears in this country to have given the doctrine a formal substance, was Dr Harrison of Horncastle, in Lincolnshire, who, in 1802, made known his views on the subject. He states, in a discourse delivered before the Medical Society of that town, that he had not resided long in that division of Lincolnshire, before he was strongly impressed with the idea, that the inhabitants upon the Wolds, or elevated district of that county, were a great deal exposed to idiopathic consumption, and peculiarly liable to calculous complaints; while in the division of Holland, one of the lowest and most fenny parts, and the extensive marshes of the county, these disorders are probably less known than in most other situations in England.

He next states, that he does not wish to be understood to assert that phthisical complaints of all kinds are more prevalent upon the Wolds. His observations were directed chiefly to affections which originate in scrofula, and these he was inclined to believe were much less frequent in the division of Holland than in that of Lindesey. The situation of Horncastle had afforded him, during a space of more than fourteen years, numerous opportunities of investigating more particularly the

* "Phthiseos initia cum tussi, sputo mucoso, dolore vago pectoris, dyspnœa, anorexia, consumptione corporis et virium, raucedine, quibus quadragenarius dimidio anno afflictus fuit, feliciter evanuerunt sub accedente febre quotidiana, post septem vices per corticem sanata." *Selecta Diarii Nosocomii Fredericiani pro Ann. 1781. Auctore Frederico Ludovico Bang, M.D. &c. Apud Acta Regiæ Societatis Med. Havniensis, vol. i. Havniæ, 1783, p. 15.*

Jak. Marx *Abhandlung von der Schwindsucht und Lungensucht, und der Mitteln wider dieselben. Hannov. 1784. 8vo.*

prevalence and origin of pulmonary complaints, and he had arrived at the conclusion, that these were much less frequent in the fens and marshes than in other parts of his circuit. The difference with respect to idiopathic consumption, he represents to be very great indeed. In some parts to which his professional engagements called him, it was a very common complaint; in others, it was scarcely known to the faculty. Pulmonary consumptions, he allows to be met with everywhere; but when he was consulted upon cases of this nature within the circuit of the marshes, or in the division of Holland, he could trace them either to other situations, to neglected colds, or to some irregularity in the suffering person.

Excluding consumptive disorders occasioned by accidents, to which all persons are exposed in the usual business of life, Dr Harrison refers chiefly to what he calls florid consumption and tubercular consumption.

When Dr Harrison first adopted the opinion, that pulmonary consumptions were seldom produced in the division of Holland, he applied for further information, among others, to Mr Wayet, an old and experienced practitioner at Boston. This gentleman informed him, that pulmonary complaints of all kinds were very uncommon in that neighbourhood, and that those which did occur were milder than in other places. In an extensive practice of more than forty years, he had seldom attended in cases of peripneumony or spasmodic asthma, and measles were seldom dangerous in that part of the country. From another gentleman, also, who had some knowledge of the United Provinces of Holland, he learned that consumptive disorders seldom occurred among the Dutch. This alleged exemption from phthisical complaints, he ascribed to the same physical circumstances in both countries. In the lower parts of Lincolnshire, he observes, the air is moist and soft, when compared with the atmosphere upon the Wolds. The lungs are therefore less irritated by it, and, in consequence, he concludes, tubercles, which lay the foundation of idiopathic consumption in other places, are seldom met with in these situations.

Sheep, it is well known, are liable to be affected with tubercles in the lungs, and to die hectic. By what morbid action tubercles are formed in these animals, and whether they remain indolent for some time, or are roused into immediate action, are subjects upon which no satisfactory information can be given. In human lungs, the suppurative process is often very slow. Unless the lungs be hurried into suppuration by mismanagement or irregularities, they remain stationary for several years, and under favourable circumstances, appear to be gradually absorbed. In every case, where the existence of tubercles is suspected, he re-

commends the patient to remove into a soft moist atmosphere, where the lungs will be less stimulated; and to remain in it till he has reason to believe, that the tubercles are entirely removed. Whether more eligible places are to be found in other parts of the kingdom, he does not determine; but till we have obtained better information upon the subject, he is disposed to recommend a residence in the Lincolnshire fens to such patients, in preference to every situation with which he is acquainted.

By making experiments upon sheep in different districts, situations, and circumstances, he believes that some comparative knowledge would be obtained, which might assist our inquiries into the prevention and cure of tubercular consumptions in the human body. If, for example, a flock of sheep were to be bred, and wholly maintained upon the Wolds till they were fit for the butcher, and another were to be kept in the fens, an opportunity would be given to examine the lungs in each, and to determine how far the different flocks were affected by their respective pasturage. Such an inquiry would probably enable us to treat the diseases of sheep with more success, and thus a double benefit be conferred upon society by the investigation.

1. In January, 1793, a young lady, aged about twenty, who had been a patient under Dr Harrison for several months, with very strong symptoms of florid consumption, went upon a visit into the neighbourhood of Wisbeach, in the Isle of Ely. While under the care of Dr Harrison, she had continual pains in the chest, with short dry cough, the sputum being generally streaked with blood. Motion soon fatigued her, and increased the dyspnœa and cough; she evidently lost flesh and strength, and in an afternoon and evening she had a slight hectic fit. Her being of a consumptive family, he considered as affording a prognostic unfavourable to her recovery. After an absence of three months, she returned again so much improved in health, that she thought herself quite well. She took up her residence at an elevated village in this neighbourhood. Dr H. frequently saw her, and had the mortification to observe an insidious attack of all her old symptoms. Before the end of the summer, he thought her as bad as ever she had been, and urged her to return to her friends near Wisbeach. With this advice she neglected to comply for two years, during which time her symptoms rather increased than abated. After a second visit of near four months, in the winter and spring 1795, she returned again to her relations, where she continued several years without suffering much from phthisical complaints, though her constitution remained infirm, and her complexion was pale and sallow. About two years previous to the date of these observations, she married, and resided in a distant county, where she enjoyed better health, and became a mother.

2. He mentions also the instance of the wife of an apothecary, who was several times rescued from impending consumption, by removing from Lynn Regis to Wisbeach. Her relief was so striking and immediate, that before she had travelled three miles, she always found herself better, and in a few days her pectoral disorder entirely left her. Sensible of the great benefit she received from this particular change of air, she had recourse to it whenever attacked by her phthisical symptoms.*

It thus appears that Dr Harrison had not only maintained the doctrine that tubercular consumption is an uncommon disease in fenny districts, but he had founded on this doctrine the therapeutic proposition, that tubercular consumption might in certain stages be cured, by causing the patient to reside in a low and fenny district. Whether this doctrine and the correspondent therapeutic maxim received much attention from physicians, does not at that time appear. The doctrine, however, was destined to be more fully and extensively brought under the notice of the profession by a writer of acknowledged talent and great acuteness.

In 1811 Dr Wells read to the Medical and Chirurgical Society of London, a Memoir containing Observations on Pulmonary Consumption and Intermittent Fever, chiefly as Diseases opposed to each other, with an Attempt to arrange several other Diseases, according to the Alliance or Opposition which exists between them, and one or other of the two former.

The initial idea of this inquiry Dr Wells had imbibed at an early period; as he states that he was informed in Holland, in 1779, by an old Scottish officer of the Scottish Brigade, in the service of the Seven United Provinces, that while in garrison in Flanders, he had often seen consumptive persons come for the benefit of their health, from the high and dry parts of the country to those which were low and marshy, and infested with agues. The reflections, which Dr Wells made on this practice, led him to inquire, whether countries in general, which are more subject to intermittent and remittent fevers, abound less in pulmonary consumption than others, which are free or nearly free from those distempers, yet enjoy the same or nearly the same temperature of air; and whether the same country, which had previously been productive of agues, becomes, after these fevers have ceased, or have been less frequent and less violent, more productive of consumptive disorders.

London, he observes, underwent in the course of the 18th century two remarkable changes in relation to its diseases. Soon after the beginning of the 18th century, the deaths from consump-

* An Address lately delivered to the Medical Society of Horncastle in Lincolnshire, on Endemic Causes of Disease. By C. Harrison, M. D. London Medical and Physical Journal, vol. viii., p. 221. London, 1802.

tion, according to the bills of mortality, constituted only one-eighth of the whole number, but formed towards the end of the century one-fourth. In the former part of the same century, intermittents were very frequent in London, but in the last part, they were so rarely, if ever contracted in the city, that whenever he attempted to trace the origin of those instances of the disease which he saw, he could always find it in places more or less remote from the capital. This circumstance he considers to form a strong presumption, that the changes in the comparative frequency of these two diseases were in some degree connected.

In making this general inference, Dr Wells allows for various sources of fallacy; the deaths being stated as both consumption and tussick, especially for a considerable time; many deaths being by the searchers set down to consumption, which might have proceeded from other causes; the junior population of London being composed not only of persons born within the city parishes and their liberties, but of young persons incessantly arriving from the provinces, and consequently furnishing a larger proportion than in other places of persons likely to be attacked by consumption and pulmonary diseases;—and similar causes. Upon the whole, Dr Wells thinks it a just inference, that the mortality in London from consumption must, at the time when he wrote, be greater than in proportion to any supposed or real innate disposition to produce that disease; and that, conversely, those places from which proceed many young persons, may appear less apt to give rise to consumption than in reality they are.

Dr Marshall of Lynn, in Norfolk, a place surrounded by fenny ground on the land side, stated in reply to a query proposed to him about 1800, that the place he believed came within the description of Dr Wells: “The intermittent fever,” he adds, “wherever it prevails, will bear no brother near the throne.”

Mr R. Weekes of Hurstperpoint in Sussex, an experienced practitioner, informed Dr Wells, in 1807, that the lands in his neighbourhood had of late been much more effectively drained than formerly; that intermittents had since become much less frequent; and that in the same interval, pulmonary consumption had become, in his opinion, more frequent. The last mentioned change he was disposed to attribute to the circumstance of the food of the common people being less nutritious than it used to be; but this explanation Dr Wells thinks does not account for the fact.

In referring to the facts mentioned by Dr Harrison, already noticed, Dr Wells states that he was informed by a clergyman, a native of Lincolnshire, and who resides there, that he had known several instances of consumptive persons being sent to the fens for the recovery of their health. Similar accounts he

had received of the comparative rareness of pulmonary consumption in the marshy districts of Kent and Essex; but in a form not sufficiently authentic to entitle them to attention.

He also adduces from the history of agricultural improvement in Berwickshire, Perthshire, and Clackmannanshire in Scotland, instances and facts to show, that as ague had become less frequent in these counties, consumption had become more prevalent.

The Reverend Mr Leslie informed Dr Beddoes, that whenever the students at the English Academy, in the neighbourhood of Liege, became affected with consumption, they were sent to low, foggy, and swampy places in Austrian Flanders, where in the course of a few months, it is stated, they almost always recovered their health; but that, if they returned to the Academy, they fell again into that disease. Dr Wells thinks, from the account of the symptoms presented by these young persons as given by Mr Leslie, that it is clear, that he was not mistaken as to the nature of the disease, and that it was really pulmonary consumption.

Brussels, he next observes, in the province of Brabant, is represented by Sir John Pringle as being high, well-aired, and healthy; that is, exempt from intermittents and other autumnal diseases to which the army was subject in the Netherlands. In the Acts of the Society of Medicine of that city, published in 1801 and 1802, pulmonary consumption is stated to be one of the most common diseases there.

This statement regarding Brussels, nevertheless, requires some qualification. It is quite true that one part of Brussels is built on elevated ground, and may be dry and exempt from the distempers of wet marshy localities. But a considerable part of this city stands in a depressed, flat, situation, and is traversed by the Senne, a slowly-moving stagnant stream, which cannot fail to communicate its moisture to the neighbouring streets and lanes. Not only is this, the north-western division of the city, traversed by the Senne, but that stream sends off various canals, which cannot but add to the general humidity of the soil and atmosphere. At the north-west corner of the city, also, is a considerable canal,—the canal of Brussels and Antwerp,—communicating, within the walls, with a considerable basin, and without, with the Charleroi Canal, immediately without the bulwarks; while beyond this, again, is a smaller, but equally lengthened canal, which traverses from south-west to north-east the district of Molenbeek St Jean.

Even beyond the most elevated parts of the city in the districts of St Josse-ten Noode and Ixelles, are distinct evidences of the marshy and depressed character of the country. In each of these districts is a considerable pool of stagnant water, the

remains, unquestionably, of more extensive marshes or lakes. In truth, to any one surveying with a practised eye this part of the suburbs of Brussels,—for these pools are beyond the walls,—it would most readily occur, that either two considerable lakes with marshy banks must at no remote period have existed, or that an extensive lake with marshy pools at its margin must have covered the greater part of these two suburbs. The whole surrounding country, also, especially in the west and south, is low, flat, and level.

As early even as 1791, F. E. G. Hirschings, a writer on medical topography, had given account of the physical and meteorological peculiarities of Brussels, contradicting, in almost every point, the statements of Sir John Pringle. “The city of Brussels,” he says, “lies in a valley, in a somewhat marshy district. The whole round it is infested with mist. Much rain falls, at least twice in the week. The air is always cold and moist; it has few open places or squares; and is so surrounded by walls, that the ventilating operation of the winds is obstructed. The best parts of the town are the wide streets. The town lies close to a small river. There are few or no springs of water; hence the inhabitants are commonly compelled to collect rain water in cisterns for ordinary uses. The inhabitants drink much beer, which is thick, mucilaginous, and badly fermented. They drink also great quantities of weak tea and still weaker coffee. Wine is too costly to be in common use. The principal articles of food are oysters, fish, cheese, butter, and a considerable amount of farinaceous substances, with very oleaginous sauces. Most of the people,” he adds, “take little exercise. From all the sources now mentioned arise frequent catarrhs; rheumatic disorders; ophthalmic diseases; inflammations of the throat; attacks of deafness, and similar disorders. In consequence of the sort of diet, many are attacked by mucous diseases, worms, biliary and strumous disorders. Fevers are usually of the bilious character, and rarely become putrid.”*

The main point is this, that Brussels was at the time at which Dr Wells wrote, and is at present, still liable to ague and remittent fever, and cognate disorders, among its inhabitants, especially those resident near the banks of the Senne and the canals in general. How Sir John Pringle could have given it the character of a place “high, well-aired, and healthy,” it is not easy to understand, unless he had either never visited it, or never examined its position with any attention.

* F. E. G. Hirschings *Allgemeine Archiv für die Lander und Volkeskinde*, 2 B. Leipzig, 1791; apud Finke *Versuch Einer Allgemeinen medicinisch-praktischen Geographie*. Zweyte Band, Leipzig, 1792, Seite 303.

The population of Brussels was in 1843 as follows :—

The City of Brussels,	114,582
The Suburbs of Anderlecht, . . .	5,271
Ixelles,	9,659
Molenbeek St Jean,	9,470
St Giles,	2,946
St Josse-Ten-Noode,	12,913
	<hr/>
	154,841

The total annual mortality of Brussels alone is about 3676, or 1 in 30·4.

As to the prevalence and fatality of different diseases, medical testimony is variable. One intelligent young physician informed us some years ago, that miasma is most prevalent, and produces almost incessant bad effects in the health of residents. In 1842, a typhoid remittent raged in the garrison, and destroyed many soldiers. On the other hand, Schonlein makes the following statement regarding Brussels. “At a trifling distance from Holland, in the sandy part of the Netherlands, scarcely elevated 80 feet above the level of the sea, for instance in the neighbourhood of Brussels, where intermittent fevers are rare, there tubercular consumption reigns continually.”*

Dr Wells next adverts to the comparative prevalence of agues and consumptive disorders in Berlin, Vienna, St Petersburg; one or two places in Portugal, and a few in Italy; then surveys the information furnished by Egypt, Aleppo, Bengal, and various parts of the United States. The information, however, from these places, is neither so recent nor so accurate as to entitle it to much attention.

The only points deserving notice are some statements regarding the comparative prevalence of miasmatic fevers and consumption in various parts of North America.

Dr Walsh, in an account of the diseases of Canada, represents intermittents to be very frequent in the upper part of the country, particularly on the borders of the lakes. He makes no mention of pulmonary consumption, though he speaks of pleurisy. This evidence must be regarded as merely negative.

New Hampshire, on the eastern coast of America, occupies nearly the same degrees of latitude as Upper Canada, but from its being less elevated, perhaps also for other reasons, it enjoys a milder temperature of atmosphere. In Portsmouth, its capital, according to accounts published by Dr Spalding, a physician there, nearly one-fifth of the deaths are produced by pulmonary consumption. Dr Spalding speaks of diseases only as causes of death; no precise notion, therefore, can be obtained from what he

* *Allgemeine und Spezielle Pathologie und Therapie*, B. III. sec. 74.

has published, whether ague is frequent or not, but he thinks it may be concluded that it is not frequent, as only two deaths from it occur in the course of eight years.

Rhode Island is so free from intermittents, that the rich inhabitants of South Carolina frequently go thither, in the summer, in order to avoid the diseases of their own state. Dr Wells was informed by an American gentleman who had resided both in Rhode Island and in this country, that consumption appeared to him to be there even more frequent than it is in Great Britain.

The deaths from consumption in the first eight months of 1807 are said to have been at New York one-fifth, and at Philadelphia, during the same time, one-sixth of the whole numbers which occurred at those places.* As Philadelphia is not a degree further south than New York, the difference between them, with respect to the production of consumption, cannot, he thinks, be attributed to difference of temperature, but must, he infers, be imputed to the difference in the frequency of intermittents which is known to exist.

In the Azores, in which the climate is represented to be the most equable in the world, Mr Graham, the English consul, informed Dr Currie of Liverpool that consumption was a prevalent disease. Was this prevalence among natives or visitors?

Dr Wells states, from personal knowledge, that in South Carolina consumption is rare and intermittents are exceedingly frequent. He refers particularly to what is known of the white inhabitants; for negroes are affected very differently, he maintains, from the white race by causes of disease. Negroes, he adds, if moderately well fed and properly treated in other respects, retain their health, though labouring daily in rice swamps, where their masters would almost infallibly perish; but, on the other hand, they contract dangerous inflammatory diseases in circumstances which prove harmless to whites.

Negroes, it may be added, are in this country quite as liable to consumption as whites; and the mulatto or mixed races are rather more liable, if possible.

Bermuda, which lies in the same latitude as South Carolina, possesses a much more temperate atmosphere, being neither so hot in summer nor so cold in winter. This equality is evidently owing to its insular situation. It is, Dr Wells states, very free from intermittents. But consumption was, at or previous to the time at which he wrote, much more frequent in it than in South Carolina.

Madeira, which lies in the same latitude with Bermuda, is also free from intermittents. Dr Wells states, though doubtfully, as the authority on which the statement is made, was questionable,

* Edinburgh Medical and Surgical Journal, Vol. v.

that pulmonary consumption may frequently originate in that island.

The information as to Barbadoes and Jamaica is rather of an uncertain character.

The facts thus stated were sufficient to establish, in the opinion of Dr Wells, beyond doubt, the inference, that in some places where agues are prevalent, pulmonary consumption is comparatively rare; and that in others, while agues have diminished, consumption has become more frequent. These concurrences, he argues, are too numerous to allow us to suppose that they are merely accidental. He thinks, therefore, that it must be admitted as a general truth, that the frequency of intermittent fevers, in any country, renders the instances of pulmonary consumption in it less numerous than they would otherwise be. This truth, as he calls it, may, he allows, be obscured by various circumstances and modified by others.

Assuming that the arrangement thus stated is correct, he gives the following view of what may be called the final causes of the etiological relation between ague and consumption.

“Pulmonary consumption and intermittent fever are by far the most destructive of the diseases which are incident to man. It is agreeable, therefore, to the general rule which we see observed, with respect to the distribution of good and evil in the world, that these two immense causes of death should nowhere occur together in a high degree. That this is really the case is already, in great measure, established. For it has long been known, that pulmonary consumption is much more common in cold than in warm climates, but that intermittents never originate during the presence of frost, and are frequent and dangerous when the other circumstances are equal, which are requisite for their production, in proportion to the heat that prevails. It is surely then natural to infer, without the further knowledge of facts, that pulmonary consumption and intermittent fever are opposite diseases.

“If it be now asked, in what manner do intermittents lessen the frequency of consumption? my answer is, that their operation, probably here, is chiefly a consequence of the more general fact, that the existence of one disease in the human body, or even a tendency to one disease, often renders it less susceptible of another disease, than if it were free from all morbid impressions. It may be objected, however, to this explanation, that intermittents rarely affect a very great proportion of the inhabitants of any country, during even part of a year, and seldom remain with any of them a whole year or more, and consequently, that the cause assigned is inadequate to the production of the effect, which is supposed to flow from it. To this I reply, that the causes of no disease affect at once such large numbers of men, and at the same time

make so lasting an impression upon the bodies of individuals, as those of ague. In maintenance of the first proposition, I shall mention, that the inhabitants of a country infested with ague, though they may be apparently in perfect health, are often, during the season of that disorder, attacked with it, almost immediately after fatigue, errors in diet, long exposure to the damps of night, or being wetted with rain, while similar circumstances, at the same season in the same country, produce no such effect upon strangers, during the first eight or ten days after their arrival. The former, therefore, must have previously had a disposition to ague, though demonstrated by no external signs; and if this unknown state be capable of being changed, by very slight circumstances, into an evident and great disease, it may readily be thought sufficient to resist the action of the causes of another disease. To prove the second proposition, I may say, that persons who have once contracted an ague, are sometimes subject to a return of it in the spring or autumn, or both, for several years, though living in countries where agues do not originate, and that agues often do not appear till the spring, though their causes were applied to the body in the preceding autumn. I have known three instances of this latter fact myself, and I have been informed, that similar instances frequently occurred in the spring of 1810, among the officers and soldiers of the British army, who had been in Zealand in the autumn of the year before. It seems, indeed, very probable, that the intermittents which occur in the spring, always arise from impressions which were made the preceding autumn, as I know, that in South Carolina, strangers visit the unhealthy parts of it with entire impunity, in the spring, though the inhabitants themselves are subject to vernal intermittents.

“Whether a person, affected only with a disposition to pulmonary consumption, is more capable than others of resisting the attacks of ague, I have not hitherto learned; but Dr Caldwell of Philadelphia has observed, that those who labour under the former disease are little liable to the latter. The consumptive individual, however, while he thus resists the full operation of the causes of ague, must yet be acted upon by them as other persons are, and this action, though not followed by its ordinary apparent effects, may be sufficient to impede, and ultimately to arrest, the progress of his disease.”

Then, after a lengthened and ingenious comparative view of the antagonism or resisting operation of ague and various other diseases, as scrofula, continued fever, &c., he makes the practical and therapeutic application in the following manner.

“The influence of climate, in giving origin to consumption, is probably often exerted long before any symptom of the disease can be discovered. Thus, the only white adults whom I recollect

to have seen attacked with consumption in South Carolina, were born in Britain, and went from it to the former country when young men, several years before the disease appeared; and though, as I formerly said, the natives of warm climates, when sent hither in childhood, are more apt to fall into that disease than ourselves, yet, if I can trust to the accuracy of my own observations on this point, for I have not seen it treated in books, such of them as remain at home till they have acquired their full growth, are afterwards less liable to become consumptive in this country than our own people of similar ages. When, therefore, parents have reason to dread from past experience, that their children are likely to prove consumptive, and are consequently eager to make every attempt in their power to avert this misfortune, they should be told, that measures of prevention, to have the best chance of success, ought to be very early adopted. Parents thus situated, might therefore be advised to send their children to school in the fenny districts of the counties of Lincoln or Cambridge; and, if their fortunes be small, to place them afterwards with persons living in the same or similar districts, for the purpose of being taught some art or profession. Youths of better condition might go from those districts to Leyden, to prosecute their studies there, or to counting-houses in Amsterdam or Rotterdam, if they be intended for merchandize. In this way might be passed, without any considerable sacrifice of time or money, or the omission of proper instruction, the period of their lives which is most exposed to receive impressions from climate favourable to the production of pulmonary consumption, that which intervenes between the ages of seven and twenty years. Afterwards, they who have followed the plan which has been pointed out, will probably be as secure against the attacks of that disease, as the generality of their countrymen.

“If consumption has actually come on, residence in a fenny country may still be recommended, if it has not been already tried without success, as a measure of prevention, since the testimony of Mr Leslie places beyond doubt, that this disease has been frequently removed by such means.

“Should it, however, be thought preferable to send a consumptive person to a warm climate, it ought to be remembered, that Lisbon, Nice, and Naples, have been held by English physicians who visited them, as places not the best adapted for the cure of this disease. When such a person, therefore, goes to Portugal, instead of residing in Lisbon, or on the neighbouring high ground, he should imitate the practice of the natives, and pass into the low and swampy country of Alentejo.

“Madeira, from the mildness of the winter there, must be a fitter place of residence for the consumptive during that season,

than any part of this country; but, as it probably gives origin itself to many consumptions, its climate cannot be regarded as well adapted for the cure of those which have arisen in other places.

“A voyage to the West Indies and a residence there for several months, would afford consumptive persons a better prospect of recovery than any of the means which have been hitherto mentioned. Of the English possessions there, Jamaica and the newly-settled small islands, would be more likely to prove advantageous to them than Barbadoes, or any of the other islands which have been long cultivated, and have the reputation of being healthy.

“The danger, however, of contracting other diseases in the West Indies, will always deter many persons from going thither for the cure of consumption. The same danger does not exist, in an equal degree, in the hot climate of Egypt, since its chief disease, the plague, may be easily avoided. As this country, therefore, is represented as free from pulmonary consumption, the ancient practice of sending thither persons affected with that disease might be revived with considerable advantage to them. Its many wonderful relics of ancient art and magnificence, would also, by affording amusement and instruction to our well-educated young countrymen, tend to relieve that languor of mind of which they often complain, in those places to which they are now commonly sent on account of their health.

“In Egypt, indeed, as well as in other countries which have been mentioned, those who are sent to them for the prevention or cure of consumption will, no doubt, be liable to be attacked with intermittents. But, although the latter diseases, when very prevalent, are a greater national evil than pulmonary consumption ever is anywhere, both by causing, directly or remotely, the death of more persons, and by withholding, during life, a much greater quantity of labour from the service of the country, yet their injury to individuals is to be estimated very differently. For intermittents, in proportion to the number attacked by them, destroy but few, whereas consumption almost constantly proves fatal, if the persons affected with it remain where they contracted it. Little objection should therefore exist, on the part of the consumptive, to removing into a low and swampy country, were an attack of an ague, there even certain, and still less when it is considered, that those who labour under consumption are less readily seized with ague than the healthy, and that a mere disposition to the latter disease is, probably, often sufficient both to avert and to cure the former.”*

* Observations on Pulmonary Consumption and Intermittent Fever, chiefly as Diseases opposed to each other; with an attempt to arrange several other Diseases according to the Alliance or Opposition which exists between them, and one or other of the two former. By William Charles Wells, M.D., &c., read December 24, 1811. *Medical and Chirurgical Transactions*, Vol iii., Art. xxxiii., p. 671. London, 1812.

It has been seen, that the evidence adduced by Dr Wells, is neither so extensive nor so accurate, as might now be obtained on the same question by means of suitable and careful inquiry. Adduced as it was, however, by a person of great acuteness, a very philosophical mind, and one who was in other respects highly esteemed by many eminent members of the profession, it produced a very strong and decided impression at the time, when it was published. The prospect of effecting, by means so simple, a cure or recovery in a disease, in which all the usual modes of medical treatment signally failed, was calculated to induce many physicians to try the method with considerable confidence of success; and for several years after the publication of the paper of Dr Wells, several physicians sent consumptive patients, and we have heard of physicians sending sons and daughters with consumptive symptoms, into the fenny districts of England, with the hopes of effecting cures. In truth, for three or four years subsequent to 1812, the great remedy for the removal of consumptive symptoms was, with not a few, residence in a fenny district. The results of this mode of treatment were never very decidedly or satisfactorily made known. Some maintained that they had seen cases in which cures were accomplished; others again spoke doubtfully; and after a few more years, especially after the death of the excellent patron of the method, which took place in September 1817, it appeared to be either tacitly abandoned, or looked upon as a method too uncertain and ambiguous in its results to be resorted to with any confidence.

In 1814 appeared a new investigation of the question. Dr Henry Herbert Southey published in that year a short essay on pulmonary consumption, calculated more perhaps for popular than for professional perusal. Though not very complete, either on the pathological anatomy or etiology of the disease, it communicated, in an agreeable manner and in short compass, much interesting information on the disease, and the best and most approved modes of managing its symptoms and effects. Among other subjects of a therapeutical description, Dr Southey examined with particular care the doctrine of Dr Wells, that residence in fenny districts cures patients labouring under consumption.

Dr Southey first states various facts in favour of the general doctrine of Dr Wells; and then compares with these the facts opposed to that doctrine.

In confirmation of the opinion of Dr Wells, Dr Southey remarks, that in the vale of Keswick, in Cumberland, agues were formerly very common, but have nearly disappeared; and consumption, which is stated by the old inhabitants to have been formerly seldom known there, is now extremely frequent. Mr Archdeacon Blackburn, in a communication to the late Dr Percival, printed in the 65th volume of the *Philosophical Transac-*

tions, speaking of Richmond in Yorkshire, says, "We have no distempers here which can be called endemial; and when fevers prevail in the neighbourhood, few are affected by them in this town. If any person brings an ague to Richmond, he is generally freed from it in a few days, though the village of Gilling, about a mile and a half distant, which stands low, and has a large pool of stagnant water adjoining to it, is visited with this complaint every spring and autumn. The air of Richmond seems peculiarly unfavourable to consumptive disorders. Many strangers come hither, from different parts, in the first stage of phthisis pulmonalis; but after thirty-five years of experience, I may truly say that not one has recovered, although the utmost care has been paid to their respective cases. In Greenland, Crantz says that agues and fevers were rare, and consumptions very destructive."

The facts in opposition to the doctrine are certainly calculated to shake confidence in its correctness.

"Beja, the part of Alentejo to which phthisical patients resort from Lisbon, stands *high*, and is seen at a considerable distance; but the elevation is gradual, so that there is no perceptible ascent on approaching the city, and there is certainly much marshy ground about it.

"It is to be regretted that Dr Wells has not been able to procure more positive testimony than that of one clergyman to establish the utility of the removal of the phthisical from the high to the fenny parts of Lincolnshire. Dr Harrison, indeed, is quoted to prove the relative infrequency of consumption in the fens, but not as recommending the consumptive to reside there.

"Dr Cookson, of Lincoln, in reply to my inquiry on this subject, states a fact very much in opposition to Dr Wells's hypothesis. 'Upwards of thirty years ago, when he took the charge of the County Hospital at Lincoln, agues were particularly prevalent in that city, which he could not but attribute to the marshy state of the low grounds in the immediate vicinity. These grounds being more completely drained, agues almost entirely disappeared for a long series of years; but pulmonic affections were more prevalent during the former than the latter period. This he attributes in a great measure to scrofula being less frequent than formerly, owing to the use of a more generous diet, &c. The experience of Dr Cookson does not lead him to conclude that pulmonary consumption is less frequent in the fens than in higher situations. He has heard of persons labouring under this disease being sent into the fens for the recovery of health. In as far as the air of lower grounds is milder than that of higher situations, it may be less irritable, and therefore less injurious to the lungs; and from this consideration Dr Cookson has recommended consumptive patients living above a hill to try the air below it. So far from considering ague as opposed to

phthisis, he has had occasion more than once to differ in opinion from his medical brethren, pronouncing what they have believed a decided ague to be confirmed phthisis, which it has proved.

It is in the practical inference from the facts he has collected that Dr Southey thinks Dr Wells has failed. Dr S. doubts not that where intermittents are very destructive, there will be fewer victims to consumption; but this does not depend upon any antagonism between the two diseases, and between the ague and scrofula, as Dr Wells supposes, but because fewer feeble children survive in unhealthy than in healthy situations. Those who, in a more favourable climate might live to the phthisical age, are seldom reared in swamps. Hence the deaths from consumption bear a smaller proportion to the whole mortality in countries infested with agues. That this is the true explanation of the fact, which he allows Dr Wells has established, is shown by communications from physicians practising in the hundreds of Essex, where intermittent fevers most abound. The following extract, from a letter by Dr Hendy of Chelmsford, shows the influence of marsh-air, in the production of strumous diseases in general, and the co-existence of ague and consumption in particular.

“I will endeavour to answer, as fully as I can upon a short notice, the queries which I have received from you on the connection between intermittent fevers and pulmonary consumption. I read Dr Wells’s paper with much attention and considerable interest, called forth by my own locality, and by the importance and novelty of the subject. After its perusal, perhaps from wishing that it might be so, the first impression on my mind was, certainly, that upon the whole, during the eleven years that I had been in practice in Essex, I had had fewer cases of phthisis from the more marshy situations where agues abound, than in the immediate neighbourhood of Chelmsford, or from remote situations where they are less prevalent. Scrofula I conceive to be as common, if not more so, in our hundreds, as in the healthier parts of the county; and I repeatedly see it in the form of glandular enlargements about the throat, neck, and axillæ; of emaciated limbs, tumid abdomen, and the symptoms indicating diseased mesentery, and not unfrequently enlarged spleen. Intermittents are common among children; and all the infantile diseases prevail in the hundreds, and assume a more formidable, and frequently more fatal character, than in situations more congenial to health. If therefore I really do see fewer cases of phthisis from the marshy parts of the country, may it not rather be attributed to this obvious cause, that there is here a larger proportion of early victims to unhealthy climate before they reach the phthisical age, than to the absolute or partial exemption from consumption, founded upon the hypothesis of Dr Wells? I have frequently seen phthisis

and ague, quotidian as well as tertian, combined; and the fate of the patient hastened by such co-existence. Since the appearance of Dr Wells's paper, I have had four striking instances corroborative of this observation; and I have at the *present* moment a fifth, where ague *preceded* pulmonary consumption after hæmoptysis, for which last the patient consulted me. Within the last week the intermittent has returned with aggravation to the pulmonary affection, and the patient must inevitably soon pay the debt of nature. The idea, therefore, of the incompatibility of the two diseases I conceive to be absolutely erroneous; and consequently the practical inference that pulmonary consumption is to be cured by the supervention of ague must be equally nugatory. In one of the cases to which I have alluded, there was considerable inflammation and erosion of the tarsi of both eyes; and in two of them, (delicate females,) that form and general appearance which indicate indiscriminately the scrofulous or consumptive character. You ask me whether I know of any instances of ague terminating in consumption of the lungs? I may say that I do not precisely know that ague has positively induced consumption, but, in my fifth case, ague preceded phthisis; and from the hundreds (our marshy parts) people come to me under various forms of disease, pulmonary as frequently as anything else, who refer their lost health to preceding ague. The inhabitants of the marshy grounds are disposed to call every symptomatic rigor ague. But the cases to which I have alluded came under my own observation, and the intermittent paroxysms were distinct and well marked.'

From Dr Badely of Chelmsford, Dr Southey gives the following communication:—

“Finding that you are desirous of knowing whether the physicians of this county can corroborate the opinion lately adopted, that consumptions have been cured or prevented by intermittents, I have endeavoured to trace back the experience of forty years, and cannot bring to my recollection, nor find in my memorandum books, any one case in which that conclusion can be fairly and indisputably drawn. I have indeed heard that a London physician lately sent a patient in the last stage of a pulmonary consumption into the worst part of the hundreds of Essex, for the chance of having it cured by catching an ague, and he died soon after he finished the last stage of his journey. I have read the ingenious and laborious paper of Dr Wells, on the opposition between ague and consumption, and have conversed with Dr Hendy of this town on the subject. We concur in opinion that there is no reason to suppose from our experience that one of these diseases has any influence on the other. We have both had cases of consumption and scrofula from the most agueish parts of the county. Indeed, from consulting my memorandum books, I have had *as*

many of both diseases from the hundreds as from any other part of the county at the same distance. Some patients have told me that they thought they had a fit of the ague; they described the rigor and every succeeding symptom of an intermitten; but I thought it only a more violent attack of the hectic (which I have seen resemble an intermitten in every circumstance); but, whether hectic or intermitten, the case proved fatal. If Mr John Hunter's opinion be correct, that two diseases of the vascular system never subsist at the same time, it must be useless to send a patient with a hectic fever to catch an ague. Possession, in physic as in law, must be nine points, and the hectic will not resign to the ague.'

These communications Dr Southey thinks decisive. If any class of the consumptive are likely to benefit by removal to marshy situations, it must be the strumous; for Dr Wells has shown that inflammatory affections of the chest often succeed agues, and such inflammations may produce one form of phthisis. It appears, however, that every variety of scrofulous disease is common in the hundreds of Essex. The idea that intermitten fever and scrofula, or scrofulous consumption, depend upon opposite states of the system, must therefore be abandoned.

Dr Southey concludes by regretting that he is obliged to deduce an opposite conclusion from that at which Dr Wells arrives. "When I began this inquiry, I had hoped, by communications from practitioners in the marshy parts of England, to be able to confirm his opinion. Still the public and the profession must feel indebted to him, for showing that many places to which it is usual to send consumptive patients, have been ill chosen; and though the experiment he recommends must rank among the many unsuccessful schemes for the improvement of the healing art, we may apply to it the words of Aëlius:—'*Humanum etiam et plenum benevolentiae signum est, in extremis etiam malis usque ad experimentum procedere ad difficultatem affectionis compescendam.*'"

Thus, on the one hand, is the evidence adduced by Dr Harrison and Dr Wells; and on the other that adduced by Dr Southey. The doctrine fell almost entirely into a state of abeyance, if not complete neglect; and to this contributed not a little the various works which in the course of years issued from the press either abroad or in this country, on diseases of the lungs.

It has been shown, that Dr Herbert Southey was the first who applied to this alleged property of the incompatibility of ague and marsh fever with pulmonary consumption, the name of antagonism; and this denomination, which has also been employed by various subsequent writers, it will be convenient to retain, as designating with

* Observations on Pulmonary Consumption. By Henry Herbert Southey, M. D. London 1814, 8vo.

sufficient accuracy the property, whether it be proved to exist or not.

It is now requisite to advert to the subsequent course of inquiry on this subject.

A short account of the medical topography of the Odenwald, by Dr Frederick Ebel, published in June 1840, presents some instructive facts.

The name Odenwald is given to a tract of territory which extends between the Neckar and the Maine, from the Rhine to the district of the Jaxt and Tauber. The hills of the Odenwald are of moderate elevation, in general rounded hills, and none exceed 3000 feet above the level of the sea. The forest tracts are well cleared; but here and there are seen large connected woody tracts, and smaller woods on the mountain elevations. Agriculture, the keeping of cattle, and the timber trade, are the chief sources of industry and revenue to the inhabitants. Towns with trade are rare. The most common are weavers of linen cloth. In various parts are forges, potash manufactories, paper mills, and similar establishments.

The circle of Waldmichelbach lies between the counties of Erbach-Erbach and Erbach-Furstenau and the mountain tract. Its extent is about three square German miles. It belongs to the highest region of the Odenwald. The climate is a little rough, the temperature very changeable. The highest barometer indication is 28 inches 6; the lowest 26 inches 9; the medium 27 inches 6. The highest thermometrical indication is + 27.90 R. = 94° F.; the lowest -19.20 = -12° F. The prevailing winds are south-west and north-west, which renders the air rather moist and cold, than dry and warm.

The circle contains 1693 habitations. The number of inhabitants at the end of 1838 was 13,686, of whom 6,869 were males, and 6817 were females. At an average, annually, 106 marriages take place, and 324 persons die annually. The physical constitution of the inhabitants is robust; their complexion fresh. Among them are many aged persons, and few rickety and scrofulous persons are seen.

The number of diseases is inconsiderable. Almost all diseases, especially the febrile, have an inflammatory character. Intermittents, as also epidemics, are rare. Asthmatic diseases are frequent. Many persons fall victims to consumption; yet this malady is rarely dependent on phthisical habit; more commonly it is the consequence of neglected catarrhs and pneumonic inflammations, and of imperfectly treated and suppressed cutaneous eruptions, especially itch.*

* Hufeland and Osann's *Journal der Praktischen Heilkunde*, 1840. Junii. S. 80-107.

In 1843, Dr Brockmann of Clausthal published an essay, recommending the Oberharz as a place of protection against pulmonary consumption, and a situation for curing the disease. The author allows that the belief is so general, both in the profession and without it, that the climatic relations of the Oberharz exert an injurious effect on the delicate organisation of the lungs, that it appears that both theory and practice must be against the idea, that the region should be admissible as a residence for the phthisical. He is convinced, however, from long experience, that nothing is better for maintaining the organs of respiration in a sound state, and even curing diseased lungs, than a residence in this elevated region of northern Germany.

The general statement of Dr Brockmann is, that tubercular consumption is an uncommonly rare disease among persons born in the Oberharz and brought up in it from childhood. This, he maintains, on the fact that among 80,000 instances of disease treated by him, only 23 were specified as referable to the head of tubercular disease of the lungs; and of these 23, only 14 were born in the Oberharz, or had been in it from youth; the other 9 were brought to it in far advanced stages of the disease. Tubercular disease of the lungs is observed comparatively least frequently in the elevated parts of the Oberharz, so that the law seems to be, the higher and more open the mountain table-land, the less frequent is tubercular disease. Next in this respect come the hill-towns of Clausthal and Zellerfeld. He allows that there are in the Oberharz two forms of lung disease, difficult to be distinguished from phthisis, but which are different. One is *melanosis* of the lungs, which he states is there very common, and is called the mountain disease (*die Bergsucht*). The other is a sort of catarrh of the lungs dependent upon gouty influence.

The author enters into a lengthened explanation of the mode in which he conceives the climate of the Oberharz operates in preventing and curing phthisical disorders. But on the actual fact he gives no more information than what is now stated.*

The Essay of Dr Brockmann seems to be an attempt to ascertain how far human credulity may be stretched. It is impossible to believe that 80,000 examples of disease were seen by any single individual.

M. Boudin, one of the physicians to the French army, first in the Morea in 1828, and afterwards in Africa, had been led when in Greece to observe that the typhoid and pulmonary disorders which were usually prevalent in France, disappeared in the Peloponnesus, and were there represented by intermittent and remittent fevers and diseases of the colon.

* *Der Oberharz, ein Schutz- und Heilort für tuberculöse Lungenschwindsucht. Von Dr Brockmann zu Clausthal. Hannoverische Annalen, 1843, Sept, und October.*

Taking for a fact what he saw, that pulmonary consumption and typhoid fever were rare disorders in the ports of the Peloponnesus, he inquired whether this were a local phenomenon or determined by conditions which in other places might produce similar results. In 1841, when he published his treatise on intermittent fevers, he promulgated his opinion in regular form on this question. But he complains that, whether the minds of the profession were not prepared to receive a proposition in general pathology, withdrawing them from the details of the dissecting theatre, or from some other cause, the proposition and inquiry regarding antagonism received no attention.

M. Boudin again solicited attention to this question by an elaborate essay in the *Annales d'Hygiene* for 1845. As it is manifest that the author has anew considered the subject with increased care and information, and wishes this memoir to be regarded as containing his most matured and finished ideas on the question, to this principally we refer, without regarding his previous researches, in the account of his inquiries now to be given.

M. Boudin maintains the antagonism of marsh fever not only with pulmonary consumption, but with typhous and typhoid fever. The most important facts only are selected.

At Grasse, accord to M. Isnard, many persons labouring under tubercular diseases are observed, and rarely intermittent fevers; while on the banks of the Var, for instance at Cagnes, where marsh diseases are very common, consumption is very rare.

At Aigues-Mortes, according to M. Dax, the most common chronic diseases are rheumatisms, obstructions, mostly those of the spleen, dropsies, and humid asthma. Pulmonary consumption is very rare. Of the same locality, M. Tribe says, consumptive disorders, which are here unfrequent, pursue a course greatly more slow than in districts void of marshes. When consumption is seen, it is rather accidental than hereditary. The disease attacks almost none but females. It is rarely seen among the labourers working among the marshes.*

The town of Meze, according to M. Santy, situate on the margins of a pond, has seen disappear, in the course of several years, the multiplied marshes which are in its vicinity. Its fortifications have been thrown down; its streets enlarged; and the number of intermittents has greatly diminished. The older inhabitants maintain that formerly diseases of the chest were very rare; and as fevers have now diminished, consumption has become more frequent.

In the department of Ain, according to M. Nepple, tubercular consumption and scrofula are the two diseases which most rarely attack the inhabitants of the marshes of La Bresse. On the other

* Tribe *De l'Heureux influence des localités marecageuses sur la tuberculisation pulmonaire*, Montpellier, 1843.

hand, tubercular diseases are often observed in the countries adjoining this province.

In 1843, this physician addressed to the Academy of Sciences a letter containing the following statements:—

“The fact of the rarity of phthisis in fenny localities is to me not a matter of doubt; and this rarity has always appeared to me to bear a direct proportion to the intensity of the elements of impaludescence, and to diminish with the diminution of these elements; so that, if in districts situate in the centre of ponds, we scarcely observe one phthisical patient, we find a number progressively increasing, in proportion as we remove from the centre of fenny districts. From this it results, that at a certain point are found united both tubercular lungs and intermittent fevers. Thus, Montluel, where I reside, is far from being without consumptive patients, notwithstanding the annual prevalence of intermittent fevers. But the miasms by which these fevers are produced reach the town, after traversing one-fourth of a league; and their influence is weak, transitory, and purely febriferous. The organism at large undergoes no permanent modification, capable of opposing the process of tuberculisation. In the centre of the marshes it is entirely different.” As to typhoid fever, he is unable to make any answer.

In a letter to the same physician, M. Pacoud, physician to the hospital at Bourg, makes the following statement:—“During more than 45 years’ practice, I have not observed one single fact at variance with the observations made by you in the neighbourhood of Montluel. My professional duties led me formerly far into the marshy district; my recollection and my notes furnish no trace of tubercular phthisis. The hospital of Bourg, which receives many patients from these regions, has not among them received one single case of phthisis. One of my colleagues, Dr Hudelet, who has often been called into the centre of the marshes, cannot remember having ever met with one single instance of consumption.”

MM. Candy and Rater, physicians to the Hotel Dieu at Lyons, state that they had made the analogous observation for a long period in the marshy plains of Forez. M. Candy adds that since the hygienic state of the country has been improved, phthisis began to be in it more frequent. M. Arofrein, physician at Chatillon-les-Dombes, informed M. N. that phthisis is in his district very rare; for three years, and among a total mortality of 400 persons, including those in the hospital, were only 8 phthisical cases, of which one occurred in a stranger to the country. This town, nevertheless, is not situate in the most marshy part of La Bresse.

In the return of the mortality among the convicts at the galleys, communicated by M. Chassinat to the Academy of Medi-

cine, the deaths by pulmonary consumption bear to those by other diseases proportions indicated by the following figures :—

At Brest,	21.5 per cent.
At Toulon,	4.5 per cent.
At Rochefort,	2.8 per cent.

Thus, in the marshes at Rochefort, consumption causes among the convicts two times fewer victims than at Toulon, and nine (eight) times fewer than at Brest.

To show the relation of those diseases in Paris, the mortality list of the Military Hospital of Gros-Caillou for the first six months of 1835, is adduced :—

General Mortality,	297 deaths.
Typhoid fevers and consumption,	125 „
Intermittent fevers,	0 „

During the second half of the same years, two regiments from the marshy localities of Morbihan and the Lower Charente furnished 585 cases of ague, and only 13 cases of typhoid fever. It is well known that consumption is a very prevalent disease in Paris.

M. de Crozant has published four cases of recovery from phthisis by residence in the marshes of Nièvre. The first two are by M. Lizon.

3. J. C., by trade a miller, aged 27, strong and well made, living for some time at Sully-Latour, in a mill situate on the left bank of the Noain, had difficult breathing, cough rather dry, fever, and dulness on percussion at the anterior and upper part of the left lung, with feebleness of respiratory murmur at the same point. On the 13th July 1829, when first visited, he was bled, ordered rest, regulated diet, and emollient drinks.

On the 29th August, six weeks after, he was emaciated, had diarrhœa and profuse sweatings; much cough, copious expectoration of purulent matter, with blowing and pectoriloquy at the spot already specified.

Between the 29th of August and the 3d October, M. L. saw this patient five times, and, contrary to expectation, though the symptoms furnished by auscultation were nearly the same, and he coughed much, his general state was much improved, and his strength gradually returned. When he was next seen, on the 24th of June 1830, he was quite re-established. The blowing sound was still audible at the part indicated. On the 23d December 1843, thirteen years after he was first seen, M. L. recognised in the site of the former cavern nothing unusual.

4. On the 13th of April 1839, M. Lizon saw in the parish of Sully-Latour, a young girl of 19, wasted and ill for a long time, with cough, purulent expectoration, sweating, diarrhœa, and con-

stant fever. Pectoriloquy and the usual signs of a large cavity at the upper and anterior part of the lung were distinct. A mild regimen and balsamic pastilles were prescribed.

In May 1840, fifteen months after, M. L. met her in a meadow keeping sheep. She stated that she was then well, and, though meagre, yet able to perform her usual duties. The cough and expectoration had ceased for some time.

5. In July or August 1829, M. C. saw a female servant who had been for two years in one of the healthiest villages of the parish of Sully. She was pale and emaciated, and affected with quotidian fever, which had resisted all the preparations of quinine. She had laboured under hemoptysis, had profuse expectoration, oppression at the breast, and copious night sweats. M. C. does not remember the physical signs, but the general physiological symptoms were characteristic of phthisis.

She passed the winter in the same state till the spring of 1840; and in the month of August, when she was again seen, M. L. established the existence of a large vomica at the apex of the right lung. Over the rest of the chest were mucous and crepitant rattles, which were also heard near the top of the left lung. Diarrhœa was frequent, and shivering and fever were regular. After about two months, during which she was seen daily, and presented the same symptoms, she left the village, and came to reside in a country house, on the banks of a stream, in a castle surrounded by insalubrious ditches, situate in a hollow in a marshy and very agueish soil. On leaving the place, M. C. believed that she could not outlive the winter. This, however, was not the case.

The disorder dragged on; and in May 1841, she was in the last stage of wasting and consumption. There was, however, no gurgling; the rattles had disappeared from the whole of the chest, excepting under the right collar bone. The expectoration was still purulent. Amidst many unfavourable symptoms, weakness, fainting fits, and wasting, she passed over another winter; and in the spring of 1842 began to recover strength. In summer, M. C. found her quite well, and he therefore believed that he was mistaken in his diagnosis. Upon exploring the chest, however, he found on the left the blowing sound, the existence of which he had previously ascertained, without rattle; respiration good in the whole of the rest of the chest, even under the right collar bone; fever and sweating gone; diarrhœa unfrequent; appetite good; sometimes expectoration, but no blood brought up for five or six months.

In 1843, M. C. found this patient in perfect health, without cough or expectoration, performing the laborious duties of a labouring woman in the country, washing, working in the fields, &c. According to her own statement, her complete recovery,

that is, disappearance of cough and expectoration, dated from September or October 1842, that is to say, a space of fifteen months. During the residence of M. C. in the country, he several times examined the chest, and was thence led to believe that the cure was complete. On the left, under the collar bone, respiration was prolonged, and possessed still a blowing character; but in all other parts of the chest it was well performed.

6. In May 1841, M. C. was requested to see, about a quarter of a league from where he was, a young man of eighteen years, who was regarded by the medical attendant as having but a short time to live. The patient was a miller with his father, at Moulin Neuf (New Mill), on the Noain. It was manifest that the diagnosis was correct. The patient had an emaciated, miserable appearance, like all the children of the town of Sully, and looked like not more than thirteen years of age. He had always been sickly, which was ascribed to marsh fever, and had been treated accordingly. Cough was habitual, and the previous year, nearly at the same season, he had been confined to bed for one month by the same disorder. Since this time his strength had failed; he had coughed up much blood during and since the illness; he had night sweats, diarrhœa, cough, and copious expectoration.

For three weeks, when seen by M. C., he had not left his bed, worn down by incessant and profuse diarrhœa. The physical signs were, in the left, crepitating rattles under the collar bone, a little dulness behind, blowing without rattle; respiration rustling in the residue of the lung. On the right, anteriorly, under the collar bone, cavernous blowing very strong, with gurgling, and a very dull sound; the rest of the lung appeared sound.

During four or five times that this patient was seen, only trifling remedies were prescribed, excepting an emetic, which was ordered, because it was observed that he swallowed the expectoration. During all this time, a space of two months, no change was observed.

Next year, in 1842, M. C. was informed that this patient was on his legs, neither coughing nor expectorating; eating well, and performing work in the mill. He had been advised to take a vegetable remedy, M. C. thinks the *pervinca*; that he had recovered his strength, sweating and diarrhœa having subsided gradually, and at length disappeared; that he had never left his moist abode; and that fever had not returned for eight or ten months.

In the summer of 1843 M. C. again saw this young person. He was then a lad of twenty-one years, well-formed, vigorous, and presenting no external trace of the wretched condition in which he was seen three years previously, and whom it was difficult to recognize as the sickly boy, whom he had previously treated. On exploration of the chest, he recognised no sign. The anterior

and superior part of the right side of the chest was only a little less arched than on the left side; and respiration was a little less intense than in other points of the thoracic walls. He continued to work at the mill, travelled the roads to convey bakings, carried on his back sacks of flour, was constantly exposed to cold, and enjoyed in all respects excellent health.

In perusing the cases now given, a question naturally arises; where did the patients contract the phthysical symptoms? There is no evidence to prove that these patients had been in any other more dry district; and the reader is left to infer, that the pulmonary disorder arose where the patient was dwelling, that is, in the midst of the marshy regions.

In an account of the Medical Topography of Berlin, by Dr Wollheim, the following observations are made. Sand constitutes the essential part of the soil. The fields in the vicinity of the city are very seldom inundated; and, under all circumstances, the water disappears rapidly in the sand, in which it never produces *miasmata*. Here is no endemial disposition favourable to the production of intermittent fever. The country has neither ponds nor marshes. In the three years from 1839 to 1841, there was observed an annual average of one death by consumption among $8\frac{7}{12}$ deaths; and typhoid fever forms a large proportion of the general mortality.*

At Dresden, according to Dr Mayer, intermittent fevers were formerly very frequent. It may be said, that in proportion as these distempers have diminished in frequency in the suburb of Wilsdruff, typhoid fevers, which formerly were less frequent, have begun to appear. Tubercular phthisis of the lungs is here very frequent.

It is unnecessary to reproduce here all the details of M. Boudin, several of which have been formerly considered more or less fully in the pages of this Journal; while others, relating to the alleged antagonism of ague and typhoid fever, do not, it may be said, bear very directly on the question under consideration. Some of the facts also advanced, though not unimportant, do not, it appears to us, tend to determine the question. Thus, when it is stated that at Senegal, during the second six months of 1837, and the first of 1838, among 952 patients admitted to the hospital of St Louis, were 428 cases of ague, 12 cases of pernicious fever, and 59 remittents, without either one case of typhoid fever or of consumption, we merely learn the old and well-known fact, that the endemic diseases of the West African coast are miasmatic fevers of various degrees of intensity and virulence, that typhoid fevers are very unusual in hot and equinoctial regions, and that consumption is little known in the same division of the terraqueous globe.

* Versuch einer Mediz. Topographie und Statistik. Berlin, 1844.

The general inferences deduced by M. Boudin will show what propositions he thinks may be and are proved by his inquiries.

1. The localities in which the genetic cause of endemic intermittent fevers, communicates to man a deep modification, are distinguished by the comparative rarity of pulmonary consumption and typhoid fever.

2. The localities in which typhoid fever and pulmonary consumption are strongly prevalent are remarkable for the rarity and small degree of severity of intermittent fevers contracted on the spot.

3. The desiccation of a marshy soil, or its conversion into a pond, by causing the disappearance or the diminution of marshy diseases, seems to dispose the organism to a new pathological condition, in which pulmonary consumption, and, according to the geographical position of the place, typhoid fever, render themselves particularly conspicuous.

4. Man, after having resided in a country with a well-marked marshy character, presents against typhoid fever an amount of immunity, the degree and duration of which are in the direct and compound ratio; *1st*, of the duration of the previous residence; *2d*, of the intensity of expression attained by marsh fevers, under the twofold relation of form and type. This denotes, in other terms, that, dwelling in a country with remittent and continuous fevers, such as are certain points of the coast of Algeria and the centre of the marshy district of La Bresse, is more powerfully preservative against the diseases now spoken of, than would be, for instance, residence at the marshy outlet of Bievre at Paris.

5. The geographical conditions of latitude and longitude, and elevation above the level of the sea, which set bounds to the development of marsh fevers, establish in like manner a limit to the sanative influence of the marshy element.

6. *Lastly*, Certain conditions of race and perhaps of sex, by diminishing the impressibility of the organism to the productive cause of marsh fevers, would at the same time diminish the sanative efficacy of this agent.

M. Boudin thinks, that in applying these principles to practical purposes, in attempting the cure of consumption, very decided encouragement is given, and a strong argument established by the beneficial results obtained for several years past in preventing the progress and effecting the cure of cretinism, by the simple elevation of children attacked by that disease, above the orographical zone in which cretins are born; most commonly between the two pathological lines of those affected with goitre. It is observed in the Norican Alps, that cretinism is seen between 1394 and 3600 feet of elevation above the level of the sea, never below the former line or above the latter. It is, therefore, without these limits that it is requisite, at least in this region of the

globe, to place cretin children. In like manner, M. Boudin recommends placing phthisical individuals beyond the limits where consumption prevails.*

Some practical illustrations of the value of these principles, Dr Green adduces in the work introduced to the reader in last number. The facts are important, whatever may be thought of the theory.

In 1840, Dr Green communicated to the New York Journal of Medicine and Surgery some "Observations on the Influence of Malarious Atmosphere, in the prevention and cure of Phthisis Pulmonalis." His object, in that communication, was to demonstrate by facts and observations, the non-existence of pulmonary consumption, in those localities in the United States, in which intermittent fevers prevail; and to show, that, while those places are exempt from the disease, the inhabitants of others, in their immediate vicinity, but where marsh exhalations do not exist, are affected with pulmonary diseases to an unusual extent; although subjected to the same influences of temperature, habits, occupations, &c. Several cases, which came under his own observation, were given where persons presenting marked symptoms of tubercular phthisis had been restored to perfect health, apparently by residing in malarious districts.

From among the most interesting of these instances the following are recorded:—

7. A young lady, aged 16, had been labouring, for several months, under symptoms of incipient phthisis. She was hereditarily predisposed to the disease. Her mother and an elder sister, and several near relations on her father's side, had died of consumption. The prominent symptoms were, short, dry cough; pain in the left side; a burning in the palms of the hands—particularly at night; dyspnoea following the least exercise, lassitude, &c.;—symptoms which were remarked by herself and the family as being the same with which her elder sister, who died, had been affected. With the other members of the family, medical treatment had, apparently, no salutary effect. Indeed, it seemed to have hurried them with greater rapidity to the grave. Under these circumstances, Dr G. advised her father to send her into the vicinity of the lakes, where she might be subjected to the influence of an *intermittent* atmosphere. For this purpose she spent the summer of 1831 in Whitehall. She had not been there many months before there was an evident improvement in her symptoms. Before the close of summer she had an attack of intermittent fever. It was slight,—having ceased after one or two paroxysms. Her improvement, after this, was rapid; and before winter, she re-

* De l'Influence des localités Marecageuses sur la fréquence et la marche de la Phthisie pulmonaire et de la Fièvre Typhoïde; Par Le Dr Boudin, Médecin en chef de l'Hôpital Militaire de Versailles. Annales D'Hygiène Publique et de Médecine Légale. T. 33ième. Paris, Janvier 1845, p. 58, &c.

turned to her father with restored health. She afterwards married a gentleman in New York, and, up to the present time (1846), has enjoyed uninterrupted health.

The two following cases came under Dr Green's observation in New York.

8. A young gentleman, about 24 years old, of a consumptive family, suffered severely from an attack of the influenza, which prevailed to some extent in New York, in the winter of 1837. He came under the care of Dr G. the latter part of that winter, at which time he exhibited the following symptoms:—A frequent, hard cough, unattended with much expectoration; constant pain in the chest; pulse 100; debility; loss of appetite; tongue coated; respiration a little accelerated; skin hot and dry, during the latter part of the day, with some perspiration at night.

The ordinary remedies were employed, which were followed with some abatement of the cough, and the pain in the chest.

On the tenth day after Dr G. saw him, he commenced expectorating blood, which continued several days. At the end of three weeks, his strength had improved and his cough had considerably abated; but, as these primary symptoms of a pulmonary affection still remained in a great degree, Dr G. advised his leaving the city and seeking a more genial clime.

He went first to Ohio, where he remained several months, and thence proceeded to Michigan, where, in the spring of 1838, he had an attack of intermittent fever. He returned to New York about six months ago in perfect health, not a vestige of that affection remaining which he carried away with him.

9. In November 1836, Dr H., a practising physician of New York, caught a severe cold, which was followed by cough, and in a few weeks with expectoration of purulent matter. His cough continuing about three weeks from the attack, hæmoptysis supervened, and this was followed for some time with bloody and muco-purulent expectoration.

These symptoms of phthisis becoming more alarming, as the winter advanced, he relinquished his practice, and sailed for Mobile early in January 1838. So unfavourable did his symptoms appear at this time, that one of the oldest and most experienced physicians of this city remarked, after taking leave of him, that 'the Doctor would never live to return to New York.'

On the 4th of February he arrived at Mobile, where he remained several months; but went to New Orleans the June following, and thence to Indiana; where, in August of the same year, he had an attack of ague, which continued for some time. About eight months after, he returned to New York in confirmed health, and resumed his practice, and up to the present day has had no return whatever of his pulmonary symptoms.

10. A young woman, labouring under consumption,—apparently in its confirmed secondary stage,—was brought to Castleton, the residence of Professor Woodward, to die among her friends. Her mother resided upon the borders of a small marshy lake in the westerly part of the town,—a neighbourhood where all new residents are sure to be affected with intermittent fever. Thither she was carried, and Dr Woodward was called to attend upon her. He found her, as he informed Dr G., exhibiting every symptom of ulcerated lungs. Indeed, so apparently hopeless was the case, that the medicines he prescribed were merely palliative; and he informed her friends, that no permanent benefit could be expected in her case from the adoption of any means.

Several months after this, being in that neighbourhood, he learned with surprise that his patient was recovering; and on calling to see her, he, in fact, found her nearly restored. Her cough, and every other unfavourable symptom had left her. Her health since has been permanently established.

Dr Woodward gave it as his opinion, that in this case,—as well as in some other similar ones, with which he has been familiar,—the persons were restored to health by breathing an intermittent atmosphere.

“If we examine into the past history of New York, the same facts will be established. Cadwallader Colden, who wrote an account of the climate and diseases of New York, more than one hundred years ago, says, in speaking of the diseases of that day, ‘we have few consumptions or diseases of the lungs. I never heard of a broken-winded horse in this country. People inclined to consumption in England are often perfectly cured by our fine air. It would seem that the climate, at this early period of our country, when the winters were long and intensely cold, would have been much better calculated to induce pulmonary affections, than it is at the present day.’

“According to the testimony of the same writer, the winter then commenced about the middle of November, and continued severe until March. During this period the Hudson river was often ‘frozen over at the town, where it is about two miles broad and the water very salt, so that people passed over upon the ice in crowds.’

“At that time, and for many years subsequent to that period, New York was surrounded with lagoons and marshy grounds, from whence, during the summer months, those malarious exhalations arose, which so often proved the exciting cause of intermittent fevers, cholera morbus, and fluxes, which, as the above writer states, were the prevailing diseases of that day.

“As improvements have advanced, these fenny grounds and stagnant waters have been drained, the sunken places filled up,

and intermittent fevers have as gradually declined. But with this declension of ague, phthisis pulmonalis has steadily and fearfully increased."

From having been engaged, for several years, in the early part of his professional life, in practising, in the vicinity of marshy districts, Dr Green observed many facts on this subject, and was, long since, well convinced of the incompatibility of pulmonary phthisis and intermittent fever. Accordingly, for many years he has been in the practice of advising patients, who were labouring under phthisis, or follicular disease complicated with phthisis, to visit places where an aguish atmosphere prevails. In many instances the result has been decidedly beneficial.

The most recent speculator on this subject is Dr Helfft of Berlin, who has examined the antagonism of marsh fevers and consumption in an Essay published in 1848.

Dr Helfft takes the opposite side, and, like Dr Southey, calls in question more or less decidedly the protecting power of marsh atmosphere against the approach and ravages of consumption. Levacher, he observes, demonstrates, that in the marshy districts of the West Indies intermittent and remittent fever do not exclude pulmonary consumption, neither as to frequency of occurrence nor its dangers. Chisholm also considers this disease as very common in the islands of the Indian Ocean. At Peru, according to Tschudi,* it is as frequent as is intermittent fever. In Brazil, which is often ravaged by febrile distempers, consumption destroys one-fifth of the population, according to the estimate of Sigaud, the author of a work on the medical topography of that country.

Amidst facts so conclusive, it appears singular to see French physicians, among others M. Casimir Broussais, attaching great importance to the favourable influence of the climate of Algeria upon phthical persons. M. Casimir Broussais maintains that pulmonary consumption is infinitely more rare in Algeria than it is in France; and that this immunity depends exclusively on climatic peculiarities. Among those, he adds, who die of different diseases, inspection proves that the lungs are almost always void of tubercles. This statement, however, is far from being absolutely correct, and marshy countries themselves are not incompat-

* The number of deaths given by Dr Tschudi in the population of Lima, consisting of 54,628, varies annually from 2500 to 2800. In 1841, when the deaths amounted from all causes to 2244, those by intermittent fever were 216, namely, 57 men, 88 women, and 71 children; and those by pulmonary consumption were 208, namely, 87 males, 110 females, and 11 children. Besides the 216 deaths by intermittents, there were 72 by dropsy, mostly the consequence of intermittent fevers. From these facts it manifestly results, that ague and pulmonary consumption do not in Lima exclude each other, both forming about from 1-10th to 1-11th of the entire mortality.—Edinburgh Medical and Surgical Journal, Vol. lxi. p. 487.

ble with diseases of the lungs. M. Bonnafous has also remarked, that, during winter and spring, diseases of the lungs are pretty generally prevalent in Algeria, in consequence of the numerous variations which the temperature undergoes. But as the atmosphere is never cooled to so great a degree as in countries in northern latitudes, the pernicious effects of these changes are much less conspicuous, and the progress of consumption is often retarded, in so far as the disease may admit of cure. It results, then, that the French physicians themselves do not consider as identical in all places and under all circumstances, the influence of telluric miasms on the formation and progressive changes of pulmonary tubercles.

The general conclusions deduced by Dr Helfft are the following :—

1. That marsh or telluric miasms, considered in themselves, possess not the antiphthical property which has been ascribed to them; and that, in order to appreciate justly their action, it is always necessary to take into consideration the state of the temperature, its uniformity, the hygrometrical conditions of the atmosphere, the predominant winds, and the other atmospherical changes of the country, which forms the subject of inquiry.

2. That a uniform atmosphere, impregnated with miasms, without being too moist, forms the best preservative or palliative remedy for incipient phthisis.

It has been usually believed, that hot climates are opposed to the progress and the formation of pulmonary consumption. This condition, however, appears to be rather hurtful than advantageous, unless it be associated with stability in temperature, and with a certain degree of dryness of the atmosphere. In the Antilles, where the heat of the day is succeeded by cold moist nights, consumption and intermittent fever are both common diseases; whereas in British Guiana, where the temperature is remarkably uniform, consumption is unknown on the coasts.

Excessive dryness, in the same manner as excessive heat, are not less injurious than atmospherical vicissitudes. The town of Hyeres, which it has been proposed to make a species of colony for phthical patients, is far from answering the expectations which have been formed of it, in consequence of the prevalence of north-east winds, which are harsh and dry. Casper observes, that the mortality of phthical patients is at its minimum, only when the atmosphere maintains the medium between extreme dryness and excessive humidity. In the island of Madeira, where the temperature is mild and uniform, and the air moderately moist, consumption is very rare, notwithstanding the infrequency of intermittent fever. It is the same with the Azores, according to Dr Bulard, where, among 465 examples of chronic diseases, were

only two phthical patients. It must not, however, be imagined that in these privileged countries the disease may recede, when it is once confirmed. Dr Kumpfer states positively, in his notes on the island of Madeira, that the disease follows there its course fully, and is often terminated more rapidly than in the northern countries.* Dr Heydek mentions, that among 35 phthical persons who spent the year 1831 at Madeira, 3 died the first month of their residence, 5 or 6 perished at the close of the winter season, 5 or 6 more after the approach of spring; and in 1834 only 13 survivors were left. All these observations have been confirmed by those of the French physicians in Algeria.

The comparative frequency of pulmonary consumption in different races has occupied the attention of several observers, among others, both M. Boudin and Dr Helfft. The former shows from the army medical reports of the English West Indian colonies, that the great majority of the fevers which attack the white forces are of marsh and telluric origin; that the black or negro troops suffer little from diseases of this class, but very much from diseases of the chest in general, and consumption in particular; and that tubercular consumption constitutes of the diseases of the lungs a proportion varying from three-fourths to four-fifths. Dr Helfft agrees that the antagonism between pulmonary consumption and marsh and telluric fever, is very remarkable in the different races inhabiting the equinoctial regions, and countries bordering on them. He regards it as at present demonstrated, that the negro race enjoy a species of immunity as to fever, while pulmonary consumption causes among them great ravages. The Indians, that is, the copper-coloured aboriginal Americans, Dr Tschudi observes, are much more subject to fever than the white races, and these than the negroes, who labour with impunity for entire days and years amidst marshes. At Senegal, in like manner, the negroes are exempt from fevers; but they are very liable to affections of the chest. Consumption destroys one-fifteenth among the natives; while among 100 instances of death among Europeans, Dr Thevenot states that scarcely are there six cases of consumption.† Dr Jalisant, in like manner, at Rio Janeiro, shows the comparative rarity of intermittent fevers among the African negroes.

At Martinique M. Rufz counted, among 92 phthical patients, 48 creoles, 22 mulattoes, 19 creole negroes, and only 3 Europeans.‡

A similar result has been observed in Algeria. Dr Guyon observed, that consumption is a more frequent and a more fatal disease among the natives, the Moors, and the Jews, than among

* Journal d'Oppenheim. Band. xxxiv.

† Thevenot *Traité des Maladies des Europeens au Senegal.* Paris, 1840.

‡ *Bulletins de l'Academie Royale de Medecine,* T. vii.

the Europeans, who, on the other hand, often die by intermittent and remittent fevers.

Dr Helfft, therefore, admits that, though the antagonism of marsh and telluric fevers to tubercular consumption, may be contested on general grounds, yet it appears to hold good among the different races who inhabit marshy countries. He concludes with the two following inferences.

1. In marshy countries, the natives, especially if they are negroes or men of colour, are a great deal more liable to pulmonary consumption than the whites, strangers, and Europeans, who, on the other hand, are more frequently the victims of intermittent and remittent, or marsh and telluric fevers.

2. The sanative powers of febriferous countries in pulmonary consumption, consist not so much in the miasms, as in the uniformity of temperature, the heat of the atmosphere, a moderate degree of moisture, and the absence of dry harsh winds.*

This may be said to form the summary of the evidence at present known on the question of the alleged antagonism of marsh fever and pulmonary consumption. It is manifest that the evidence is rather contradictory; and such it will probably remain for some time. Upon the whole, the second deduction given by Dr Helfft accords, we believe, more with the experience of physicians in this country, than the propositions maintained by M. Boudin and Dr Green. At the same time, the facts adduced by these writers, and especially the cases given by Dr Green, are entitled to careful attention; and to those who are situate in favourable circumstances for observation, it must be an inquiry both interesting and useful, to ascertain whether the facts which come under their own observation, afford either confirmation of those given by Dr Green, or contradiction to them, or require them to be modified.

The foregoing sketch gives a view of the present state of information on this question, and the respective researches of each inquirer, up to the present time, as near as is possible, without entering into minute details, for which the reader may consult the memoir of M. Boudin. In that part of the inquiry which relates to the British dominions, a very great change has taken place in the course of thirty-five years, since the question was last subjected to formal investigation. This change has been so great, that, if it do not nullify all previous facts adduced and inferences drawn, it would render it requisite to examine the whole subject anew. Both ague and remittent fever have been progressively reduced, even in ague-producing districts, as Essex, Norfolk, and Lincolnshire, in the lapse of more than one-third of a century, to a very small proportion. It must be observed, nevertheless, that these diseases, though progressively diminishing, do not undergo

* *Zeitschrift für gesammte Medicin*, B. 3, s. 360.

a uniform steady diminution. Thus it appears that the deaths by ague were considerably more numerous in 1840 and 1841 than in 1838 and 1839, and those by remittent more numerous in 1838 and 1840 than in 1839 and in 1841. The numbers of both diseases, according to the Reports of the Registrar-General for the four years specified, are as follow ;—

	1838	1839	1840	1841
Total mortality from all causes,	342,547	338,979	359,634	343,847
Ague,	44	95	133	135
Remittent fever,	182	136	248	149
Typhus,	18,775	15,666	17,177	14,846
Phthisis,	59,025	59,559	59,923	59,592

During the same four years typhus destroyed annually from 14,846 to 18,775, or upon an average annually, 16,613 persons.

Consumption has never destroyed fewer than 59,000 persons in each of the same four years; and in one year, 1840, its ravages approach very near to 60,000 persons. This may be believed to show an increase, since the time at which Dr Woolcombe wrote, in 1808, when he estimated the annual mortality by consumption at not less than 55,000 persons. It is an absolute but not a relative increase. In truth, if Dr Woolcombe's calculations be at all correct, and not vitiated by any serious error, it is a diminution, considering the great increase of the population, and the amount of the general and total mortality. At that time the population of England and Wales was little below ten millions; and, including Scotland, it was stated at eleven millions. In 1841, the period to which these numbers refer, the entire population of England and Wales was found, after a census taken with particular care to insure accuracy and avoid errors, to amount to 15,911,757, and that of Scotland to be 2,620,184. The mortality of 55,000 persons, however, forms a much larger proportion to ten millions than that of 60,000 does to sixteen millions. If, indeed, the mortality by consumption had been proceeding at the same rate since 1808 and 1810, as that at which the population has been increasing since that time, that disease ought to have caused the death of 80,000 persons in a population of sixteen millions. It causes 20,000 fewer than this estimated number; and the conclusion which naturally and necessarily follows, is that, comparatively speaking, pulmonary consumption is from one-third to one-fourth a less prevalent or less fatal disease than previous to 1808.

It would lead into too minute details, to show in what manner these facts and inferences affect the question now under consideration. If all these deductions be correct, both ague and consumption are on the diminution in frequency. Antagonism,

therefore, seems between these two diseases not to rest on very certain foundations. But it is almost absurd to compare together two diseases, the lethiferous powers of which are, in this country, so very different. At a future opportunity we may take occasion to examine the question more fully.

ART. VII.—*On the Mortality of Edinburgh and Leith for the year 1848, with Remarks on the Mortality prevailing in the chief Towns of Scotland during that period.* By JAMES STARK, M. D., Fellow of the Royal College of Physicians of Edinburgh.

THE mortality of Edinburgh during the year 1848 amounted to 5754,—2759 being males, 2716 females, and 279 still-born. The mortality in Edinburgh during the years 1845, 1846, and 1847 was respectively 3976, 4887, and 7026.

The mortality of Leith during the year 1848 amounted to 1281,—567 being males, 645 females, and 69 still-born. The mortality in Leith during the years 1845, 1846, and 1847 was respectively 544, 868, and 1031.

The mean temperature of the year was 46·73 degrees Fahr., being 0·67 of a degree below the mean temperature of 1847, and 2·67 degrees below the mean temperature of 1846. The annual range of temperature amounted to no less than 77 degrees, 83 being the highest, and 5 the lowest, as marked by the self-registering thermometer in the shade. The mean range of temperature was, however, 1·26 degrees lower than that of 1847. The mean pressure of the atmosphere, as indicated by the barometer, was 29·48 inches, being 0·14 of an inch below the mean barometric pressure in 1847, and 0·30 of an inch below that of 1846. The barometric range during 1848 amounted to 2·29 inches, 30·39 inches being the highest, and 28·10 inches the lowest noted during the year. The quantity of rain which fell amounted to 30·21 inches, being 8·39 inches greater than the fall of rain in 1847, but 0·47 of an inch less than what fell during 1846. West winds blew 138 days; east winds, 101½ days; south winds, 42 days; south-west, 30½ days; north-east, 18; south-east, 14; north-west, 11; and north, 10 days.

The meteorological peculiarities of the year 1848, as compared with 1847, therefore, consist in a lower mean temperature and lower mean range, combined with a greater annual range of temperature; a lower mean barometric pressure, combined with a greater range; an excess of atmospheric moisture, and a much greater fall of rain; a greatly increased prevalence of easterly and of southerly winds, and a marked diminution of northerly winds.