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Fig. 1.

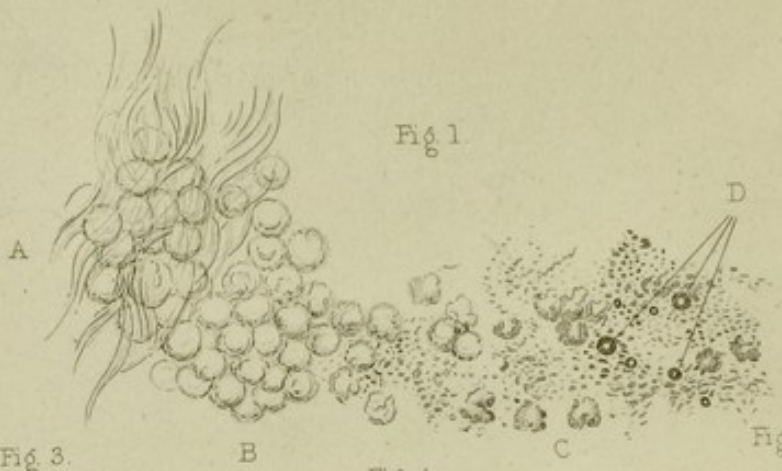

Fig. 3.

Fig. 4.

Fig. 5.

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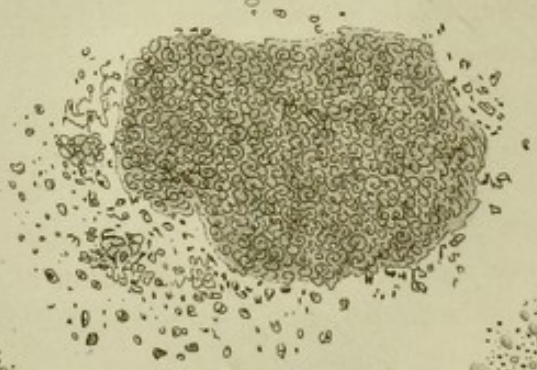

Fig. 6.

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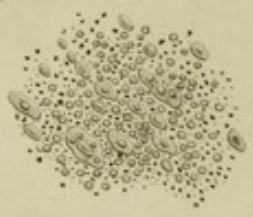

Fig. 2.

EXPLANATION OF PLATE.

FIG. 1. Is taken from a drawing of a Scrofulous Gland, made by Mr. Dalrymple. The magnifying power used was about 650 linear.

A. The confines of the healthy tissue pervaded by exudation corpuscles.

B. Exudation corpuscles and amorphous scrofulous matter.

C. Opaque cheesy deposit in the centre of the gland, composed of disintegrated exudation corpuscles, granular matter, and oil globules.

D. Oil globules.

FIG. 2. Is taken from a drawing made by Mr. Gulliver of Tuberculous and Scrofulous matter; the magnifying power 680 linear.

A. Tuberculous matter taken from the lung.

B. Scrofulous matter taken from a subcutaneous lymphatic gland.

FIG. 3. This figure, taken from Lebert, and probably magnified about 600, represents "isolated" tubercular matter.

FIG. 4. Is taken from the same Author; it represents Tuberculous matter rendered transparent by means of Acetic Acid.

FIG. 5. Is also taken from Lebert; it represents Pulmonary Tubercles between the Pulmonary fibres.

FIG. 6. This figure is taken from Vogel; the magnifying power is about 220. It represents Tuberculous Matter taken from a mesenteric gland.

FIG. 7. Is also from Vogel; the magnifying power the same. It represents Tuberculous Matter taken from the kidneys.

FIG. 8. Is from Vogel. It represents a Lymphatic Gland "infarcted" with Scrofulous matter; magnifying power probably about 200.

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INTRODUCTION.

In submitting to the public the results of a laborious and extensive inquiry into the nature, the causes, and the treatment of Scrofula, some explanation of the circumstances which have occasioned the present Treatise, seems due from the author to his readers.

In the course of my professional practice, and especially in the discharge of the duties entrusted to me as Surgeon to a large Metropolitan Infirmary, the treatment of scrofulous affections formed a subject of frequent and anxious consideration. I often felt desirous to relieve myself of anxiety, by consulting the experience of others, as recorded in their published works, but I found that something was wanting in all those to which I referred—too much was assumed, too little carefully examined; and although many of the works on Scrofula which we possess have deservedly acquired a high reputation, at an early stage of my investigations I was led to the conclusion, that much was yet wanting to complete our knowledge of the disease.

No branch of the healing art has, indeed, been marked by more of empiricism than the Treatment of Scrofula; and although the superstitious feelings, with which the disease was formerly regarded, have nearly passed away, yet vague assumptions and hasty conjectures are, even now, too often

substituted for that patient collection of facts, and that cautious and careful induction, which can alone give value to scientific investigations.

I have not uncommonly been met by the remark, that so many publications have been given to the world on the subject of Scrofula, that we already know every thing which is necessary of the disease. My own investigations have, however, led me to a very opposite conclusion; for whilst the most contradictory opinions prevail upon the nature of Scrofula, the conditions which determine its existence, and the physical changes by which its progress is characterised, great diversity also exists in the treatment of the disease.

If, indeed, any proof be wanting of the importance of the inquiry I have undertaken, and of the insufficiency of our present knowledge on the subject of Scrofula, that proof may be found in the works of able authors, and the proceedings of learned societies.

In 1749, the Académie Royale de Chirurgie proposed as the subject of a prize Essay, the following question: "Determine the characters of scrofulous tumors, their varieties, their symptoms, and the cure." None of the Essays which were forwarded were judged to be worthy of the prize; and the same subject was again proposed in 1751. In 1752, six Essays were deemed of sufficient value to be published by the Academy; the first prize was awarded to Faure, the second to Bordeu; and the other Memoirs were by Charmetton, Goursaud Majaut, and an anonymous author. Whatever merit attaches to those Essays, they left much to be desired, as is shown by a decision come to in 1786 by the Société Royale de Médecine, in Paris, to offer as the subject of a prize the following question: "Determine what are the circumstances most favourable for the development of Scrofula—what are the means, dietetic or medicinal, for arresting its progress, diminishing its intensity, and preventing the secondary affections which it may cause." That prize produced three Essays of considerable merit, by Baumes, Pujol, and Kortum. That

of Baumes was declared to be entitled to the prize. All were subsequently published; and, however ingenious the work of Baumes may be, I think the judgment of the present day would be in favour of Kortum.

That much remained to be done after the labours of those men is made evident by the fact, that in 1795, the Imperial Society of Naturalists at Vienna, named Scrofula as the subject of their prize, which was awarded to Hufeland; although I think the volume he published was, in most respects, inferior to the Treatise of Kortum. The judgment of learned societies, up to the close of the last century, was thus clearly expressed, that the subject was not exhausted, and that further investigation was necessary; and I cannot say that much has since been done to fill up the void which then existed.

In our own country, besides the works of Henning, Goodlad, Carmichael, and Lloyd, many observations have been published during the present century. In France, besides many minor Treatises, those of Lepelletier, Baudelocque, and Lugol, have been published during the last twenty years. In Germany, the last Treatise on the subject is that of Scharlau; in Russia, that of Bredow. I most readily admit that those authors have given valuable practical information, but they have done little to constitute any substantial forward movement. Without disparagement to any other writer, I may, however, express my opinion, that the work of Baudelocque constitutes an advance in the right direction; but I regret that many of the facts, as he believed them to be, upon which some of his opinions are based, were so ill observed, as materially to lessen the value of the work; yet with every drawback, it is the production of an able man, whose opportunities of observing the disease, when thoroughly developed, were very favourable.

Whatever may be my own opinion of the value of the works on Scrofula published during the present century, it is evident that those most competent to judge conceive further

researches on the subject absolutely necessary. One of the prize subjects offered by the Académie Royale de Médecine in the last year (the Portal prize), was "The analogy and the differences between Tubercles and Scrofula," but no Memoir was found to possess sufficient merit to justify the award of the prize. It, therefore, forms the subject for the Portal prize for the present year; and it is curious that "The Nature and Treatment of Scrofula" should be the prize subject named by the Medical Society of London.

Fully satisfied that a more extended collection of facts, and a more accurate classification of phenomena than had yet been attempted, were necessary and practicable, I entered upon the task which has now been brought to a close, and men who have been engaged in such extensive and minute inquiries can alone appreciate the patient labour which has been devoted to the work.

The materials which I have obtained and used, are probably the most ample that have ever been collected and brought to bear on a single medical subject; and if I had contemplated the difficulties I have encountered in procuring information, or the extent to which the inquiry would have proceeded, I should probably have been deterred from prosecuting it to a conclusion. But as is the case in all such investigations, the obstacles and discouragements were only gradually unfolded, and the labour was lightened by the interest which the subject itself excited.

In the present Treatise it is my purpose to consider the subject generally, and not to enter upon the various structural diseases which may be set up in a constitution contaminated by Scrofula; for the most part those diseases have in them nothing specific, but their peculiarities are impressed upon them by the particular state of the system itself. That the characters which are thus impressed upon common inflammation, whether of the skin or of any other tissue, are matters of great interest and afford materials for very careful investigation, is quite true; and for any special inquiries of the kind, whether made

by myself hereafter, or by others, it is hoped that the present conclusions may serve as prolegomena; but I feel that in treating of the subject generally, I have imposed upon myself a sufficiently heavy task.

Before I proceed further, it may be proper that I should describe the plan I adopted in the conduct of the inquiry.

My position at the St. Marylebone Infirmary was singularly favourable for the observation of scrofulous affections when fully developed; but the field was too limited for the study of their causes. It, therefore, became expedient so to enlarge my sphere of observation, and so to extend my inquiries, as to comprise the influence of the many causes, which, it is alleged, are capable of producing the disease.

To ascertain how far and how constantly Scrofula prevailed in the Metropolitan Districts, I visited a large number of the National Schools, the Parochial Establishments, and the Charitable Institutions, which are found in every part of the metropolis. I was thus enabled to determine whether the healthier and wealthier localities of St. George's Hanover Square, St. Marylebone, and Kensington, were more lightly visited by the disease, than the comparatively poor and unhealthy districts of Shoreditch, Bethnal Green, St. Giles' and the lower part of Westminster. Having ascertained, as far as was practicable, the condition of the population of the Metropolitan Districts, where the effects of close packing may be expected to be keenly felt, I pursued the inquiry through districts where the population was widely spread; and I was thus enabled to compare the condition of the people living under very different circumstances, and to ascertain the influence of crowding upon human life, in so far as concerns Scrofula. I extended the investigation to the Mining and Factory Districts, with a view to determine how far particular occupations tended to develope the disease. I caused children to be examined in the north and the south, the east and the west of our own country,

so as to be able to estimate the influence of particular localities in our own island to determine the affection; and I extended my researches throughout Ireland and Scotland, so as to be enabled to estimate the influence of particular articles of food; —and the correctness of the evidence so obtained, has been to a certain extent tested by the condition of Recruits, and of persons committed to Prisons; by the Mortuary Tables of the Registrar General, so ably analyzed and arranged by Mr. Farr; by those of the Irish Census, so well digested by Mr. Wilde; in so far as they could be made available in an inquiry like the present, and by a large number of Hospital and Dispensary Returns.

Having obtained a fair estimate of the condition of the people of these islands with reference to Scrofula—having ascertained their condition in factory and other towns, and in rural districts—inland and on the sea-coast—whether living on bad food, or better—entirely vegetable, as in Ireland, or more animalized, as in portions of England—in Union Houses, or among the independent population; I came to certain conclusions as to the causes of the great difference which was found to exist between one district and another.

But I soon found that important as the inquiry must prove, even when bounded by our own shores, its value would be increased if its limits were enlarged. It was by such an extension alone that I could test the influence of varying climates and habits, and ascertain whether the cold of Russia called the disease into existence more frequently than the heat of the countries bordering upon, or lying within, the torrid zone: whether the humidity of Holland be more prejudicial than the comparatively dry atmosphere of Spain and Portugal; the marine atmosphere of our own land, than the inland atmosphere of central Europe.

Through the kindness of Lord Aberdeen, I have obtained most valuable reports from Russia, Austria, Prussia, Bavaria, Portugal, and Holland. I have acquired important infor-

mation from the northernmost portions of Europe, as well as from France and Belgium; and in Bavaria, Belgium, France, Tyrol, and Switzerland, I have been enabled myself to verify the accuracy of the information with which I had been furnished.

I have also obtained Returns of the condition of children in so much of the United States of America as is found on its eastern shores, between Boston and New Orleans; from a certain portion of the Bengal Presidency; from some districts in China; and from portions of Egypt, Syria, and Greece abutting on the Mediterranean Sea, and from Madeira.

The accuracy of the information to which I have referred, inasmuch as concerns the influence of climate, has been, as far as possible, tested by the admirable Reports of Colonel Tulloch, which so well show the influence of climate to induce particular forms of disease in the British soldier.

Besides all these sources of information I have consulted, so far as I knew them, all the written works which bore on the subject; and I have adopted any views which they contained, after satisfying myself that they were correct. I, therefore, take this mode of acknowledging the obligations under which I have placed myself to those authors by whom my task has been lightened, because I should often find it difficult, and sometimes impossible to state from what particular source an idea has been obtained.

Such are the channels through which I have derived the information which has enabled me to bring this work to a conclusion; and it becomes a pleasing duty to express my grateful acknowledgments for the kind and ready co-operation which has been so generally afforded me. Few of the very many medical men whose assistance I have sought, even when personally unknown to me, have disregarded my appeal for information, or pleaded more pressing occupations as an excuse for refusing to comply with my request.

But this general acknowledgment is insufficient to express the obligations I have incurred to particular individuals; and I am bound to mention how, specially, I am indebted to Lord Aberdeen, to the Poor Law Commissioners, to Dr. Baly the able medical officer of the Millbank Penitentiary, to Mr. C. R. Hall, to Dr. T. Smith of Leeds, to Dr. D. Griffin of Limerick, to Dr. S. Jackson of Philadelphia, to Mr. W. T. Kaye my former pupil now assistant surgeon of H.M.S. Tyne, and in an especial manner to Messrs. Horner and Sanders the Inspectors of Factories, to Messrs. Dalrymple and Gulliver, and to Mr. Neison.

In conclusion, it seems to me desirable that I should explain the plan which has been followed to obtain the information upon which the opinions hereafter expressed are mainly based. At an early period I became fully sensible of the necessity of introducing a more precise method of conducting the inquiry than any which had been previously adopted. To say that Scrofula is extremely frequent in one place, and rarely seen in another, is to make a statement which has no absolute value, because, so far as I know, it has always been made without particular observation or accurate comparison, and yet it is upon such statements that theories are constructed.

To determine, from an examination of a particular district, that a given agent is the cause of Scrofula, because such agent is there found in connexion with the disease, whilst in another district, from which such agent is absent, the disease prevails to nearly the same extent, is a mode of investigation which has been adopted by persons, who have treated ex-professo of the disease, but cannot satisfy the wants of the present day. Early impressed with the fact that what was alleged as *the* cause by one author, was *proved* to be no cause by another, though the features of the disease might be equally well described by both, I determined to accept no statement of the causes, the prevalence, or the treatment of the disease,

which was not the result of precise observation. In accordance with that resolution, I proposed generally the following questions, which were to be solved by the examination of children in schools into which the admission of the children of the poor is indiscriminate, and in other establishments: *How many children (male or female) were present at the examination? How many presented the characters of the lymphatic temperament? How many presented the ordinary marks of Scrofula? How many of the scrofulous cases were found among those of lymphatic temperament?*

I soon found, however, that it was necessary to make the questions more precise, because scarcely two persons exactly agreed upon what constituted the lymphatic temperament, or what was Scrofula. I, therefore, thought it best to adopt a definition which should include points upon which all seemed agreed about the lymphatic temperament, and to exclude those about which there was less accordance. The same course was taken in defining what was meant by ordinary marks of Scrofula; I therefore requested to be informed how many presented fair hair and eyes, and fair, soft skin. I am quite aware that cases of what is called lymphatic temperament may not be included in such a definition, and that cases which would not be regarded as belonging to that category might be included in it. But this seemed the smaller evil of the two, and it has the merit of securing something like uniformity in the results. There can be no question, that what is called by many persons the lymphatic temperament, is a constitution upon which Scrofula has already impressed its seal. In a tenfold degree was the necessity urgent for defining what I meant by ordinary marks of Scrofula, because some persons regarded diseases of the scalp, as well as those of other portions of the cutaneous envelope, as evidence of Scrofula. I, therefore, defined ordinary marks of Scrofula to mean, enlarged glands, discoverable by the touch, or the sight, sinuses or ulcerations

resulting from them, and ordinary scrofulous bones or joints. The following is the form employed.

BOYS.

1.	2.	3.	4.
Number of children examined between 6 and 16 years.	Number of such children who have decidedly fair hair, and light blue or light grey eyes, and a fair, soft skin.	Number of children exhibiting any of the following marks of Scrofula:—Enlarged cervical glands discoverable by the touch; sinuses or ulcers succeeding to such glands. Scrofulous bones or joints, or the consequences of them.	Number exhibiting the evidences of Scrofula, described in the third column and possessing the characters described in the second column.

GIRLS.

DIET.

The object of the second question is to ascertain how large a proportion of cases is found among those children who have what may be fairly called a light complexion. With reference to the third question, it is not pretended that every mark of Scrofula is included; but as opinions as to what is and what is not Scrofula, are very different, it seemed important to fix upon certain points which did not admit of much controversy. In a healthy child, the lymphatic glands about the jaw and the neck are not perceptible on passing the finger over them; whenever, therefore, they can be detected, they are to that extent in an abnormal condition, though not necessarily scrofulous. All that is required for the purposes of the present inquiry, is to pass the fingers along the spaces under the lower jaw, and parallel to and in front of the mastoid muscle; and if sensible enlargements can be detected, the case would be enumerated in the third

column, which includes all cases in which such enlargement can be perceived.

This inquiry had a twofold object, viz.: to ascertain how far the disease prevailed, and when it prevailed to an unusual extent, to inquire into the apparent cause of prevalence in the particular locality, and on no portion of the inquiry has more anxious attention been paid, than in ascertaining the causes of Scrofula, whether hereditary or acquired.

It is true that the Returns may include some cases in which the enlarged gland may have been owing to some local irritation, but this is as likely to occur in one district as another; and, therefore, the value of the Return will not be invalidated by such an accident. It is also true that passing enlargement of the lymphatic glands is not always regarded as scrofulous, even in the absence of local irritation; but I am satisfied that the state of the constitution which favours the development of such glandular swellings, is one which, if sufficiently long continued, would commonly end in unequivocal manifestations of Scrofula; and, therefore, I have desired to include in my Returns all cases in which sensible enlargements existed. Happily the constitution of the sufferer does commonly change; and of twenty persons suffering from sensibly enlarged glands, in scarcely more than one will they proceed to suppuration. In those cases, therefore, or at least in an overwhelming majority of them, no scrofulous matter is deposited in the glands; but as the state of enlargement is only a previous stage in the development of Scrofula, and as it is impossible, from a surface examination, to say whether the deposit has actually taken place or not, it seemed to me best and safest to draw the line where I have done it. And at all events it does not make out a less than actual prevalence.

The result of my investigations has shown, that Scrofula prevails to a much smaller extent than is generally believed, and that the congregation of large masses of people in comparatively small spaces, confinement in heated rooms, and sedentary employment, however prejudicial in many respects,

have been accompanied by counteracting causes, which have lessened their baneful influence in so far as concerns the development of Scrofula. At the same time, no one can be more deeply impressed than I am with the necessity of improving the habitations of the poor, not only in towns, but also in country districts; and the Government of the day can approach no subject which will give them greater claims to the character of a paternal watchfulness over the well-being of the people, than the enforcement of such well-considered measures as will improve the drainage, increase the size and better the ventilation of the dwellings of the labouring population. The accomplishment of this object will yet, I trust, afford matter for congratulation, when the angry political contests of the passing hour shall have sunk into oblivion.

But sure I am, that when the houses of the poor are better built and ventilated, when drainage is more perfect, and accumulations of filth removed, Scrofula will nevertheless prevail in our land. Poverty brings in its train cold and hunger, evils which act more injuriously than even bad drainage and imperfect ventilation upon the health of human beings; but those are evils which legislation cannot avert; they are the lot of the many, and they tend, probably, above any other agents, to hurry the masses to the grave.

If the present work shall possess any value, it will be due to the care which has been exercised, first in collecting, and next in classifying and employing the large amount of materials with which I have been furnished. The data thus provided may in some instances only confirm conclusions which were before assumed, but in others they may prove the incorrectness of hypotheses long admitted and acted upon, or may serve to establish views which have not hitherto been entertained; and for myself, this consolation will remain, even should my own reasonings have led me into error, that my labours will have provided materials whereby other minds may discover truth.

SCROFULA,

ITS NATURE, ITS CAUSES, ITS PREVALENCE,

AND

THE PRINCIPLES OF TREATMENT.

CHAPTER I.

THE TERM—ITS SIGNIFICATION AND ITS DERIVATION.

To trace out the derivation of terms applied to disease, in early times, is often a source of more trouble than profit; and the conclusion to which we may come, will often be more satisfactory to ourselves than to others.

With reference to Scrofula, it seems doubtful whether the term χοιραδες was originally applied to the disease which affects the human subject; or whether it was not directly attached to a different disease, which occurs in certain brute animals. However that may be, the term has long been applied to the disease we have to consider, and some little inquiry into its signification may, therefore, be properly made in this place.*

* The word χοιραδες, so constantly applied by Hippocrates and other Greek authors to this disease, is supposed by Hederic and others to be derived from χοιρος, porcus; but even among the ancients, the true signification of the word has been a subject of warm dispute. It is assumed that the disease obtained the name, Scrofula, because pigs

Certain it is that some Roman writers, although they called a particular disease of pigs Scrofula, never followed the derivation in designating the human Scrofula. Indeed, I am not able to ascertain who first employed the word Scrofula to denote the human disease of which we are now speaking. Celsus does not use the word in the chapter that treats of this subject; but employs the term Struma to designate the disease.

Although it may be a matter of comparatively small importance whether we use one term or another, *Scrofula*, or *Scrophula*, to designate the disease under consideration, we give below the reasons why we prefer to use the former term.*

are infested with it; and certainly there is reason to think that the term was originally applied, not to any disease occurring in human beings, but to a disease of pigs, which, in later times, the Scrofula of the human subject was supposed to be analogous to or even identical with. Kirkland says, "The disease took its name from the glands in the necks of swine being subject to it;" but he adds that, "some of the Greek writers refer it to the multiplicity of their increase, like the offspring of a sow." Scapula gives as an explanation of the word χοιρας, "a rock somewhat raised above the surface of the sea, so that it resembles a pig swimming in it." He seems to think that the same term which was originally applied to these rocks (choerades) in particular, from their supposed resemblance to pigs, was afterwards transferred to scrofulous swellings in the neck, from their similitude, not to pigs themselves, but to the rocks which were called χοιραδες—"a petris quæ χοιραδες dicuntur."

* Turner says, "*Scrophula*, vel *Scrofula*, Gr. χοιραδες, idem quod struma." According to Celsus, "a suibus sic dict. qui peculiariter hoc morbo infestantur; ut porcellus a porcis, sic Scrofula a Scrofa." Whether so or not, it is certain that the word Scrofula stands in our common lexicon for a little pig. The significations which Henning attaches to the terms χοιραδες and Scrofula is that they derive themselves from χοιρος and Scrofa. In most dictionaries Scrofula is the term used.

Kortum blamed all the older authors for writing *Scrophula*. "The etymology is not," says he, "Greek, but Latin, proceeding from Scrofa." Supposing that to be admitted, it is certain that the Latins used indifferently *Scropha*, and *Scrofa*. The term Struma, however, they used to designate the disease we are considering. It is the barbarians who have

As to the term Struma, which Galen in his "Methodus Medendi," and Celsus used, so much is certain, that in most of the translations from the Greek writers the word χοιραδες is rendered by Struma. Struma is a Greek word latinized, and if the term χοιραδες, or rather χοιραδωδες bear the interpretation given of it by Henning, Struma exactly corresponds with it in sense, and signifies swellings scattered on the neck. It is derived from ϛρωννυμι. Struma is the term used by the Roman orator, who seems to convey, that in the minds of his contemporaries something disgraceful was attached to it. "Hi medentur rei-publicæ, qui exsecant pestem aliquam tanquam strumam civitatis."*

The terms Scrofula and Struma correspond to

The Modern Greek or Romaic χαλώνια.

„ French, Mal du Roi, Scrofules, les Ecrouelles, from whence

„ Scotch, Cruels.

„ Breton, Droucq ar Roue.

„ German, Kropf Skropheln, Skrophelkrankheit.

„ Russian, Swinucha, (Bredow).

„ Swedish, Körtelvulster, krofer, krittler, krittel, Fistel.

„ Danish, Skrofer Kiertelknuder.

„ Dutch, Klieren, kropzweeren, kliergezwellen.

„ Swiss, Scrovole.

„ Italian, Scrofula, Scrofole, Scrofe.

„ Spanish, Lamparones, Escrofulas.

„ Portuguese, Al porcas.

„ English, King's Evil.

employed the term Scrophula. "Hic vero morbus a Latinis dicitur struma, a Græcis χοιρας vocatur, á Barbaris Scrophula. Mercurialis, (de morbis, puerorum, p. 128), wrote Scropha. Castelli's Lexicon, Edit. Bruno. has it in the same way. Ravenstein, in his edition of the same work, says the term Scrophula is derived from the Arabs, the Barbarians of Mercurialis. I am content in this state of things to follow Kortum, and to use the term Scrofula.

* Orat. pro P. Sexto 65.

IDEAS WITH REGARD TO SCROFULA ENTERTAINED BY ANCIENT AUTHORS.

Before I proceed to detail my own views of the nature of Scrofula, it seems to me proper to refer to some of the opinions which have been entertained by those who have gone before. To glance at all, or even most of those opinions would be manifestly unnecessary; but some of them I should be scarcely justified in passing by without notice, either because they were advocated by the great men of our profession, or because they are interesting from the ingenuity which has been displayed in supporting them, or because they contain the germs of opinions which have subsequently obtained a wider, if not more justly merited diffusion. Those reasons, however, do not justify a long or laboured review of their opinions, but they seem to me to render it proper that they should be succinctly noticed.

The opinions which have prevailed may be reduced to two classes, the one including those which regarded the disease as a local affection, the tumid gland being the important feature; the other including those which though they did not disregard the tumid gland, conceived it to be a symptom, or manifestation of constitutional disease.

In that period of comparative ignorance of pathological anatomy, which extended almost, if not altogether, to the beginning of the seventeenth century (1602), when the first volume of the Praxeos Medicæ of Plater made its appearance, the essence, or malignity of Scrofula, was supposed to be exhausted in the production of the glandular tumor, and to it, as a consequence, all remedial means were applied. To this we owe the aphorism, to which Duret gave currency: "Tantum præsidia sunt in manu."

But with Fernel, Plater, Baillou, Bonet, and Morgagni, a new epoch arose. They carefully observed the symptoms of the disease during life; they ascertained what were the

internal disorganizations after death; and gradually the opinion gained ground, that the enlarged lymphatic glands were not the only specific phenomena of Scrofula, but that beyond this there was a tainted constitution.

But from the earliest times, at least from those of Hippocrates and Galen, an under-current of humorism has always been apparent; though in their view of the case, the change produced in the pituita was only important as tending to choke up the glands. Thus, Hippocrates says: "Cum autem proprio morbo laborant glandulæ, morbi suboriuntur, tubercula et strumæ subsiliunt.—Quibus afficiuntur, ubi humore, ad eas ex reliquo corpore confluente, impletæ fuerint. —Quod si pituitosa, copiosa ac lenta fluxio fuerit, sic etiam inflammationem concipit; ex qua cum humor sit stabilis, strumæ generantur; ii que pessimi colli morbi numerantur," (*de Glandulis.*)—Again: "Favus, strumæ . . . . à pituita creantur. Curandi iis quæ pituitam repurgunt," (*de Affection.*) Galen says: "Harum adenum passio struma quoque est non ex calida materia, sed potius quodammodo pituitosiore ac frigiodiore consistens,"* And with him the means of cure were thus indicated: "Est vero duplex ea curationis indicatio, nempe vel totum quod vitiatum est, scalpello excidentibus nobis, veluti in cancro; vel putrescere id medicamento cogentibus," (*de Strumis.*) Paulus Egineta says: Struma est tumor induratus circa collum et alas, ac inguina maxime consistens, &c. Nascuntur autem strumæ aut circa anteriores colli partes, aut circa alteram ipsius partem, &c." In another place: "Strumæ, inquit, sunt glandulæ in scirrhum induratæ, circa collum," &c. Celsus says: "Struma est tumor, in quo subter concreta quædam ex pure et sanguine, quasi glandulæ oriuntur." Wiseman's notion was the following: "I shall," says he, "endeavour to fix upon a peculiar acidity of the serum sanguinis for my specifick difference, and shall describe the King's Evil

* Comment in Hipp. Aphor. 26, sect. 3.

to be a tumor arising from a peculiar acidity of the blood, which whensoever it lights upon a glandule, membrane, or muscle, it coagulates and hardens; when it mixeth with marrow always dissolves it, and rotteth the bone." Mead's idea was similar: "Lentem autem et acrem hanc humorum pravitatem designant glandularum tumores, parum vel non dolentes, leucophlegmatia comitati." Paré considered that the glandular swelling depended upon a particular alteration in the pituita, which became fatty, gypseous, and viscid; but that the glandular tumor was not developed until a melancholic humor was mixed with it. Baumes rested his theory of the production of scrofulous swellings upon the predominance of phosphoric acid in the fluids. Bordeu believed that a peculiar state of acidity of the fluids was necessary for its development. Charmetton conceived that there was a thickening of the lymph, and that it was caused by acidity. Peyrilhé advocated the same idea; but the opinion was most decidedly enunciated by Rénard, who says: "In Scrofula, every thing depends on a vitiated state of the lymph, and never on that of the solids in which it is accumulated;" but in all these views, the tumor was the essence of the disease.

It was also maintained that the disease was owing to a degeneration of the lymphatic fluids by the presence of spermatic fluid in them. "Juvenes cælibes sæpe strumosi fiunt postea verò uxore ductâ nonnunquam spontè curantur. Nempe materia olim ad strumas fluens ad alias jam partes divertitur,"* Gamet thought it was owing to a change in the nervous fluid.

Of all these ideas, that of Baumes is the most intelligible, the most plausible, and the most ingenious. He says, "We may hereafter be able to prove that in Scrofula the temperature of the living body being diminished, a strong oxigenation of the albuminous juices is caused, mainly because an acid, morbidly accumulated, exists, and perhaps a combina-

* Adenographia, London, 1656.

tion of many acids." Further on, he says: "Without attaching undue weight to that opinion, we may judge that a predominant phenomenon in Scrofula is the presence and the aberration of an acid, of a phosphorous or phosphoric nature, re-acting upon the albuminous juices which it tends to concrete."

The superabundance of phosphoric acid, assumed to exist by Baumes, has never been demonstrated either in the blood or the lymph of scrofulous persons, although arguments have been based, and modes of treatment recommended on its presumed presence.

It is singular how completely dominant for a long period of time was the idea, that an acid of some kind, mixed with the lymph, determined the development of the glandular tumor. And this I conclude arose out of the observation, that many of the excreted fluids, in scrofulous persons, emit a sourish odour. A simple experiment, had it been tried, would have unsettled that opinion; for it would have become at once evident, that an alkali, or a salt, exercises a much more energetic thickening action upon the lymph, than an acid.

What was meant by the pituita, referred to in the older hypotheses, it is difficult now to determine; but we have no such difficulty with regard to the lymph. And we may state that its assumed thickening, its viscidity, its acridity, and its alkalisation rest on no evidence whatever! We have no analysis of diseased lymph. The whole is the merest assumption. Thus because the lymphatic glands are enlarged in Scrofula, therefore it was said the lymph must be too thick to pass through them; or because the cutaneous exhalation in a scrofulous person has frequently a sour smell, therefore the lymph must be acid; or because pus from a scrofulous ulcer sometimes excoriates adjoining parts, therefore the lymph must be acrid.

If the retention of the spermatic fluid and the menstrual blood, as seems to have been maintained by Wharton, Faure

and others, were the ordinary cause of Scrofula, all children should be scrofulous; because in them, neither of these fluids is ordinarily excreted; or the only exception should be found in those addicted to masturbation; in whom an unusual tendency to scrofulous affection has given rise to the following aphorism: "Venus solitaria in junioribus scrofulosorum affectuum ortum facilitat." There are few medical men who do not look forward to puberty as a period when great changes are often manifested in a scrofulous constitution, it may be for good, it may be for evil; but the good or evil is in nowise shown to depend on either the retention or the excretion of spermatic fluid. Russell had an idea that the secretion of semen exercised a most important influence in the amelioration of a scrofulous constitution; not, however, by its being excreted, but by its being absorbed and mixed with the blood. In all this, the effect appears to me to have been very generally taken for the cause; the secretion of semen is a consequence, and not the cause of puberty. In the work of Mercurialis,* is a statement, which if not correct is at least curious as showing the diversity of opinion on the subject. "Cæterum non est prætereundum hoc in loco quod scribitur, lib. 1. Veterinariæ Medicinæ, cap. 20, ubi Absirtus et Hierocles tradiderunt jumenta castrata non tentari hoc morbo, quod etiam in hominibus observatum est plerumque contingere, ut scilicet qui carent testibus hoc morbo non tententur."

Such are many of the humoral theories contrived to explain the mode of production of Scrofula; but for the most part, they are so fanciful, so wanting even in reasonable probability, as to make it unnecessary to enter into any serious refutation of them.

Nearly connected with the humoral ideas, however, is a theory, which has descended almost, if not altogether, to our own time—the doctrine of a *virus*, mixed with the lymph,

* De Morbis Puerorum Tractatus, page 133.

which determined the development of the disease, either hereditarily, or by inoculation, or by contact;—and certainly the notions arising out of this theory have exercised a very injurious influence on those who belong to what are termed scrofulous families, by tending to interdict marriage with persons so situated. We cannot, therefore, properly pass from the consideration of the humoral theory without offering some remarks upon this curious question.

The belief in the existence of a virus, upon which the communicability of Scrofula depended, whether by hereditary transmission, by contact, or by inoculation, was strongly advocated by Aretæus, Baumes, Pujol, Bordeu, and by many other writers; but nowhere was this virus clothed with more wonderful properties than by the disciples of the School of Montpellier. With them this principle or virus was almost an intelligent agent; "in the earlier periods of life throwing itself upon the external glands; in adult life transforming itself into dropsies, or obstinate cutaneous complaints; at other times directing its action upon the axillary or subclavicular ganglia, or attacking the lungs so as to cause phthisis; and at other times associating itself with the virus of syphilis, scorbutus, and rickets."

Pujol says: "The slow but destructive poison which gives birth to Scrofula, attacks indifferently all parts of the human body. It perverts the lymphatic fluids, to which it unites itself in preference, it excites concretions in the flesh, as well as interminable ulcers. It does not limit its ravages to those parts: sometimes it seizes upon the bony framework, dissolving the different portions in the most pitiless manner. Very frequently, indeed, it does not respect even parts most essential to life. This is not all; this dangerous venom attaches itself to certain families, whom it pursues from generation to generation. Not only it causes a dread to become allied to them, but even to have personal communication with them. It attacks especially during the tender years of life, and seems to profit by the feebleness of the

sufferers, the more surely, to vanquish and destroy them. If it is obliged to give way at the age of puberty, because of the sudden development of power at that period, it does not completely abandon the person whom it has once infected. It may retreat to some dark corner of the body, where it will await a favourable moment to make a new attack with more advantage. It would even appear, that its long repose had rendered it more malignant and indomitable, for then it neglects the less important organs, and fastens itself on those of the chest, the abdomen, and the head."

These ideas were loudly applauded at the time, and the work of Pujol had for many years a considerable reputation.

I do not ask those who advocate the doctrine of a virus, what is its composition, its nature, or its seat; I would not even ask whether it is to be found among the solids, or the fluids, because many of them admit their ignorance on those points: they maintain the reality of the principle, but they do not trouble themselves about its cause or its nature, or the place of its existence. They believe in its existence " because scrofulous parents frequently give birth to scrofulous children—because the disease is communicable by true contagion—because the disease may develope itself in all organs, whatever be the difference in the tissues, entering into their composition, and because we frequently see contusions and other causes of inflammation determine Scrofula in suspected persons."

The assumption that Scrofula is the result of a virus introduced into the body, whether by inheritance or by contagion, is so entirely without proof, that I should not be justified in occupying time by seriously considering it. So much, however, may be properly said, that in the case of all virulent diseases, there are particular modes of communication; they can all be induced by simple contact, or by inoculation. In most of them, this can be accomplished through the agency of a particular secreted fluid, puriform in its character, but none of the agencies by which virulent diseases are communicated have been observed in Scrofula. Who, indeed, has

ever seen an undoubted case of Scrofula communicated to a previously healthy person, either by simple contact, or by inoculation?

It seems to me, therefore, to be unnecessary to proceed further with the question concerning this vice, virus, leaven, principle, or genius, which serves to indicate material and specific agents, whose existence is unproved and, I think, unproveable; because Scrofula presents no character, proper to virulent diseases, but follows the course of those diseases which are independent of particular poisons.

The *Solidists* have advocated the doctrine that the primary seat of Scrofula was the solids; but this is the only point on which they are agreed. Galen saw in Scrofula only indurated scirrhous glands. "Struma caro est sicca." "Struma est ubi hæ partes squirrhum contraxerint." Sömmering believed it to consist in a relaxation and passive dilatation of the absorbent vessels, from whence results, necessarily, a stagnation and alteration of the lymphatic fluid. Cabanis regarded Scrofula as the result of an augmentation of activity in the absorbent mouths, and at the same time, a state of atony of the vessels themselves. It is rather difficult to conceive, that those two parts of the same whole, can simultaneously, and under the influence of the same cause, one increase in activity, the other diminish in energy. Richerand reverses the thing; he says, the cause is an atony of the white vessels and the ganglia. Hufeland says there is profound atony of the lymphatic system, accompanied by a specific irritation of this same system, and a particular alteration of the lymph. Broussais says, there is sub-irritation, or sub-inflammation of the white vessels. Cullen says, in his Nosology, "Cachexiæ, cutem et externum corpus præcipue deformantes, glandularum conglobatorum, præsertim in collo, tumores in labrum superius et columna nasi tumida." Dr. Henning says, "of all the parts of the body reputed to be subject to the attack of Scrofula, none but the conglobate, or absorbent glands, are indisputably so," "and we have the authority of Hippocrates, for

fixing on the neck, as exclusively the seat of Scrofula;" and again he says: "The neck then, it may be presumed, is the established seat of incipient Scrofula; the very frequent occurrence of tumefaction of the glands of this part of the body, and the rarity, to say the least, of such affections in other parts, cannot be the effect of accident, but must be the result of some adequate cause; and from its uniformity, it may be regarded as a law of the constitution, that whenever Scrofula makes its attack, it shall be on these parts." Although it be incorrect to say that scrofulous enlargement of the glands of the axilla and groin is very rare, yet it is true that they much less frequently end in abscess than similar enlargement of those of the neck; and Dr. Henning's explanation of this circumstance may be the true one, namely, that the parts are more exposed to vicissitudes of the atmosphere. He then takes up an important position, which he thinks is justified by the reasons previously given. He says:

"They demonstrate that the disease is neither generated within the body and thrown out upon the surface, nor derived from parental taint; they show that at its commencement, at least, the glands of the neck are its confines, and that they continue to be so, as long as their tumefaction continues undiminished; that as long as their excitement is maintained, the constitution is safe; and I think it shows how easily and how perfectly curable a complaint of Scrofula is at its commencement."

We cannot commend the logic of the Solidists as much more entitled to respect than that of the Humorists. "The lymphatic glands," say they, "are the ordinary seat of Scrofula, therefore, the disease belongs to the lymphatic system. These glands enlarge, this must be owing to feebleness, atony, relaxation. But absorption is easy, rapid; there must therefore be a greater activity and exalted vitality of the absorbent mouths with feebleness of the vessels. Whenever a system of organs is largely developed, we should conclude that it is stronger, more energetic, has more vitality." Scrofula attacks

in preference persons possessing the lymphatic temperament; it is, therefore, owing to the predominant action of the lymphatic system. No matter whether it be most frequently seen among those of sanguine or bilious temperament, every thing is neglected which contradicts the favourite theory.

The notion that Scrofula is a disease essentially resulting from either a disordered state of the fluids or of the solids of the body, has been maintained upon the crudest assumptions. The advocates of either opinion have first assumed a state of things which suited a theory often already invented; they have not stopped to ascertain whether a single step in their doctrine rested on a secure basis; they have made the causes and the treatment to correspond with the theory which had been assumed, and it has become the task of their successors, and for the most part, easy enough they have found it, to raze their baseless fabrics to the ground. In the theories to which I have alluded, many of them propounded by the ablest men of our profession, there is not one to which we can refer, as the result of a scientific investigation of phenomena, or a philosophical deduction from reasonably established facts.

CHAPTER II.

MY OWN IDEAS OF THE NATURE OF SCROFULA.

In enunciating my own ideas on the nature of Scrofula, I may be exposed, perhaps fairly, to comments, such as those I have applied to the theories we have passed under our review. In "interrogating nature" I may have misinterpreted her answers; but whatever may be the defects of the present work, it will, I trust, be found that whilst opinions are pronounced with caution, the facts from which they are deduced have been collected with an earnest desire to discover truth.

I conceive, then, that Scrofula is a disease of the constitution, and that it is most clearly manifested by certain external signs, of which swelling of the subcutaneous lymphatic ganglia is the most conclusive. But *tumid glands*, however, wherever they may be situated, are not always a proof that a constitution is scrofulous; they may be the result of local irritation, in an apparently untainted constitution. The glands in the groin may swell, from a sore on the foot; a mesenteric gland may swell under the influence of an ulcer in the intestine; a cervical gland may enlarge under the irritation of teething, or of scalp disease. A *tumid gland*, even *in the neck*, is then no proof that the constitution of the individual in whom it is found is scrofulous. But supposing one, or several cervical glands to become tumid, in the apparent absence of any obvious local irritation, this would constitute a strong ground

for suspicion, that the constitution was suffering under the taint of Scrofula. It would not, however, amount to more than suspicion, and the suspicion could scarcely receive absolute confirmation, unless we have the opportunity of observing the contents of the tumor itself. Unless the swelling of the gland be accompanied by the deposit of a product, hereafter to be described, known as *scrofulous matter*, the proof of a scrofulous constitution is, in my judgment, wanting.

In so far then as the local manifestation is concerned, the question, "What is Scrofula?" admits of a tolerably satisfactory solution: but as I regard the local affection, wherever seated, as clear evidence of constitutional disease, it is most important to inquire what that state of the constitution is which causes the local affection; and whether in the absence of the local affection, there be any certain means of determining whether a constitution be scrofulous or not. Because it may be, that the means at our disposal may be powerless to remove the matter when once deposited.

It may be objected to this view of the case, that there are scrofulous diseases in which no scrofulous matter can be demonstrated; "scrofulous ophthalmia," for instance. Supposing such an objection to be made, my answer is this; that the ophthalmia in these cases is a simple catarrhal inflammation set up in a scrofulous constitution, and acquiring its particular characters, not in virtue of any thing specific in its nature, but in consequence of the state of the constitution upon which it is grafted. The particular character to which I allude, is a peculiar irritability, which is a prominent feature in inflammation set up in debilitated constitutions, and there is certainly nothing uncommon in such inflammation in persons whose health has been broken by other causes than scrofulous disease. At the time I visited the Whitechapel Workhouse, "scrofulous ophthalmia" was epidemic among the girls; of eighty-nine present, seventy were suffering from the disease; but of the eighty-nine, only fourteen exhibited any of the ordinary marks

of Scrofula; and the proportion of girls who presented marks of Scrofula, found among those suffering from ophthalmia, was not greater than among those who were free from it.

I believe that diseases regarded as scrofulous, but in which no scrofulous matter is present, are not scrofulous at all, but simply the result of such low inflammatory action as is often set up in a debilitated state of the constitution.

I know no certain sign by which the state of the constitution which precedes the deposit of scrofulous matter can be recognised, but many persons entertain an opinion that a particular character of the body is sufficiently constant in such cases to warrant the belief that it fairly represents the existence of Scrofula. It is said that persons who possess the scrofulous constitution exhibit "a dull white, but exquisitely delicate skin; a rounded, graceful, and not strongly marked outline of face; an extreme development of cellular tissue, by which the muscular markings are effaced, and by which a roundness is given to the limbs which may be mistaken for strength; a fullness of the face, a delicacy of feature, and a rosy colour uniformly spread over the cheeks, which contrasts agreeably with the surrounding pallor; that the hair is usually blond, or auburn, hardly ever presenting the black or dark brown colour which distinguishes those of bilious or melancholic temperament; that the eyes are large, projecting, humid and blue, that the pupils are habitually dilated; that such persons are remarkable for the development of the head, the tumidity of the alæ nasi and of the upper lip; the large development of the lower jaw; the long and rounded neck, and the milk white teeth, which easily scale and split, becoming black and carious before their time. That the breath is habitually sour and fetid; that the chest is narrow and flat, the shoulders high, the abdomen large and prominent, the limbs thin, and that their flesh, wanting in elasticity, is extremely soft and flabby. That women born with the scrofulous diathesis are in general very pretty, possess much spirit and sensibility; that their nervous system

is as largely developed as the lymphatic; that in men with this muscular debility, we frequently observe a want of mental elasticity, which is no doubt owing to a consciousness of physical inferiority. It is said that in youth scrofulous persons possess great cerebral activity; that they are impatient, passionate; that their intellectual system is largely developed; that even in their tender years we admire their good sense, their intelligence, their prodigious memory, the justness and gravity of their reasoning and their manner; that in youth they have more imagination than judgment, though we may occasionally see some who are capable of sustained mental efforts."

Such are the appearances which it is alleged mark the scrofulous constitution, or, as some would call it, diathesis; or in other words, "the internal condition, or disposition, which, with or without the application of exciting causes, gives rise to all those diseases which are denominated scrofulous." I am not disposed to deny that the description which I have quoted may aptly enough represent many cases in which the body is tainted with Scrofula; but sure I am, that in a very large proportion of cases, the actual appearances will not correspond with that description. In many instances, most of these alleged characteristics of the scrofulous constitution may distinctly exist, whilst no strumous deposit takes place, and in others, diseases ascribed to the strumous habit, may take place in persons in whom the marks alluded to cannot be recognised.

The result of my own observation of persons whose constitutions are tainted with Scrofula, has satisfied me that there is the utmost possible variety in the external characters of those who present undoubted scrofulous taint. When the taint is made evident by scrofulous deposits, we find in one case the hair and complexion are dark, in another light; in one the cheeks are rosy, in another pale; in one the alæ nasi are expanded and the upper lip is tumid, in another

both of those features present opposite characters. So that it becomes a matter of great difficulty to determine whether the presence or absence of those signs, is most characteristic of a scrofulous constitution.

But it is incumbent on me to endeavour to point out the qualities which are most commonly met with in those who are tainted with Scrofula.

In the form of the body there is usually observable a want of muscular development, but even this is often absent. There is often an appearance of plumpness or roundness, which is the result not of muscular development, but simply of an hypertrophied, or infiltrated condition of the cellular tissue, and which rapidly disappears under fatiguing exercise, privation, or disease. Commonly, there is a general paleness and coldness of the surface of the body, which is owing to a feeble circulating apparatus; but in a large number of cases, about one fifth of the whole, that paleness does not extend to the face. The colour of the hair is very variable, but for the most part it inclines to a dark tint. Of nearly nine thousand scrofulous children, I have myself examined, a little over 32 per cent. had light hair and eyes. The alæ nasi may be broad, but for the most part they are not so; the upper lip, or even both may be tumid, but in a majority of cases they are not so. There is not, as some persons have supposed, any thing constant in the shape of the lower jaw, or in the appearance of the teeth. The abdomen is commonly tumid. The whole of the mucous surfaces are especially liable to derangement; discharges from the nose, the eye, and the ear, are common. The digestive mucous membrane affords early indications of suffering; the tongue has commonly a dirty whitish coating, the tonsils are usually enlarged, and they are often so tumid as to impress a disagreeable and frequently husky character upon the voice, and to cause snoring when the patient is asleep. A still more deleterious influence is exercised by

these tumid bodies; they lessen so much the channel for the passage of the air in respiration that the sufficient development of the chest may be interfered with. The stomach and bowels are frequently disordered, and digestion is ill performed; acrid eructations are common, flatulence is often very troublesome, and the action of the bowels is very irregular, sometimes relaxed, at others constipated; sometimes the evacuations are clay coloured, very offensive, and of varying consistency; at others, having a redundancy of bile. Similar evidences of derangement are observed in the air passages, commencing at the nose, (which exhibits increased secretions upon the occurrence of very slight variations in temperature), and passing through their whole length. Similar phenomena are observed in the mucous tissue of the genito-urinary system; the bladder often shows an impatience of the presence of the urine, and the desire to void it is often frequent. The skin, though often dry and hard, is sometimes the seat of a considerable greasy exhalation; sometimes it is found to be fetid and sour. The acidity of the exhalation may be so decided as to determine a reaction upon litmus paper; in many of the cases observed by Mr. Kaye on the Mediterranean coast it was so. The scalp and other parts of the cutaneous integuments are often the seat of eruptive affections. The absence of vascular and muscular energy often causes the child to lie and sit about much, and indisposes him to enter into the energetic games of his playfellows. As to the intellectual development claimed for scrofulous persons, I am bound to say that it is usually wanting. That many scrofulous children present that character is quite true; but the result of very careful observation has convinced me, that the overwhelming majority are without those superior intellectual qualities which have been pointed out as their ordinary character. Among the better classes, the feebleness of a scrofulous child attaches to him an interest which, without it, he might not have enjoyed. To compensate for his physical inferiority, the anxious parent seeks to make him mentally superior to

his bodily stronger fellows, and frequently succeeds; but often the limit of healthy action is passed, the nervous and intellectual systems have the vital action concentrated on them too intensely; the sufferer loses flesh, the general health languishes, and the intellectual faculties may give way, destroyed by an opposite, but not less sure method than that which breaks down the poor man's child.

Where we find persons tainted with Scrofula living under less favoured circumstances, the picture to be drawn of their physical and intellectual characters is widely different. In the cottages of the poor we find the child with the scrofulous diathesis often pallid, puffy, insensible, listless, and filthy—the skin dry, harsh, and too commonly covered with eruptions—the mucous surfaces deranged, the attention not easily fixed nor even excited—the senses obtuse, the mind greatly wanting in intelligence, unimpressionable and almost incapable of action. The fact is, that those children who are surrounded with comforts and discreetly treated, and whose condition makes them objects of interest to those around them, present very different features of the disease from those which mark the scrofulous child of the poor. By the poor such a child is regarded as a calamity; while the other children are at work or play, he languishes in the corner of a solitary home; and if he be not altogether deprived of force and energy, what remains is soon wasted by taxing him beyond his powers.

In a constitution favourable for the deposit of scrofulous matter, I believe there are no features, in the absence of the tumor, so constant and so conclusive as to justify a reliance upon them, in pronouncing an opinion whether a constitution be scrofulous or not. It is certain that the ordinary tests are fallacious; I know that the major part of them may be observed, again and again, without any other evidence that the constitution is tainted with Scrofula. We may even have enlarged glands, while no product such as that which I have alluded to, is deposited; although, in the absence of any

source of irritation, enlarged subcutaneous glands constitute grounds for grave suspicion that the constitution is scrofulous. Thus, whatever may be the constitutional peculiarity, however marked may be the general physiognomy by what is called the scrofulous diathesis, we have no certain sign of the existence of the disease until sufficient evidence can be obtained that the deposit has taken place. The constitution may suffer long before such a deposit is made, and the glands themselves may be swelled without presenting in their substance a scrofulous deposit; indeed the deterioration of the system proceeds so slowly, that although the tendency be directly onwards from the period when the gland is simply enlarged, to that when the deposit would ordinarily occur—in that interval favourable or unfavourable circumstances may be experienced, and no deposit may take place;—on the one hand, the constitution may improve and the glandular swelling may subside; on the other, the ailing child's life may be cut short by other diseases before the proof of Scrofula is complete.

In childhood, the time necessary for the perfect development of the disease is, I believe, very long; so long as to build up the whole body with bad materials. In adult life, the time is still more considerable; so that although in each case the causes of the disease may be efficient, their influence may not be continued long enough to bring about such a change in the constitution as fits it for the development of Scrofula; and if they be not so continued, the swelled glands may subside, and the person may escape the deposit, or the causes of ill health becoming more intense, he may die of some more acute disease.

It is, therefore, important to keep in mind that what is known as a diathesis, or a particular character of the body, does not necessarily imply that the person bearing the particular impress, is, or must become, the victim of the disease, which, according to the term diathesis, is supposed to impend over him. It is true that the term is frequently employed

in a vague and indeterminate sense. Too often it is applied to a state of the system upon which the particular disease has already set its seal; it is then, however, no longer a disposition, but a reality. It already pervades the constitution, but waits for something to determine it upon a particular organ. One woman gets a blow upon the breast, a tumor follows, and never subsides, it is cancer; ninety-nine others are similarly struck, a tumor follows, but quickly subsides under treatment. There was in the first case a peculiar diathesis—a disposition which it may be very difficult to describe—which may not be manifest to our senses in the present state of our knowledge, and yet the disposition was present. A boy may present a feeble frame, a scrofulous diathesis, but no local sign of Scrofula is manifest; he knocks his knee, inflammatory action comes on, and it assumes the characters of white swelling, or "scrofulous" inflammation of the joint. Twenty other boys may receive similar injuries, inflammatory action comes on, but subsides under ordinary treatment. In the first case the disposition existed; which might, or it might not, have been called into action, and which under favourable circumstances would have passed away.

Although, to my mind, it seems at present impossible to point out any train of appearances, in the absence of the deposit, which will certainly apply to all those who possess a constitution tainted with Scrofula, I am quite aware that both in the solids and in the fluids—in the structure and the functions of parts, there is, before the deposit occurs, a wide divergence from the state of health.

There is commonly a general want of tone and energy in the solids, which incapacitates the sufferer for proper exercise; the muscular system is quickly exhausted, and incapable of sustained exertion—this is a consequence of impaired nutrition. That splendid-looking corps of Dutch Grenadiers, which constituted, when on parade, so distinguished an ornament of Napoleon's army, and which was said to be greatly tainted

with Scrofula, suffered more from fatigue, cold, and hunger, during the disastrous retreat from Moscow, than any other portion of the French army; few of them, indeed, survived the retreat. It is matter of remark in the army, that fair, lymphatic-looking men, apparently enjoying brilliant health, frequently present a dragged, broken-down appearance, after two or three days' severe marching.

It will be seen hereafter, that the impaired condition of the solids is probably owing to a divergence from the state of health, which is demonstrable in the fluids; the blood is watery, the proportion of globules is much lessened, the chyle is too poor, in its proper elements, to reanimate the blood, and as may be supposed, all the elements of reparation derived from the blood are of bad quality also; the excrementitial secretions show equal variations from the standard of health. The digestive mucous membrane often acquires that condition so well described by the late Dr. Todd as occurring in "strumous dyspepsia." He described it as the cause of Scrofula; I regard it as the result of an already contaminated constitution, in many cases, only tending to the deposit.

He says, "I am anxious to draw the attention of the profession to the form of dyspepsia which belongs to the scrofulous constitution, for in our opinion it presents a more characteristic feature of this habit of body than any physiognomical portrait which has yet been drawn of it. Upon whatever temperament the disordered habit, which we call Scrofula, may engraft itself, we venture to say that this form of dyspepsia will also there be found. In the offspring of scrofulous and also of dyspeptic, hypochondriacal, or cachectic parents, in the children of old men, in children who have been badly nursed, or who, brought up by hand, have been improperly fed, or reared in the impure air of crowded towns, symptoms of disorder of the function of digestion early manifest themselves, generally between the first and tenth years, often commencing with the first dentition, which is commonly painful and difficult. Though the

child from time to time loses its appetite, it is generally morbidly craving or ravenous, even soon after a plentiful meal requiring fresh food, so that the nurse remarks, 'there is no satisfying such children.' The complexion loses its colour, the skin its tone, ceasing to compress the flesh; the flesh becomes soft and flabby, the appearance is languid, the belly is generally tumid, and there is a want of the usual disposition to play or to use the exercise common to that period of life. The little patient is soon tired, complains of aching of the legs and knees, desires frequently to be taken up, his temper is fretful, he is easily set crying, and his intellect is either precocious, or unusually dull. His sleep is seldom calm and composed; he moans, talks, or grinds his teeth, sometimes screams and raves. His bowels are generally confined, and his evacuations are of a light grey colour, like pale brown paper, sometimes curdled with streaks of mucus; or they are of a greenish colour, frequently yeasty, of a sour and highly offensive smell, and very often the food is passed unchanged. Diarrhæa occasionally occurs, consisting usually of light-coloured or slimy stools, and the patient frequently complains of pain in the bowels or uneasiness of the stomach. The urine often deposits a whitish sediment, the breath is fœtid or heated; there is some slight thirst, slight heat of the skin, except on the extremities, which are colder than natural; the skin is harsh and dry, except during sleep, when there are frequently heavy but partial sweats. The tongue is redder than natural, and on its anterior part spotted with small points of a darker and brighter red colour than the general surface; it is seldom much furred, being either covered with a thin, mucous fur, through which the red spots appear, or with a slimy, brownish coat, or the fur is distributed in small circular white spots, more or less confluent, presenting altogether a dappled appearance. When irritation of the stomach supervenes, the tongue is dry and of a brownish red colour."

In time, other symptoms are manifested, such as redness of the fauces and enlarged tonsils, and certain affections of the

skin. All these symptoms are referred to a congestive state of the hepatic system.

This state of the digestive system is very commonly observed in scrofulous children; but so it is in many sickly children who have no other sign of the disease; whilst in many cases of tuberculous or scrofulous disease, no appearance of strumous dyspepsia is present. In a majority of cases the digestive mucous membrane no doubt suffers, and in some cases, very intensely, but it is certain that this state of the system bears no direct relation to Scrofula. In many cases, where the evidence of the existence of Scrofula is most conclusive, no "strumous dyspepsia" is present; in many more, that affection exists without any conclusive proof of Scrofula. In all, I regard it only as a link—not the first, not a necessary one—in the chain of circumstances leading to the complete development of the disease.

That condition of the economy, then, which is favourable to the formation of scrofulous matter is not Scrofula, but a diathesis, or disposition; it may exist long, it may cause the tumefaction of many glands, but, under favourable circumstances, it may disappear without the deposit of a single particle of that product whose presence in the glandular structures is, I conceive, necessary to constitute Scrofula. Again, I say, the condition of the system favourable to this deposit is marked by *no certain* external signs, up to the moment when the glands become tumid. The child may be fair or dark, pallid or ruddy, well fed, clad, and lodged, or all these may be the worst possible; he may be the child of wealth or of poverty; he may live in town or country; he may be the child of old or young, of healthy or sickly parents; he may be born and live within the tropics, or in the arctic circle; under all these circumstances, as we shall see hereafter, Scrofula may be developed. What circumstances tend most to its production, we shall endeavour to show when we come to the study of causes.

At the same time, we are bound to admit that the condition

of the system which we have described as indicating the predisposition to Scrofula, is one which favours the deposit of the particular product in many parts of the body; in one case, in one organ; another, in another. If, for experiment, two animals be submitted to the influence of exactly the same causes of evil, the results of that influence will probably be very different. In one instance a particular organ is the principal sufferer; in another, the same organ has escaped comparatively free from disease; and it is often difficult to assign any explanation why these results should differ so widely from each other. But it is certain that most morbid deposits are the result of perverted nutrition; and when the condition is developed which is favourable to their production, particular circumstances will determine them upon one organ or another.

CHAPTER III.

THE SCROFULOUS DEPOSIT—ITS PHYSICAL CHARACTERS.

We have spoken at sufficient length of that state of the constitution which is supposed to favour the deposit of scrofulous matter, and we will proceed to inquire what are the characters of that product itself.

It is believed that scrofulous matter may be deposited in many of the structures of the body, and supposing that opinion to be correct, it is pretty certain that it will vary in appearance with the varieties of the structure of the organs in which it may be deposited; but as we define Scrofula to be a disease, manifested by a peculiar deposit in the subcutaneous lymphatic glands, it is in them that we should first examine the product in question.

When a gland is about to become the receptacle of such matter, it undergoes a change in structure, dependent on increased action alone, and certainly irrespective of the character of the deposit. In the gland so changed, the matter is deposited, it may be, at several points; those points enlarge, and may ultimately coalesce, and the intermediate tissue of the gland may disappear. At an early period, it sometimes happens, in lymphatic ganglia, but this is very unfrequent, that the matter presents an appearance not unlike that of the grey, translucent, tubercle-like matter found in the lungs. The common rule observed in lymphatic ganglia, however,

is to present no intermediate stage between the development of simple enlargement and induration, accompanied by increased vascularity in the gland, and the occurrence of the deposit of opaque scrofulous matter. To the naked eye, this matter is presented in the form of an amorphous, greyish, buffish, or yellowish mass, irregularly granular, and not unlike moist old cheese.

The microscopical characters of scrofulous matter are thus described by Albers: "The tubercle presents, under the microscope, separate minute tubes, which under a linear enlargement of five hundred and fifty times, prove to be cells; this is not the case with scrofulous matter, which is granular."* Bredow says, that when examined with the microscope, he found, that scrofulous matter like all organic products, was composed of innumerable small globules, which had no organic connexion with surrounding parts. Ruette found, under a power of four hundred, that the single globules, which are a little larger than blood globules, consist of a capsule, with a nucleus. Several times he thought some of them burst and shrivelled. Bredow could not distinguish those capsules. He thought, on the contrary, that these globules were at first transparent, but that they gradually became opaque.

Mr. Dalrymple, who has kindly made for me microscopical examinations having reference to this subject, says: "The whole material is composed of disintegrated tissue, granular molecules, irregular exudation corpuscles, and in which the nucleolus is seldom to be recognised, and a considerable quantity of oil globules, which may be abstracted by boiling in æther, and recovered by evaporation on a plate of glass.

"In acute or chronic inflammation of the glands, in otherwise healthy subjects, in whom no particular morbid disposition exists, the exudation corpuscles, by what appears to be

* See Appendix.

a law of vitality, proceeds to the development of a cyst around the nucleus, or cyto-blast; and this nucleus even splits into two or more, and hence a pus globule is formed. At this point, however, the process stops, and the pus globule subsequently disintegrates, and is resolved into granular and fluid matter. During the development of the cell and fissure of the nucleus, a pus globule may be said to be an organic and vitalised body, deriving its means of increase from the blastema around.

"The exudation corpuscle, however, is capable of a much higher degree of organization, and under favourable circumstances, the cell germ produces its cell, the cell elongates, and either fibre or filament is produced, as in the healing of a wound.

"In this scrofulous matter it appears that the exudation corpuscles do not possess even that feeble vital power, which induces the further change into pus, and therefore it passes from the nucleolated cyto-blast into an irregular granular body, (disintegrated), the elements of which, by some further chemico-vital process, resolve partially into oil, or fat globules."

Mr. Gulliver's observations upon tuberculous and scrofulous matter have been very extensive. He has kindly examined a large number of specimens sent him from the St. Mary-le-bone Infirmary, and the following are the results which he has been good enough to communicate to me.

"In the human subject, it appears to me that crude tubercular matter, from whatever organ obtained, differs as little in its microscopical as in its general and chemical characters. When examined by the aid of the microscope, crude tubercular matter can scarcely be said to present any regular structure, as it is merely made up of minutely granular matter, oily spherules, some shapeless albuminous flakes, or shreds, and a few irregular corpuscles; the latter are probably nothing but effete, or shrunken primary cells."

CHEMICAL CHARACTERS.

The analyses which have been made of the chemical characters of scrofulous matter, do little more than prove that it is mainly composed of albumen, fat, or oil globules, and certain alkaline salts. In one case there appears to be a little more, in another a little less, of those materials, and I have had the quantitative analysis very differently given when the matter has been taken from the same body.

Hecht says: "If we take a large lymphatic gland, altered in structure and converted into a mass of scrofulous matter, the whole mass seems homogeneous, and of the same yellowish or dirty white colour; towards the centre, the mass is softer and of a creamy, pulpy appearance. The softened pulp turns litmus paper green; acted upon by boiling water, or acids, it coagulates, presenting no globule either of fibrin or of pus, and is apparently only a mass of coagulated albumen, with an excess of alkaline salts. But when inflammation is excited by its presence, pus may be found mixed with the matter. Before this matter has undergone softening, a viscous fluid can be expressed, which coagulates by heat, and a white flocculent matter is precipitated. This precipitate, insoluble in alcohol or æther, is albumen, for if the matter be treated before coagulation with nitric acid, a yellow flocculent precipitate is thrown down; acted upon by chlorine, it becomes pearly white in colour, and a white precipitate results; treated by nitrate of silver, a reddish brown precipitate is thrown down, and this is insoluble in ammonia. It contains some gelatine and fibrin, and probably a little stearine."

Prout regards this matter as albumen, incompletely developed. Gendrin as a mass of albumen, with excess of salts. L'Héritier found it to contain albumen, very soft fibrin, some fatty matter, and carbonate and phos-

phate of lime. Bredow regards the matter as albuminate of potash, or soda.

So far as to the physical and chemical properties of scrofulous deposits, which although varying with the particular structure of the organ, yet in so far as concerns a simple inspection, present considerable uniformity, and they do not yield any uniformly differential character when subjected to minute analysis, either by the microscope or by chemistry.

CHAPTER IV.

STATE OF THE ORGAN IN WHICH THE PRODUCT IS ABOUT TO BE DEPOSITED.

We have considered the state of the constitution which favours the development of the scrofulous product; and the physical and chemical characters of the product itself; and we may now inquire whether there be any uniform change determined in the organ, in which the product is deposited, before that deposit is accomplished.

Commonly, if not always, glandular structures do undergo considerable change before scrofulous matter is deposited in them. They acquire a considerable increase in volume, in density, and in vascularity. The bulk may be ten or twenty times what is natural to them, the density may equal or exceed that of veal, and the change of colour from increased vascularity is very remarkable.

A point of considerable interest is here presented. Is this state of the gland determined by the circulation within it of blood which has undergone change, or is it independent of the blood? Does the blood fit the organ to receive the deposit, or does the organ fit itself? This is an important question, but of very difficult solution. Important too, with reference to treatment; because if the action set up were purely local, means might be taken to change it, and render it unfit for the deposit. If the action depend only upon a

general contamination of the blood, how comes it that all the lymphatic glands are not equally affected? It is notorious that they are not. The bronchial glands are affected more than twice as often as those of the mesentery, the latter four times as often as those of the neck, though in many respects less exposed, and the last named glands four times as often as those of the axilla and the groin. There must be a reason for this. It may be that the cause of the greater frequency in the glands of the mesentery, is the irritation set up in them by depraved chyle, the result of bad food or improper feeding; which state may be kept up until the blood is sufficiently charged with improper materials to occasion a deposit to be made; and I apprehend the cause of the greater frequency of the deposit in the cervical than in the inguinal or axillary glands, is that they are more exposed to alternations of temperature and to irritation; that, therefore, cæteris paribus, under the same amount of constitutional irritation, congestion is more rapidly developed in them, and therefore the deposit is more frequently found in their substance.

Mr. Dalrymple, after a careful examination of a scrofulous cervical gland, says; "This enlarged gland appears to consist of a general parenchyma in a state of chronic inflammation, surrounding irregular masses of yellowish white matter, more immediately the subject of examination. In direct proximity to the edges of this white material, the blood vessels are seen to be more enlarged and congested than elsewhere, and in some parts, the capillaries are occluded with coagulated blood. The parenchyma, which at first sight appears healthy, is, on examination with high powers, found to be infiltrated with exudation corpuscles, resembling lymph globules. The natural texture of the gland consists of its proper corpuscles, filamentous tissue, blood vessels, lymphatics, and nerves. In this morbid specimen, every where is the filamentous tissue infiltrated, and its fibres separated by innumerable exudation corpuscles, and the proper cor-

puscles of the gland are similarly surrounded and imbedded.* As the parenchyma is nearer to the white matter, so proportionally do the proper corpuscles of the gland become more indistinct, the filamentous tissue more obscure, the blood vessels irregularly dilated and filled with red globules, and they at last disappear insensibly. The exudation corpuscles are more numerous, but irregular in size and shape, and interspersed with minutely granular matter."

Whether the state of hypertrophy, with increased vascularity, be inflammatory in its nature, will be differently decided by different people; but as exudation corpuscles can be detected before any scrofulous matter is deposited, I think we ought not to refuse to admit the existence of inflammatory action. That Broussais should have so regarded it is not perhaps to be wondered at. "Never," says he, "are lymphatic ganglia tumefied, indurated, or softened, without an exaltation of their irritability and their contractibility; that is to say by irritation, which is sub-inflammation."†

That some persons will explain this altered condition of the gland in a different way to what I have done is possible. But I do not care how it is explained;—the fact that the organ is so changed is all upon which I insist. This congested, inflamed, or hypertrophied condition of the subcutaneous glands is of very frequent occurrence. It can be detected in one fifth to one sixth of the juvenile population of this country. If we examine the necks of delicate children, we very commonly observe that the lymphatic glands in this region are enlarged. In the state of health, the eye and the finger fail to detect them at all, and when they are thus cognizable, the proof is complete that

* See Plate, fig. 1.

† Examen, tome 1., proposition 18.

they have undergone the change of structure to which I have referred. A tumor of considerable size may result from the aggregation of a cluster, or a chain of such glands; that tumor may completely subside, so as to leave no trace of its existence behind it, and this is the result in probably nine cases out of ten where such swellings have been observed. This is proved by the fact that they are enlarged so as to be felt in more than 20 per cent. of the juvenile population in England and Wales, and that they are not found to proceed to suppuration in more than 2 per cent. of that population; and I regard this fact as a satisfactory proof of two circumstances—the hypertrophied, or inflamed condition on the one hand, and its entire subsidence on the other. And that subsidence I assume to be a proof that no scrofulous matter was deposited, because I have no reason to think that when scrofulous matter is deposited in any structure, it can be removed by any process of absorption; therefore, when the deposit has once taken place, the swelling it occasions must remain until the matter is ejected, because complete recession does not take place while the deposit is present in the part.

In cases of swelled glands, when I have had an opportunity of examining them after death, I have found the tumor to be formed of an aggregation of enlarged ganglia which were harder and more vascular than natural, and I have often made the most minute inspection without detecting the smallest particle of scrofulous matter in them, yet if diseased action be kept up long enough, the deposit will almost certainly take place. If we look at a similar state of things in the mesentery, we may see a great number of the glands enlarged and reddened by increased vascularity; some may be as large as a horse bean, or even larger, but when cut into, no deposit may be found in them, and yet here and there we find one, it may be, not harder, nor larger, nor redder than some others in which we

find the matter deposited. I conclude that the particular gland has suffered longer than those in which there is no deposit. Generally, it is in the largest and reddest gland that the deposit is found. I, therefore, hold that we have satisfactory proof that before scrofulous matter is deposited in a gland, the organ has undergone considerable change of structure; but I cannot determine whether it be a consequence of the state of the blood, or independent of any change in that fluid.

CHAPTER V.

SOURCE FROM WHENCE SCROFULOUS MATTER IS DERIVED.

THE conviction which the ancients entertained, that Scrofulous matter was thickened lymph, made it a matter of great importance to them to discover agents by which they could thin it, and purgatives and alkalies were supposed to have that power, and were largely administered. In the present day, a different opinion is entertained of the source from whence scrofulous matter is derived; but it is important that we should satisfy ourselves as far as is possible from whence it comes, because in that case we may be able to carry out, with more effect, what they desired to accomplish—the cure of the disease.

The old idea of scrofulous glands was, that the matter deposited in them was left there by the lymph, or pituita, or chyle, in its passage through them; but then it was assumed that the lymph had previously undergone change, had become gypseous, fatty and viscid; and as it had become too gross to pass through the channels in the gland, it accumulated, became concrete, and in this way the glandular tumor was formed.

The prevailing opinion in the present day is opposed to the Hippocratic notion, and for this, as for most other deposits, we are disposed to look to the blood. But before we do so, it is proper to inquire whether there be any foundation for the notion that scrofulous tumors are ever produced by thickened lymph.

In the composition of healthy lymph, there is nothing repugnant to the belief that scrofulous matter may result from the inspissation of that fluid. L'Héritier analysed lymph taken from the thoracic duct of a man who, for thirty hours before his death, drank nothing but water. He found that it contained:

Water . . .	924.36
Fibrin . . .	3.20
Fatty matter . .	5.10
Albumen . . .	60.02
Salts . . .	8.25
Loss . . .	7

The salts were alkaline chlorides and phosphates, sulphates and carbonates, with traces of peroxide of iron.

Lymph may also undergo considerable change in its composition, and it is possible that it may then assume a state more favourable for such deposits. Hewson found that it might be much modified, made thinner or thicker, by particular modes of feeding. In some cases, the changes produced in it are owing to a change in the proportion of its natural constituents; in others, to the introduction of matters not naturally found in it. Thus, Mascagni found lymph largely mixed with blood; others have found the lymphatic vessels filled with pus.

Sömmering mentions cases in which masses of phosphate of lime were found in lymphatics. Lauth, in a case of caries, found osseous matter in the neighbouring lymphatics; similar matter has also been found in the lymphatics of the neck, the axilla, the groin, and the bronchi. But these circumstances are no proof that the deposit in cases of Scrofula is furnished by lymph.

Such changes brought about in the lymph may, however, have given rise to the opinions of the older, and even of some comparatively modern authors, that the glandular tumor is caused

by the stagnation of the fluid brought to the glands by the lymphatic vessels; by the inability, in fact, of the modified lymph to pass through the glandular structure, and by its accumulation and its concretion constituting a scrofulous tumor.

Although I admit that the admixture of grosser particles, or of acids, alkalies, or salts, with the lymph, may possibly cause such a stagnation, may in fact determine a glandular tumor, I venture to express a strong opinion that glandular tumors are rarely thus produced. If the tumor were formed in this way, many or all of the lymphatic channels in the gland would probably be obstructed, and the progress of the lymph arrested. Now this very rarely happens in lymph canals.

In a Note to Baillie's "Morbid Anatomy," appended by Sömmering, he stated the fact, that in scrofulous children with diseased mesenteric glands, the lymphatic vessels of the mesentery can be easily injected, the fluid passing readily through the enlarged ganglia; so also can the lymphatic ganglia themselves. Carmichael, in his Essay on the origin and nature of tuberculous and cancerous diseases, has drawn attention to the same fact; and Albers* makes a similar statement. Becker has many times injected diseased (scrofulous) lymphatic ganglia with mercury, and he has always seen the injection freely traversing the lymph channels; from whence he concludes, that in the greater part of such morbid conditions of these ganglia, the principal seat of disease is the cellular tissue interposed between the vessels, or the parietes of the vessels themselves, but that there is no obstruction in their canals.

It has been maintained by competent authorities that the diseased condition of the mesenteric glands, known as mesenteric disease, and which we have frequent opportunities of observing, may be regarded as a fair illustration of what happens in scrofulous glands; that it is certain that such obstructions as we have described do happen in the former organs, and that the tubercle-like material found in them, in those cases, is

* Beobachtungen für Pathologie, 2 vols. 8vo.

inspissated chyle. In the state of health, the chyle meets with no obstruction in its passage through the mesenteric glands; but it is unquestionable that those glands may become so diseased, and the chyle canals may be so trenched upon, as to cause an obstacle to its passage towards the thoracic duct; it is equally certain that the occurrence of such an obstruction is very uncommon.

And yet, concrete, cheesy, tubercle-like matter has been found in the chyle vessels of the mesenteric glands; and the chyle has been arrested between the mucous surface of the intestine and the gland, and the chyle vessel has become distended and knotted, and its contained fluid inspissated. Andral describes this state; I have seen it more than once, but during the present investigation I have not found one instance of it, or I would have given the chemical analysis and microscopical appearance of this product. Brown,* says, "that upon opening the tumefied glandules in the mesentery of a girl of eleven, he found a most white, milky chyle issue thence, which concreted into the form and hardness of cheese."

At the same time, then, that we admit the possibility of the glands being distended in the way referred to, and of glandular tumors being so formed, we must not lose sight of the fact, that even when those glands are found to be the seat of considerable deposits, the chyle channels usually remain perfectly pervious, and allow of the free passage through them of injected fluids, which would probably not happen if the chyle became concrete in those channels. It is upon this fact, rather than upon the microsopic and chemical analysis of this tubercle-like matter in the mesenteric glands, that I rely for proof that it is not concrete chyle. The microscope does, it is true, confirm this view of the case, by showing that the concrete matter does not present the physical characters of ordinary chyle, but the chemical composition of chyle affords nothing to militate against the hypothesis, that such matter is inspissated chyle. I think, however, that although

* In his Adenochoiradelogia.

there is nothing in the character of the deposit in the mesenteric, or subcutaneous glands, to make it impossible that such deposit may result from the chyle or lymph passing through them, as was maintained by the older writers, that glandular tumors are but very rarely formed in that way.

As a general law, it is now admitted that morbid products are derived directly from the blood; and the questions then to be resolved are these:—Has the blood previously undergone a change in its elements, the part in which the deposit is made remaining unchanged? Or, does the blood remain in a healthy condition, the part in which the deposit is made exercising a specific influence upon the blood, and determining the character of that deposit? Or, are both removed from a healthy condition before the product is deposited?

In the case of most morbid products, the result of diseased action is to determine the deposit of matter, the previous existence of which in the blood cannot be demonstrated; yet it has been said that tubercular matter has been observed in the circulating blood. In the case of scrofulous matter, no one but Lugol has, so far as I know, asserted the observation of its presence in the circulating mass. His statement is, that he found nodules of such matter, already formed, carried along with the blood. Supposing the observation to be correct, there is no proof that such nodules were formed in the circulating fluid. Bearing in mind that this statement is unsupported by any similar observations made by others, of even the occasional existence of scrofulous matter in the blood, the evidence that I may offer in support of the opinion, that such matter comes from the blood, may be regarded as insufficient. I certainly cannot give a demonstration of the soundness of that opinion. Still, if I show that in the state of health, the blood contains materials such as are found in scrofulous deposits, and that in particular states of the economy, those materials are increased or diminished; and if I show that when particular materials are increased, scrofulous deposits are more

frequent, and that the deposits are made in the cellular, or other structure of the organ, and not in the lymphatic channels, I submit that we shall be fully justified in assuming that scrofulous matter is a deposit from the blood.

The analyses of healthy blood, made by Marcet, Berzelius, and Lecanu, correspond so nearly, that we may assume that the elements are correctly determined; and we find them to consist of potash, soda, carbonate and phosphate of lime, albumen, fibrin, and probably gluten. These elements may be found in scrofulous matter, and therefore the notion of its being separated even from healthy blood, would not be a startling proposition to lay down. All that would be required to constitute the scrofulous matter would be that the elements should be differently combined. But that which makes it improbable that the matter can be formed from healthy blood is, that in the state of health those deposits do not occur; it is therefore fair to infer that there must be a previous change, either in the blood, or in the organs through which the blood circulates, and in which the deposit takes place, or in both, before it can occur.

We have shown that a change takes place in the organs before the matter is deposited in them; we must now endeavour to ascertain whether there be a corresponding change in the blood also before the deposit is made. But this is not easy. When scrofulous deposits are present, it is not difficult to show, in a person thus afflicted, that the blood is changed: this I have repeatedly observed. Again, when there is no reason to believe that the scrofulous constitution is present, it may be usually shown that the blood has not undergone any similar change; but it is no less true that in some diseases marked by long-standing debility, but without any apparent scrofulous taint, the blood presents characters not unlike what are observed when the taint of Scrofula exists.

But the connecting link between the two points cannot be made evident, because, in the one case, there is no proof that the blood was altered before the deposit had taken place; in

the other, the proof is wanting that Scrofula would have been developed even in those cases where the blood has been found to have undergone the alteration in question. Still, we must tender the best evidence we possess in proof, that the change does take place in the blood before the scrofulous matter is deposited, and that unless that change have occurred, scrofulous matter is not deposited.

Alimentation and disease are the two great agents by which changes are wrought in the constitution of the blood; probably in the last resort, the greatest changes are always the results of corresponding changes of food.

The observations of Andral, Gavarret, and others, show that the solid, as well as the fluid constituents of the blood, undergo considerable changes from the influence of food, as well as from that of disease; but it is not shown that the increase or diminution affects all the constituents equally. There may be, at the same time, an increase of one and a diminution of another; those constituents appear to have no mutual dependence on each other.

Enfeebling agents seem to affect, in the first instance, the proportion of red globules; it is constantly diminished, while the proportion of fibrin may be increased. And supposing food to be the agent by which the change is accomplished, the process seems simple enough. Bad food produces bad chyle, bad chyle imperfectly renews the blood, perverts its elements, diminishes, destroys, or augments its plasticity, causes the predominance of certain principles over others, and possibly so changes the composition of the blood, as to determine in it non-analogous productions.

As a general rule, under prolonged abstinence, the quantity of blood diminishes, successively, during the whole time of its duration, and at last the quantity becomes so small that one only wonders how it circulates; and in these cases, it is commonly found that the proportion of albumen increases, while that of fibrin diminishes.

The imperfect accomplishment of the functions of depura-

tion, as is observed in the Berlin Report,* is also a principal cause of morbid states of the blood; any change in the exhalation of carbonic acid gas, or aqueous vapour, in the quantity of sensible and insensible perspiration, in the urinary and other secretions, produces alteration in the characters of the blood; and if the materials for those several products be left to accumulate in the blood, they act as poisons; it must be evident, therefore, that any material interruption of those functions, if not compensated for, or supplied by some other, must necessarily induce a change, not only in the quantity or quality of the materials of the blood, but also in its vitality.

To show how far surrounding circumstances, by inducing Anæmia, may alter the natural condition of the blood, I may state, after Andral and Gavarret, that in 1000 parts of healthy venous blood, we may find:—3.0 fibrin, 127.0 globules, 80. solid matter of serum, 790. water; while in Anæmia its state has been found so changed as to yield: 1.2 fibrin, 36.0 globules, 80 solid matter of serum, 881.8 water. Here the diminution of globules and the increase of water is very striking, so also is the decrease of fibrin.

Baumes stated, that in scrofulous patients the different constituents of the blood are less intimately mixed than in healthy persons, the union of the molecules being feebler than in the state of health. Thouvenel observed the same state, and conceived that it was owing to an excess of acrimony. Denis also alludes to it, but he refers it to an excess of alkalies. Supposing acrimony to mean acidity, it is certain that both alkaline and acid principles are capable of producing important changes in the constitution of the blood.

Dubois (d'Amiens) also observed the diffluence and imperfect coagulability of the blood in scrofulous persons; he also pointed out a change produced in the form of the globules; he found them "lenticular, the central depression, or spot, being extended beyond its natural limits, and so defined that they looked like wheels," "many of them being also deformed, notched, or otherwise irregular."

* See Appendix.

I have examined the blood in sixty-seven instances of Scrofula, and although I have almost always observed a considerable deviation from the condition of healthy blood, the changes have not presented sufficient uniformity to induce me to regard any particular condition as specially characteristic of Scrofula; the changes are such as seem to belong to a tolerably extensive group of affections, all, it is true, being connected with disordered nutrition and debility.

In almost every case, the coagulum was relatively small, the serous menstruum large, the clot was usually very soft, almost diffluent; in a few instances only it was tolerably firm. In almost all cases, the proportion of globules was considerably under the healthy standard. The fibrin had not usually undergone much change; in a few cases it exceeded, in many more it was below the healthy standard. In most instances there was a considerable increase in the proportion of albumen; in almost every instance the proportion of salts was found to exceed the healthy standard; in some instances it was nearly doubled. At one time I thought I had clearly made out, that the proportion of chloride of sodium was deficient, and certainly in many cases it was so; but in many other cases that deficiency was not evident. If succeeding observations should establish a frequent co-existence, it might be well to carry out Russell's salt-water plan in the treatment of the disease; he conceived it to be efficacious. It may be, that salt water so used acts as a stimulant of the whole economy, increasing plastic energy, and thus improving the vigour of the system.

In some cases I have observed, under the microscope, as did F. Dubois, that the colouring matter adhered loosely to the globule, and that a certain portion of it seemed to be dissolved in the serum, but I do not, with him, regard this as an ordinary character of the blood in such cases. I have usually met with this peculiarity when the blood had been drawn many hours, and I have been more disposed to regard it as a consequence of a disposition to early decomposition

than as a proof of any vital change. M. Dubois has always, in such cases, observed the spheroidal and the lenticular globules. He conceived that the lenticular globules were changed in form, some appearing as if perforated like wheels, others irregular or notched. Although I have observed similar appearances in the blood of scrofulous persons, I have also observed such appearances in the blood of persons who did not suffer from Scrofula; in fact, in many of those diseases in which anæmia is a distinguishing feature; and I am not, therefore, in a condition to point out any particular state of the blood which is certainly characteristic of Scrofula; but it is certain that if we examine the blood when the marks of Scrofula are evident, its altered condition is also evident; but I know no particular condition of the blood which clearly marks the existence of Scrofula. However the occurrence of similar changes, at the same time, in different regions of the body, seems to point to some other than a local agent, as producing the change in the organ in which the deposit is made—and that agent the blood.

It has been shown, that both lymph and chyle, in their natural state, do contain materials such as are found in scrofulous matter; but it has also been made probable that scrofulous glands are not the result of any deposit from either of those fluids. It has further been shown that the blood is the only fluid from which scrofulous matter is probably derived; that the blood itself undergoes most important changes in its composition, and that the more important of the ordinary secreted fluids, such as the urine, the milk, and others, become changed also, when those changes happen in the blood, and that there is a co-existence, at the least, between an altered condition of the blood and the development of Scrofula. Whether that change in the condition of the blood which is demonstrable when the existence of Scrofula is evident, and which can also be demonstrated when the existence of the disease in the constitution may be presumed, though the local manifestation is wanting, does really stand

to Scrofula in the relation of cause, I cannot, as I have already said, conclusively prove, though I believe that it does. And although the evidence in support of that conclusion be strong, I admit my inability to afford a demonstration of the correctness of the opinion I entertain, that the scrofulous matter is derived directly from the blood. Supposing that opinion to be warranted, it may be asked, whether the materials from which the scrofulous product results have gone far towards elaboration before they leave the blood-vessels, or whether any elaboration be afterwards effected. This is a question upon which we can only speculate; but it is certainly difficult to understand how the necessary, abnormal action, that causes the deposit, can be developed in so many regions of the body, and often in so many different tissues, almost at the same moment of time, as we find in tuberculous diseases, unless something more than a local action was at work to determine the deposit.

But having come to this point, we must now stop. We cannot prove whether the process under which the deposit occurs be one of secretion or excretion—whether it occurs in virtue of some peculiar action developed in the part, and causing a new combination between the constituents of healthy blood—or whether it is owing to the blood having undergone the change before it has ceased to circulate, becoming overcharged with albumen and salts, and ready, when the ordinary excreting organs do not carry them off, to deposit them anywhere, and wholly independent of local action. However, so much may, I think, be fairly assumed, that the blood is changed before the deposit is made, that the accumulation of certain morbid materials in the blood constitutes what is known as the scrofulous diathesis or constitution, and that their deposition in the subcutaneous lymphatic glands constitutes what we know as Scrofula.

CHAPTER VI.

ARE PULMONARY TUBERCLE, OR PHTHISIS, AND SCROFULA IN THEIR NATURE IDENTICAL?

In the chapter which contains our definition of Scrofula, we have restricted the term to a condition of the system, manifested, particularly, by certain deposits in the subcutaneous lymphatic ganglia. Although that view of Scrofula excluded Pulmonary Phthisis from any necessary connexion with our subject, the commonly received opinion of their identity is so strong, that I do not feel justified in passing it by without consideration. In its narrowest shape, the question is this, are tubercular disease of the lung, and scrofulous disease of the subcutaneous glands, identical in all other respects than in the seat of the deposit? The prevailing opinion certainly favours that belief; which rests on the following grounds, namely: that the deposit itself and the circumstances under which it occurs are said to be identical, and that Phthisis is only a more advanced stage in the development of Scrofula. It is unnecessary to refer to the names of those who advocate that opinion, but it is incumbent upon me to consider the reasons which have been adduced in its support.

As Roche* has clearly stated the case in favour of this alleged identity, I shall simply adduce the reasons which he has given in support of the opinion. He maintains that Phthisis and Scrofula are in their nature perfectly identical, the only difference being, as he states, in the seat of the deposit; that

* Dictionnaire de Médecine et Chirurgie pratique, Art. Phthisie, 15 vols. 8vo. Paris, 1835—1842.

the same temperament, and the same peculiarities of age and sex, predispose persons to contract both those diseases; that they offer the same anatomical lesions; that when Scrofula has existed long, the signs of Phthisis are almost sure to appear; and that almost all the children who die of Scrofula or Tabes Mesenterica, are at the same time phthisical. Reid regarded the difference between the two affections as one of degree only; Phthisis being the highest stage in the development of Scrofula. In this view of the case, a scrofulous childhood predicates a phthisical manhood. Carmichael thinks that the children of phthisical persons are, as it were, devoted to Scrofula, though he does not admit the identity of Scrofula and Tubercular Phthisis.

As those statements are made without the production of the evidence upon which I conclude they are founded; we must examine the subject on its own merits. Our attention will first be directed to the characters of the product deposited in Phthisis and Scrofula, and the condition of the part in which the deposit is made; we will then proceed to ascertain whether the circumstances under which the deposit is made are identical; whether it occurs at the same period of life, and whether it falls with equal severity on both sexes; whether, where one of these affections is largely prevalent, the other keeps pace with it; and whether those who die of Phthisis bear in their bodies the marks of Scrofula; because if in most of these respects a kind of antagonism between these affections can be demonstrated, a conviction must then be induced, that how strong soever may be the resemblance in the general characters of those diseases, the points of difference are certainly not unimportant. And even if we should come to the conclusion, that in their nature these affections are identical, it might still be imprudent to lose sight of Scrofula, as a term well known, to indicate a particular form of tubercular disease.

First, we will consider the physical and chemical characters of the two products; and we will take tubercular matter, such

as is found in the lungs, on the one hand, and scrofulous matter, such as is found in the subcutaneous glands, on the other, for the purpose of the comparison. I do this because we are considering whether Phthisis, which I prefer to regard as a tubercular disease of the lung itself, and Scrofula, which I define to be a disease of subcutaneous lymphatic glands, be in their nature identical. I exclude, therefore, from the present inquiry, disease of the mesenteric, the bronchial and other glands existing in the thoracic or abdominal cavities, because I wish to consider Phthisis and Scrofula under their most decided characters.

DIFFERENCES COGNIZABLE BY THE UNAIDED SENSES.

When examined by the naked eye, no very remarkable difference can be detected between the two deposits; at the same time, I entirely concur in the opinion of that accurate observer, Dr. Hodgkin, who says: "I am sorry that I am not able to give thee a satisfactory reply to thy query upon the tubercle and scrofulous glands, not having sufficiently availed myself of opportunities to examine the two microscopically. The deposits which we meet with in both situations present differences of which the naked eye can, to a certain extent, take cognizance. My own present idea is, that we may certainly find chronically enlarged lymphatic glands in which the deposit is decidedly different from that of the tubercles of Phthisis, but that there are other cases in which I should have at present a difficulty in making a distinction."

To a certain extent, the difference which is often apparent between these deposits is owing to the difference of structure of the organs in which they are found, but I have very rarely known scrofulous deposits, in the subcutaneous glands, to present the characters which are so often apparent in the early stages of tubercle development in the lungs—I mean the grey, smooth, translucent appearance; this is more frequently seen in the mesenteric and bronchial glands. At a later period,

that when softening occurs, for instance, it is doubtful whether any well-marked distinction can be made besides that which is dependent upon the difference of structure of the organ; certainly the point at which the softening commences is no sufficient test, although some persons maintain that in one the softening commences at the centre, in the other at the circumference of the deposit.

Albers conceives that differences in the physical characters of the deposits are demonstrable, and that the doubts which exist on this subject are owing to a too limited examination of them. He admits, it is true, that chemical analysis demonstrates no essential difference in the material elements; but he upholds the opinions of the older physicians, who maintained that a decided difference existed between Scrofula and Phthisis, though they have nowhere pointed out its nature.

Lebert, in speaking of the tuberculisation of lymphatic ganglia; says: "Tubercles of lymphatic glands may be classed in the three following categories; bronchial tubercles, mesenteric tubercles, tubercles of superficial glands; and between them, although possessing general features of resemblance, there are marked differences. Tubercles of the mesenteric glands are less frequently softened and surrounded with suppuration than those of the neck; bronchial tubercles often become cretaceous, those of the mesentery do so not unfrequently; subcutaneous ones do so but very rarely, but they have a tendency to suppurate. The tubercular matter, however, is the same in the glands as elsewhere—the same forms, the same elements. The vascularity around tubercles is sometimes largely developed in external glands. Diseases which are commonly regarded as scrofulous, may be ranged under three categories: chronic inflammations, in which nothing specific can be detected, and which are not really scrofulous; scrofulous diseases, properly so called; tubercular diseases, which though having a great analogy with Scrofula, ought to be separated from it as well for clinical, as pathological reasons. I believe scrofulous and tubercular diseases have a certain connexion, that

they depend on a dyscracic state of the blood, which is, in both cases, either identical, or, at least, analogous. I regard scrofulous diseases, neither as simple chronic inflammation, nor as a form of tubercular disease; and I believe in the essentiality of Scrofula. Tubercular diseases, on the contrary, appear in many circumstances to constitute rather a form of scrofulous disease."

DIFFERENCES DETECTED BY THE MICROSCOPE.

Believing that material distinctions between the two products could be made, though not satisfactorily, by our unaided senses, Albers had recourse to the microscope, and he conceives that by this means a distinct demarcation can be drawn between them. He found that: "Tubercular matter under the microscope, presents separate minute tubes, which under a linear power of five hundred and fifty diameters, prove to be ranges of cells; and this is not the case in scrofulous matter." M. Sandras communicated to the Académie Royale de Médecine the following observation: "That in Tubercular Phthisis the globules of tubercular matter are covered by a tomentous layer, which cannot be removed by washing, and that he has not discovered similar coverings in those found in Tubercular Ganglia."

Mr. Gulliver, who has examined a large number of specimens, in which deposits existed in the lungs, the liver, the kidney, the spleen, the internal and external lymphatic ganglia, has discovered no such appearances as those pointed out either by Albers or Sandras. He says: "In the human subject, it appears to me, that crude tubercular matter, from whatever organ obtained, differs as little in its microscopical as in its general and chemical characters. The drawing* shows how nearly the microscopic elements composing crude tubercle of the lungs and of the lymphatic glands agree. All the objects are magnified about six hundred and eighty

* See Plate, Fig. 2.

times, linear admeasurement. In the upper part, *a*, is depicted tubercle from the lung of a man, aged twenty-four, who died of the disease; in the lower part, *b*, tubercle from a subcutaneous gland of the neck of a boy, aged nine, who died of Scrofula affecting the superficial glands, membranes of the brain, and the spleen; his lungs contained only a few small tubercles." Other observers have come to similar conclusions. Mr. Dalrymple thinks that oil globules are more predominant in scrofulous than in tuberculous matter, but with that exception he knows no difference in the microscopical character of the two products.

Still, however general the opinion of microscopists may be that in appearance these products are identical, there are not wanting men of ability who maintain an opposite opinion, though the grounds for their opinion are not fully stated. In March, 1844, a paper was read at the Institute of France, having for title, "Microscopical and Physiological Researches on Tuberculisation." In that paper, M. Lebert says: "It is proper to separate from scrofulous diseases, tubercular affections, as well as chronic inflammation of the eyes, of the glands, of the skin, of the bones, and of the joints, in which, by an attentive examination, the particular dyscracic element cannot be discovered. In a word, the rigorous determination of the characters proper to Scrofula, is becoming an urgent desideratum in science." Again, the subject named by the Académie Royale de Médecine, for the Portal prize for 1845, is "The Analogies and the Differences between Tubercles and Scrofula." It is evident, therefore, that all men of science are not agreed, that the product deposited in scrofulous glands presents characters which are apparently identical with those of the tuberculous matter in Pulmonary Phthisis.

CHEMICAL DIFFERENCES.

The chemical analysis of those products does not determine any clear distinction between them; the essential elements are, as nearly as may be, the same in both. As much dif-

ference has been apparent in two analyses of tuberculous matter taken from the same lung, as between scrofulous and tuberculous matter taken from the same person. Prout says, that these products are mainly composed of incompletely developed albumen, with some salts; Thénard, that tubercular matter is composed of 0.9815 organic matter, and 0.0185 salts; Hecht says that scrofulous matter, contains 0.30 fibrin, 0.23 albumen, 0.27 gelatine, 0.27 water; Gendrin says that both products are mixtures of albumen with excess of salts; Bredow says that they are an albuminate of potash, or soda, with a little fibrin, and phosphate and carbonate of lime; Preuss says that there is, in addition, cholesterine and caseum; Boudet says, that they are composed of albumen, caseine, a substance analogous to fibrin, certain acids, fatty matter, cholesterine and salts;—so various are the results obtained from the analyses which have been made of tuberculous matter taken from the lungs, and of scrofulous matter taken from a subcutaneous gland. The differences seem to depend, to a certain extent, upon the operator, and to a further extent upon the product itself, but no one has, so far as I know, established any uniform chemical difference between tuberculous and scrofulous matter.

I believe that the chemical composition of tuberculous and scrofulous matter is scarcely less variable than its physical appearances and properties; and that they are modified by the period of development, the seat of the deposit, and, to some extent, by the mode of examination.

Whatever expectations we may have indulged from the use of the microscope, and from chemistry, as means of unravelling the difficulties which are presented by diseased structures, it is certain that up to the present moment those expectations have been frequently disappointed; still, in the present imperfect state of this method of investigation, the employment of those agents must not be abandoned, even though by the assistance of the one, we may be unable to distinguish between pus and mucus; or by the other,

between a malignant and non-malignant product, or between tuberculous and scrofulous matter.

In so far then as concerns the physical and chemical qualities of scrofulous and tuberculous matter, we can, at present, draw no distinct line of difference between those products.

DIFFERENCE IN THE CONDITION OF THE PART IN WHICH THE DEPOSIT IS MADE.

There is another question of much importance in estimating the alleged identity of Scrofula and Phthisis, and that is the condition of the part in which the deposit is made. The many opportunities I have had for examining lymphatic glands, before and after scrofulous matter has been deposited in them, have satisfied my mind that before the gland receives the deposit, it undergoes considerable change; it becomes enlarged, its vascularity is much increased, and its consistency is almost flesh-like; this change in its condition I conceive to be the result of inflammation. In this respect, then, there is a marked difference between scrofulous deposits in glands, and tuberculous deposits in the lung. I am aware that considerable difference of opinion has existed relative to the state of the lung at the point where tuberculous matter is deposited; yet few persons will be prepared to maintain that the deposit is commonly preceded by Pneumonia. The older authors seem to have thought the presence of inflammation necessary for the development of all accidental productions, and this idea was supported by Broussais; few, however, of the more accurate observers of the present day are inclined to doubt but that tuberculous matter is usually deposited in the lung unaccompanied by any sign of inflammation, or even active hyperemia. We have clearly no right, then, to assume the existence of antecedent inflammation, when we find the pulmonary tissue around a tubercle apparently quite healthy. I do not advocate the opinion that tubercles may not be developed as a consequence of inflammation, when a

predisposition exists, or that a period does not arise in the progress of tubercular development, when a certain amount of irritation or of inflammation may be set up in the surrounding tissue. All that I desire to express is, that alone, and in the absence of all other causes, inflammatory action does not seem capable of generating tuberculous matter, and that there is no proof that inflammatory action in the lung usually precedes the deposit of such matter.

If the correctness of those views be admitted, it is evident that, in the necessity of a change in the organ in which the deposit is made, in the one case, and in the absence of any similar change in the other, we have established one important difference between Tubercular Phthisis and Scrofula.

DIFFERENCE AS TO VASCULARITY OF THE PRODUCT.

Again, there is a question as to the vascularity, or at least permeability to injection of these products. Carmichael maintained that scrofulous glands could be injected, and that the injection pervaded every part of them, with the exception of the curd and whey-like matter, and that tubercles could not be injected. This point was put forth by Sebastian and by Dr. Stark, and by Sömmering,* whose observations, however, seem to have been a good deal confined to the lymphatics of the mesentery. Macartney† states, that he had succeeded in injecting tubercle. Dr. Kingston says he has observed blood-vessels in tubercles;‡ but these facts stand almost alone, though they receive some support from the observations of Schönlein, who says that, "Tubercles have always determined organs of nutrition, either a cyst or an involucrum, the vessels passing into each being a central one, with ramifications in two directions," and he maintains that scrofulous deposits are similarly provided. Albers says, that "scrofulous swellings have always around them, and in their parenchyma, blood-vessels which pass directly into them from the cellular tissue. The tubercle frequently forms around

* Baillie's Morbid Anatomy. † Carmichael, p. 52.

‡ Medico-Chirurgical Transactions, vol. xx.

itself a cawl of vessels which are found in a fibrinous layer which separates it from the lung itself. Blood-vessels pass but rarely into a tubercle."

Bredow, on the contrary, says that neither tuberculous nor scrofulous deposits can be injected. He maintains that the vessels, found at an early period passing into scrofulous glands, belong to the gland itself, and not to the scrofulous matter.

I have been unable to inject tuberculous matter in the lungs, or scrofulous matter in a gland; but the appearance of the part, upon a simple inspection, may now and then lead to the belief that the injection has succeeded. In a scrofulous gland, the matter may be deposited at several points, and ultimately those points may come so nearly in contact, as to impress a casual observer with an idea, that the glandular structure had been destroyed, or converted into scrofulous matter; and with that impression, if the injection passed into the gland, it might be assumed that scrofulous matter underwent organization—was vascular. But in every case in which I have witnessed this apparent vascularity, I have entirely satisfied myself that the vessels were those of the organ, and not of the morbid product. In the lung, matters appear to me to be in a similar condition. Supposing a portion of lung to be infiltrated, as it were, with tuberculous matter, instead of having it deposited in nodules, injected matter would then seem to pervade the tuberculous matter, because the proper vessels of the organ are intact, and because the fluid has passed through them. But if the tubercle be a nodule developed in an air cell, the tissue of the organ being pushed aside by it, no injection can be passed into the tubercle. The difference in this respect would depend upon whether the tubercle were developed on the mucous surface of the air vesicle, or in the cellular tissue of the organ.

Injection, then, does not establish any distinctive character between the matter of Scrofula and that of Tubercle.

So far as to the product itself, and the place of its deposit; we will now proceed to examine the circumstances under which it is deposited.

DIFFERENCE AS TO THE PERIOD WHEN SCROFULA AND PHTHISIS DESTROY LIFE.

Mortality Tables prove that the generally received opinion is correct, that the ravages of Scrofula, where it destroys life, are most severely felt before, those of Consumption after, the period of puberty.

In the British Metropolis, the Reports for 1840—1 show, that the deaths from Consumption were 21,667; of those, 4653, or 21 per cent. died before fifteen. The deaths from Scrofula, during the same period, were 347, of those 208, or 60 per cent. died before fifteen. In the twenty-four districts of England and Wales, selected by the Registrar-General, the deaths from Consumption, in the same time, were 8550; of those, 2543, or 29 per cent. were under fifteen. The deaths from Scrofula were 106; of those, 61, or 63 per cent. were under fifteen. In Birmingham, the total deaths from Consumption are stated at 668, of which 278, or 41 per cent. were under fifteen. The deaths from Scrofula amounted to 3; of which 2, or 66 per cent. were under fifteen. At Liverpool, the total deaths from Consumption were 1396; of which 540, or 38 per cent. were under fifteen. The cases of Scrofula amounted to 10; of which 8, or 80 per cent, were under fifteen. At Manchester, the deaths from Consumption are returned 1124; of which 421, or 37 per cent. were under fifteen. The deaths from Scrofula were 10, of which 6, or 60 per cent. were under fifteen. The following Table will show these results at a glance.

DEATHS.

CONSUMPTION.

	Total.				
Metropolis . . .	21,667	of which	4653, or 21	per cent.	were under 15.
24 Districts . . .	8,550	,,	2543, or 29	,,	,,
Birmingham, Liverpool, Manchester . .	3,188	,,	1239, or 39	,,	,,

SCROFULA.

	Total.				
Metropolis	347	of which	208, or 60	per cent.	were under 15.
24 Districts	106	,,	61, or 63	,,	,,
Birmingham, Liverpool, Manchester . . .	23	,,	16, or 69	,,	,,

In Ireland, during the ten years ending in 1841, the total deaths from Consumption are stated to be 135,590; of which 10,779, or under 7.9 per cent. occurred before they attained the age of fifteen. The deaths from Scrofula in the same period are stated to have been 3149; of which 1363, or 43 per cent. occurred before fifteen. It will be seen that in both cases the proportion is under that of England and Wales. It must, however, be borne in mind, that in the Irish Returns a very large number of deaths under fifteen are described as Marasmus—68,650; being more than half the total deaths from Consumption. Some of those cases were, no doubt Consumption, some Scrofula, and some Tabes Mesenterica. But as we cannot state the real proportions, it will be better not to assume them.

The researches made by order of the Count Chabrol show that in Paris, the greatest number of deaths from Consumption happen between 20 and 30; then comes the period between 30 and 40; then 40 and 50; then 50 and 60; then 0 to 10.

The proof, then, seems to me ample, that the period of life when the deaths from Phthisis are most numerous is not that when the ravages of Scrofula are most keenly felt; and this constitutes another distinction between these diseases. I know that it is said that the registered deaths from Scrofula are no proof of the extent to which it prevails, but such reasoning would also apply to Phthisis. Complete evidence they may not furnish; but as approximative evidence, they are unexceptionable. If the deaths from Scrofula in a given district be 100, and in another district of similar population, 50, I conceive it would be abundant proof of the greater prevalence of the disease in the former district than in the latter; though it might not show how far enlarged glands could be detected in either case.

DIFFERENCE AS TO THE SEX OF THE VICTIMS OF PHTHISIS AND SCROFULA.

If there be, as is maintained, identity between Scrofula

and Phthisis, they should surely fall with equal severity upon both sexes. And yet, what is the fact? If we refer to the Registrar-General's Reports for 1839—42, we find the deaths from Phthisis to be as follows:

	1839.	1840.	1841.	1842.
$\frac{\text{Males } 28{,}106}{\text{Females } 31{,}453}$	=59,559	$\frac{24{,}519}{28{,}168}$=52,687	$\frac{24{,}329}{27{,}937}$=52,266	$\frac{24{,}408}{28{,}098}$=52,506.

being a preponderance in female mortality from Phthisis of 15 per cent. From the same Tables we extract the deaths from Scrofula for the like period:

$\frac{\text{Males } 679}{\text{Females } 472}$=1151	$\frac{658}{547}$=1205	$\frac{616}{472}$=1088	$\frac{678}{508}$=1186.

Here the results are reversed; the mortality of males from Scrofula exceeds that of females by about 24 per cent. In the Irish Report a similar proportion prevails; the deaths from Phthisis are $\frac{\text{Males } 63{,}635}{\text{Females } 71{,}955}$, those from Scrofula $\frac{\text{Males } 1920}{\text{Females } 1229}$. In the former case the excess of female deaths is 13 per cent. in the latter the excess of males is 35 per cent. From this evidence it is, therefore, clear that in England, Wales, and Ireland, Phthisis carries to the grave an excess of females; while Scrofula is more exclusively fatal to the male population. It is proper to state that evidence has been adduced to show, that in particular places, the mortality from Consumption has been greatest among males, but it is more satisfactory to my mind to use our own Returns for both diseases.

DIFFERENCE IN RELATIVE FREQUENCY OF THE TWO DISEASES.

If the circumstances under which the two affections are developed be similar, then, where the tuberculous disease of the lung is frequent, scrofulous disease should also be frequent. Let us inquire what is the fact.

The Registrar-General's Tables for England and Wales, if we take a period of four years, show that the deaths from Consumption amount annually, on an average, in round numbers, to 59,500; those from Scrofula to 1200; the proportion which the one bears to the other, is as 1 to 50; and

the proportion they severally bear to the gross population as 1 to 265, and 1 to 13,255 for England and Wales. If the causes of the two diseases be the same, that proportion should obtain in each district; let us see whether it does. In the north-west district, the deaths from Consumption are 9976, those from Scrofula are 116; the proportion which they bear to each other is as 1 to 86, and to the gross population as 1 to 206, and 1 to 17,782. Here, then, we see that, at the same time, the causes of Consumption are in action with more, whilst those of Scrofula exhibit 20 per cent. less intensity than the average of England and Wales. If we take the town population selected by Mr. Farr, in page 198 of his fifth Annual Report, including four years, ending in 1842, we find a population of 3,759,186. The deaths from Consumption are to the population as 1 to 235, while those from Scrofula are as 1 to 20,000. If we take his Counties, in the same page, we get a population of 3,446,501. The deaths from Consumption amount to 1 in 286, those from Scrofula to 1 per 10,000, or 100 per million. The deaths from Consumption being 19 per cent. greater in the Town than in the Country Districts, while those from Scrofula are 100 per cent. less.

The evidence to be obtained from the Mortuary Tables of our own country, proves, therefore, that if the causes of the two affections are the same, the effects differ most widely; that where there is a large mortality from Consumption, there is a small mortality from Scrofula, and *vice versâ*.

I am assured that in India, Consumption is much less frequent than in our own country. The evidence of Mr. Martin, as well as that of the Army Returns, in so far as they affect the troops, confirm this fact;* while it is clearly shown that scrofulous disease is very frequent.† It is stated by Sirs A. Crichton and George Lefevre and others, that pulmonary diseases, and particularly Consumption, are much less fre-

* Deaths from Consumption India . . 1 per 1000.
,, Great Britain 6.2 ,, ,,

† See the Returns of Drs. Stewart and Spry, in the Appendix.

quent in Russia than with us; whilst the Returns, which I have obtained from that country, show that Scrofula prevails among the living to nearly three times the extent it does with us; Sir A. Crichton says, "Nowhere in Britain are such dreadful effects of Scrofula seen as in Russia." And that no necessary connexion is believed to exist between those diseases is shown by this circumstance, that those who bear about their necks ugly badges constituted by the scars from scrofulous ulceration, are supposed to be almost exempt from Consumption. A similar opinion prevails in Austria and Bavaria. In a Report made to the French government by M. Jolly, on the sanitary state of the district known as the Landes near Bordeaux, containing 19,000 "hectares,"* or about 48,000 acres of marsh-land, he distinctly enunciates what he considers a remarkable fact, namely, "the frequency of strumous affections coinciding with an excessive rarity of tuberculous affections of the lungs, in the whole of the Oceanic district extending from La Teste to Mimigan." Every element of wretchedness, except over-crowding, seems to be accumulated in the district, and if there be this remarkable exemption from Consumption, it may be a question how far it is owing to the marsh exhalations which so largely prevail there. At Martinique, an opposite state of things prevails. There, according to M. Rufz, Consumption is the most frequent disease of the colony; while from 1834 to 1839 he had seen only one or two cases of white swelling; no case of Potts Caries, and rarely a case of glandular enlargement.

I know it is said that Scrofula does not commonly destroy life; that some other disease cuts down the victim of the disease; and that therefore the Register does not show the amount of Scrofula prevailing in any district. Whatever force there may be in that observation, it should follow, that if, as is alleged, the sufferer from Scrofula usually dies of Phthisis, the ordinary marks of Scrofula should be apparent in the bodies of a large number of those who die of Phthisis.

Now for some time I kept a register of the cases of

* A measure equal to 2.417 acres.

Phthisis examined at the St. Marylebone Infirmary, and the number included in that register is 332; of these seven only presented scars resulting from Scrofula. In seven instances there was tumefaction of the cervical glands, but in only two instances did we discover that they contained scrofulous matter. To my own experience I may add that of Louis, who has published the result of the careful examination of 350 bodies of persons who died phthisical. He discovered a tuberculous condition of the cervical glands thirty-five times. That of Lombard, who examined a hundred phthisical cases, and found the cervical glands affected seven times; and in seventy-three cases of children, seven times. That of Papavoine, who examined fifty tuberculous children, and found the same glands affected twenty-six times, and that of M. Cless, of Stuttgard, who lately gave the results of the careful examination of 173 tuberculous patients, from which it appears that he only detected tuberculous matter in the cervical glands six times. Here, then, we have the examination of 1078 phthisical patients, of whom it is said, 84, or 8 per cent., presented tuberculous disease of the cervical glands. There is so much discrepancy between these results, that it must very much detract from their value, unless there be some satisfactory mode of explaining that discrepancy. Lombard examined seventy-three children, and found seven enlarged cervical glands, or 10 per cent. Louis examined 350 phthisical bodies, and found a tenth with tuberculous cervical glands; now in the same country, and actually in the same city, Papavoine found 52 per cent. with tuberculous cervical glands, whilst out of 332 cases in which the patients died of Phthisis, I have only found three instances in which scrofulous matter was contained in the cervical glands. As far as my own cases are concerned, I know that the results are accurately stated, and I am inclined to think that Papavoine—and the remark may possibly apply to others—has regarded a sensible enlargement of those glands as scrofulous, and has assumed that the characteristic deposit was present without careful examination.

From these observations it results, that in the cases of those who die of Tubercular Phthisis, numerous as they are, the proportion which those who exhibit any marks of having suffered from Scrofula bear to the total deaths from Phthisis, is very small.

Such results must certainly leave doubts on the mind as to the identity of those conditions of the system which determine Phthisis and Scrofula. We see in those cases where the tuberculisation of the system is most complete, that not only is the lung studded with those deposits, but that in six-sevenths of the cases, the other thoracic and abdominal organs present them, whilst in not more than one-twelfth of the cases, and in my own experience the proportion is very much smaller, could a similar condition be detected in the subcutaneous lymphatic ganglia. Surely if Scrofula be so rife, and if Phthisis be the culminating point, the maximum of development of Scrofula—if, in other words, the reason why the apparent mortality from Scrofula is comparatively so small be, that he who suffers from Scrofula dies from Phthisis, surely the phthisical patient should more frequently than is found to be the case carry with him to the grave scars or scrofulous glands—the marks of having suffered from the former disease.

DIFFERENCES DEDUCED FROM COMPARATIVE PATHOLOGY.

Again, evidence which I regard as important for the elucidation of this question may be obtained from Comparative Pathology, from observations made upon the diseases which prevail among brute animals. Whether tubercular diseases are commonly found among them in a state of nature, is a doubtful question; the opportunities for determining this question are not many, and we have not very extensively availed ourselves of those which occur. But whatever may be the fact as to brute animals in their natural state, certain it is that when more or less completely domesticated, tuberculous deposits are often found in their bodies. And this more especially among the Quadrumana, Rodentia, and the Ruminantia.

In 1840, Rayer examined, after death, 242 dogs, of which only two were tubercular. A sheep driven into and fed in marshy ground, where the food is watery, soon becomes the victim of tubercular deposits. Mr. Bakewell ascertained, that all that was necessary to produce those deposits, was during summer to submerge a meadow, and drive the sheep into it in autumn. Without this submersion, the same animals would do well on the same pastures. A rabbit fed in a damp, dark cellar, on watery vegetable food, soon becomes the victim of tubercular deposits. But in all brute animals, the occurrence of any similar deposit in subcutaneous glands, is comparatively rare. The disease known vulgarly as "measles" in the pig, or as termed by the French "ladrerie," has no real resemblance to Scrofula. It is a deposit caused by the irritation of the Echinococcus, of the genus Cænurus, and is not often larger in size than a pea. Its principal seat is the thigh. And although it seems to be the affection from which Scrofula has obtained its name, it bears no real resemblance to that disease. But whatever tendency those animals, as well as others, may manifest under those artificial conditions to become phthisical, they do not become scrofulous. In answer to my queries on this subject, Professor Sewell says: "Before replying to your questions respecting Scrofula in domesticated stock, I waited until I had an opportunity of seeing Mr. Simonds, our lecturer on Cattle Pathology, who has had several years' extensive country practice. He says he has never seen it in the Ruminants."

I apprehend it has now been shown, by abundant evidence, that with the exception of the deposit itself, which, whether found in the lungs, or in a cervical gland, whether examined by the naked eye, by the microscope, or by chemical analysis, is very similar, the circumstances attendant upon the development of Scrofula and Phthisis are widely different. In Scrofula the gland undergoes considerable change, inflammatory in its nature, before the matter is deposited in it; in the lung we commonly find

the tissue around a recent simple tubercular deposit unchanged by inflammation. We find, further, that in districts where the causes of Phthisis act with most intensity, those of Scrofula fall lightest; that the age when the ravages of Scrofula are most keenly felt is precisely that when the visitation of Phthisis is least to be apprehended; that the sex which suffers most severely from one of those diseases is least affected by the other. And beyond all this, there is the fact that among the numerous victims of Phthisis, at least eighteen out of every twenty exhibit no marks of having suffered from Scrofula. It seems to me, therefore, that these facts constitute so clearly marked a difference between the two affections, that it will be most convenient, most conducive to scientific correctness, to consider them as affections possessing a certain general similarity of character, but no identity. It may be that they belong to the same family, so do Pleurisy and Pneumonia; but every one deems it desirable to make as clear a demarcation as possible between those diseases. I say the same of tubercular disease generally and Scrofula, between which the points of resemblance are strong, in so far as concerns the deposit; but in all else they are weak.

CHAPTER VII.

PREVALENCE OF SCROFULA IN GREAT BRITAIN.

An opinion is very generally entertained, that Scrofula is pre-eminently an English disease, that very few families are wholly free from its taint, and that it is a scourge by which a large portion of the people of this country are afflicted. And this opinion is not confined to Scrofula such as we have defined it, but is extended to all those affections in which a tuberculous product is deposited in any of the tissues of the body. It has seemed to me, therefore, proper to inquire if that opinion be well founded, even should no practical benefit be derived from establishing as a fact, that the disease is more or less prevalent in this than in other countries.

The means which I have taken to ascertain how far the disease prevails in our own country, are the following: I have examined myself, or by the aid of others, a large number of children, in Schools, in Union Houses, in Factories, and elsewhere. I have taken a similar course with adults; I have availed myself of a large number of Hospital and Dispensary Returns, which may fairly represent the prevalence of the disease when it comes under treatment; and as correlative evidence, I have procured from the Army Medical Board, Returns of the prevalence of marks of Scrofula among Recruits; and from Dr. Baly and others, like Returns respecting the inmates of prisons; and I have taken the Reports of the Registrar-General as evidence of the destructive effects of the disease.

The result of the examination of children is to show, that

of 133,721 examined, in many districts,* 24½ per cent. presented the following marks of Scrofula: enlarged glands *recognisable by the touch*, cicatrices or other similar results of scrofulous glands, scrofulous bones or joints. But the gross number of cases in which the disease so marked was obvious to the eye, amounted to not quite 3 per cent.

In Union Houses, the number presenting marks evident on a simple inspection, was rather above, in Charity Schools rather below, that average. That difference it is easy to understand. Those actually suffering severely, did not appear in the School, whilst those in a similar condition were included in the Union House Returns.

These numbers may not exactly represent the prevalence of Scrofula in this country, because an examination of the children found in Schools and Factories, proves nothing as to children whose condition of suffering from Scrofula prevents them from attending those Schools or Factories; neither does the examination of children in Union Houses give us a more correct result, because sickly children accumulate in such establishments, while healthy ones are sent out. To correct my results, it was necessary to ascertain the proportion absent from a certain number of schools, and to ascertain as nearly as might be, the cause of the absence. The number of children attending the schools in which the inquiries were made was 1017, male and female, the number absent, from all causes, was 102; of these I ascertained that fourteen were absent from scrofulous suffering. The number of children between five and fifteen in the included families who had not been sent to school in consequence of scrofulous suffering was seven; altogether, the absence from Scrofula, was something over 2 per cent. among the children examined. This was in the metropolis.

I find, then, among the children of the poor in England and Wales, that the proportion of children, between the ages of five and sixteen, who present marks of Scrofula, evident upon a simple inspection, amount to as near as may be, but rather under

* See Appendix.

$3\frac{1}{2}$ per cent. The marks to which I refer are glands sufficiently enlarged to be obvious upon simple inspection in the absence of any evident local cause of irritation; scars resulting from their suppuration, or diseased bones and joints, evidently scrofulous in their character. But that proportion does not represent the actual prevalence in the whole population, for among adults similar marks are not found to exist in a greater proportion than $1\frac{1}{2}$ per cent. The adult population examined were taken from large towns, small towns, and rural districts, and comprised 1521 individuals; the sexes being pretty equally divided. Of these, 3 presented evidence of having suffered from disease of the joints, probably scrofulous; 12 exhibited scars resulting from suppurating glands, and 8 presented glands about the neck, sufficiently enlarged to be perceptible to the eye. Thus, on a total of 1521 persons, we find 23 presenting such marks of Scrofula as I have described. Taking, therefore, the gross population of the country, such marks are not observable in quite $2\frac{1}{4}$ per cent. of the people.

AMONG HOSPITAL AND DISPENSARY PATIENTS.

I think the prevalence of the disease, at a certain stage of its existence, is fairly shown by the applications for out-door relief at Hospitals and Dispensaries. I say fairly, because the disease registered will probably be only that which is most pressing at the time; and I say at a certain stage of its existence, because the bulk of those suffering from Scrofula do not seek relief for mere inconsiderable glandular enlargements, of whose existence, indeed, they are frequently unaware, but await the further development of the disease. Of 100 children under fourteen, well taken care of either in Workhouses or Charitable Institutions, the proportion seeking relief for scrofulous glands in the course of a year, is under 4. In this number, I do not include old cases of former years, which come under treatment again and again, every year. The Returns from Dispensaries, Infirmaries, and Hospitals, include

England, Wales, Scotland and Ireland; and the total number of cases reported as treated, is 255,297; of these 3187, or 1 in 80 of the patients, are registered as cases of Scrofula.*

At the Infirmary for Children in Broad Street, Golden Square, all under thirteen are eligible for admission. Some cases of Scrofula are admitted under the care of the surgeons, and others under that of the physicians. Of 1000 cases on the physicians' books, I found that 19 were registered Scrofula; of 2000 cases on the surgeons' books, 112 were cases of Scrofula. If we take 1000 of each, which will represent, as nearly as may be, the actual state of things, we find the number of cases of Scrofula to be 75, or nearly 4 per cent. of the total admissions.

This is particularly the period of life when scrofulous glands are prevalent; and a majority of the cases on the books, at any given time, have very commonly come under treatment more than once, so that in the course of a couple of years the same case may be registered several times.

AMONG RECRUITS.

Although many persons would be inclined to think, that in the examination of Recruits there must be great variety in the results, yet, if the returns be inspected, it will be found that there is a considerable uniformity in the ratio of men found unfit for military service from any given cause. When the numbers are very small, considerable discrepancies are observable, but as numbers are increased, these discrepancies disappear. It has been observed by Mr. Marshall, that in the occurrence of human disabilities, there is a law which determines the proportion of men who are disabled by infirmities, and thereby rendered unfit for the army. The range of the ratio of rejections during the war did not exceed 5 per cent., although the duties of the depôt were performed by a suc-

* See Appendix.

cession of Staff Surgeons; a convincing proof that there is a natural law which regulates the proportion of physical disabilities among masses of the population. That law is equally apparent in the prevalence of disease; for although if we take any disease, and observe its occurrence through each one of a series of years, small diversities will occur, yet in the main, and during a period sufficiently prolonged for a fair comparison, the proportion will be preserved. There is a disease which would seem to be in an especial manner under the dominion of accident, namely, Locked Jaw; but I know nothing better calculated than this very disease to enforce a conviction that what so clearly appears to be the result of accident, is really under the dominion of a settled law. Take the Returns for a series of years, and the uniformity of annual deaths from Locked Jaw will appear very remarkable.

The result of the examination of Recruits has, it is true, no absolute value, except as a means of comparing one district, or one country with another; but it has a limited value beyond this, namely, as evidence of the comparative state of particular districts, but it will not itself exactly represent the actual prevalence of the disease. A young man who is the victim of scrofulous disease of the joints, will not offer himself for enlistment, neither will he who has open scrofulous sores; but probably, very trifling glandular enlargements in an otherwise promising recruit would not be regarded as a disqualification. However this may be, the Returns show that of 95,586 Recruits examined, all having the requisite height, 800, or 1 in 119, were rejected for marks of Scrofula.

AMONG CONVICTS.

Again, if we compare the information obtained from other sources with that so kindly communicated to me by Dr. Baly, we find a confirmation of the general correctness of the data on which I have so far relied. In the year 1840, Dr.

Baly ascertained that of 1052 prisoners received at the Penitentiary, 14 presented, at the time of their admission, "scrofulous disease of the external glands," that is to say, the enlargement, or scar, was obvious to the eye.

The examination of the boys in the Parkhurst Prison, made by Mr. Jemmet, the resident Medical Officer, shows that 660 between the ages of ten and eighteen were inspected; that 95 presented enlarged glands; that scrofulous scars or joints did not exist in a single instance. This result corresponds very nearly with that furnished by the examination of the boys in the Greenwich Naval School.

It is thus seen, that though derived from so many and such different sources, there is a striking concurrence in the results of the evidence I have collected, and that agreement constitutes a strong reason for believing that my data do, very nearly, represent the actual prevalence of the disease. We see that the Returns of cases of Scrofula, found among our ordinary population, are singularly confirmed, not only by the Returns of Hospitals and Dispensaries, but also by the examination of Recruits and Convicts; and I think we are thus justified in regarding as near the truth our estimate of the prevalence of Scrofula, such as we have defined the disease. That is to say, that scars are apparent in about $1\frac{1}{2}$ per cent.; that the subcutaneous glands are enlarged, so as to be perceptible on simple inspection in less than 3 per cent.; and that the glands may be detected by the finger in $24\frac{1}{2}$ per cent. of those of the children of the poor who are under sixteen, and in 8 per cent. of those above; or taking the whole population, in 10 per cent.; and that something less than 3 per cent. of the people are under treatment for the disease in its various forms.

REGISTERED MORTALITY AS EVIDENCE OF PREVALENCE.

The registered mortality from Scrofula, contained in the Reports of the Registrar General, amounts to 8 per 100,000

on the gross population of England and Wales; that is to say, the average annual deaths from Scrofula are about 1200, and the population, in round numbers, about 16,000,000. Although that estimate cannot be regarded as a proof of the extent to which Scrofula prevails, but only of the extent in which it is fatal, yet it affords a means of comparing one district with another, and one country with another; because I apprehend it will not be denied that where there is most Scrofula, there will be most deaths from the disease.

Such are the means I have employed to ascertain how far the ideas commonly held with regard to the great prevalence of Scrofula in this country are correct; and although the facts which I have collected may not represent the exact amount of the disease, still they are a nearer approximation to the truth than any thing we before possessed on the subject. And they cannot fail, I think, to impress upon the mind the conviction, that unless Scrofula degenerates into some other disease, its actual prevalence, as well as its influence in the destruction of human life in Great Britain, is not very formidable.

UNEQUAL PREVALENCE.

In our own country, the result of the examination of children has been to show that the disease prevails very unequally in different districts. We have seen that the general average of the ordinary marks of Scrofula, among poor children, is $24\frac{1}{2}$ per cent.; but in some districts they have been found to extend to 72 per cent., and in others not to exceed 11 per cent., and this inequality has occurred within my own observation.

In Hospital and Dispensary Returns, the same disproportion is likewise found between different districts. The general result is, that of the cases presented as out-patients at Hospitals and Dispensaries, 1.2 per cent. are registered as Scrofula. If we analyse the table, we observe

that in some places the proportion is under 1 per cent.; at Exeter the proportion is 2 per cent., while at Glasgow it amounts to 5 per cent. If we take two agricultural districts, the Eastern, which comprises Essex, Suffolk and Norfolk, and the South Western, which includes Wilts, Devon, Dorset, Somerset and Cornwall, we find in the former that the deaths from Scrofula are as 11.8; and in the latter as 10 to every 100,000 population, being a difference of nearly 20 per cent. In the purely manufacturing districts of Lancashire and Cheshire, the proportion is only as 5.6; while in that of Yorkshire, as 3.5 per 100,000. And in the mixed districts of Gloucester, Hereford, Shropshire, Worcester, Stafford, and Warwick, it is as 7.9 to 100,000.

The Irish Census Returns, including as they do a period of ten years, show a mortality from Scrofula of 1 in 25,952 of the population; but in the different provinces there is a considerable variety. Thus in Connaught, it is 1 in 21,177; in Ulster, 1 in 31,399; in Munster, 1 in 23,363; in Leinster, 1 in 29,025; but to this mortality should be added much for Marasmus. In the case of the Irish Returns, the deaths from Marasmus are very large, amounting to 6,865 annually; and as many of these may have been cases of Scrofula, the absolute value of the Returns, in so far as concerns Consumption and Scrofula, is much lessened.

The Infirmary and Dispensary Returns in Ireland show a proportion of scrofulous cases amounting to 82,746, of these 1290, or 1.5 per cent. are registered Scrofula.* The examination of children in Limerick gives a proportion of 54 per cent. having the ordinary marks of Scrofula. And the total deaths comprised in Dr. Griffin's paper were 2918, those from Scrofula, 7.

The recruiting Returns, for the United Kingdom, show an average rejection of 8 per 1000 for marks of Scrofula. In England the smallest number of rejections for Scrofula

* See Appendix.

occurred in London, where they amount to 5 per 1000. In Scotland, in the Edinburgh district, 16 per 1000; in Ireland, in the Dublin district, 13 per 1000.

Such is the best evidence I have to offer as to the prevalence of Scrofula and the inequality of its ravages in different parts of the United Kingdom. I do not claim for this evidence anything more than an approximation to the truth, which, however, I believe to be a near one. But whether near or not, I am not going too far when I say, that it is nearer than any estimate which we previously possessed on the subject; and it will enable us to compare our condition, with reference to Scrofula, with that of other countries, and to determine whether the ravages of that disease fall more heavily upon our own than upon the population of other lands.

PREVALENCE IN OTHER COUNTRIES.

I can show the prevalence of the disease in many other countries, by the examination of children; in France, by the examination of children and Recruits; and in Geneva and Paris by Mortuary Tables.*

In the Orphan Asylum at Lisbon, Dr. Rosas examined 800 children, of whom, 279, or 35 per cent., bore the ordinary marks of Scrofula; of the boys, the proportion was 50 per cent. of the whole number examined; whilst of the girls, it was only 10 per cent. In the Orphan Asylum at Amsterdam, of 495 children, 209, or 42 per cent., bore the ordinary marks of Scrofula. At the Orphan Asylum, Munich, the Report shows that Scrofula, at one time, affected two-thirds of the children, but that under improved diet and air, the disease had lessened in frequency. The Vienna Return shows that the number of children boarded in the Imperial Royal Orphan Asylum, was $\frac{308 \text{ boys}}{104 \text{ girls}} = 412$; of these, during

* See Appendix.

the year 1841, $\frac{18 \text{ boys}}{27 \text{ girls}} = 45$, or 11 per cent., came under treatment for Scrofula. The Return made by the President of Police at Berlin, Von Puttkammer, of the condition of the children who were within the walls of the Frederick Orphan Asylum, shows that the number was $\frac{230 \text{ boys}}{123 \text{ girls}} = 353$; of these, 125 boys and 50 girls had enlarged glands, 4 boys and 4 girls had scrofulous ulcers, 2 girls had scrofulous joints; making 185, or nearly 53 per cent. At St. Petersburg, of 840 children examined, 343, or nearly 41 per cent., bore evident marks of Scrofula. At the Imperial Foundling Hospital, at Moscow, the number of children examined was 15,515, of whom 1294, or only 9 per cent., are reported as presenting tumid glands, ulcers and sinuses resulting from scrofulous swellings, and diseased joints. This proportion is very small, and that trifling enlargements have been passed over is rendered probable by the fact, that the number presenting scrofulous ulcers and sinuses, and diseased joints, is greater than the number which has been reported to present tumid glands, the latter being 583, and the former 711. I have, therefore, little doubt, but that in the whole of these cases the disease was evident to the eye, and if so, the proportion was very large; and even if we take the 711 cases only, in which we know the disease was apparent to the eye, the proportion is large—nearly 5 per cent. The Returns I have from America vary greatly. That from the Boston House of Industry includes $\frac{98 \text{ boys}}{48 \text{ girls}} = 146$ children, of whom 106, or 70 per cent., are returned with the specified marks of Scrofula. That from Philadelphia, carefully supervised by that able physician, Dr. S. Jackson, shows a total of $\frac{2641 \text{ boys}}{1357 \text{ girls}} = 2998$ school children examined, of whom $\frac{10 \text{ boys}}{3 \text{ girls}} = 13$ are returned as scrofulous; and Dr. Jackson says: "I have been struck with the small number of individuals manifesting any decided marks of Scrofula. No. 6 is a school for black children; three cases of enlarged submental glands were found,* but they can scarcely be regarded as scrofulous. In

* See Appendix.

the Almshouse Asylum, where I expected, from the class of children, to find decided evidences of scrofulous disease, it was very slight. But one presented the characters contained in your Table. You will find that I have extended in the Returns the signs of Scrofula beyond those presented in your Table. The whole number of cases that presented enlarged cervical glands, or cicatrices, are but five." He goes on to say: "Scrofula is not a frequent disease in this country. Tubercular Phthisis is very prevalent. Is there not a marked distinction between tubercular disease and Scrofula? In the course of my observations I have not often met with patients who were affected with Scrofula, in whom tubercular disease occurred. I have been rather impressed with the notion that scrofulous patients were in some manner exempted from the tubercular form of disease."

In consequence of the unusually favourable results of the examination of children in Philadelphia, I applied to Dr. Jackson, to ascertain how far my directions had been attended to. In his answer to me, he says: "In the examination of the children, the results of which were forwarded to you, the hands were carefully passed over the necks of every individual. Whenever the cervical glands could be felt, it was reported, with two exceptions. In these cases, two young girls, acute tonsillitis had existed, from which they had just recovered. They still had their necks muffled in flannel."

Taking the population of New York, in 1840, at 345,000 in round numbers, and taking the deaths from Scrofula as reported, at the average of thirty-five years, at 4278, we find that the annual deaths from Scrofula bear to the total population a proportion of 1 to 1241; in Philadelphia, the proportion is 1 in 453; while in London, in the same year, the proportion is, in round numbers, as 1 to 17,500.

Including Beyrout, Cairo, Alexandria, and Greece, the number of children examined was 607; of these, 132, or

more than 21 per cent., presented the ordinary marks of Scrofula; in twenty-six instances, they were obvious on simple inspection; in nineteen, or more than 3 per cent., there were scars or permanent marks. It would seem that in those countries, although the disease is somewhat less prevalent than in our own, it oftener proceeds to suppuration. If we exclude Egypt and Syria, and observe the district of Athens only, it is then evident, not only from Mr. Kaye's Returns, but from the statements of Greek surgeons, that the disease is greatly more prevalent there than among ourselves.

From India, I have the following Returns; first, one procured for me by Dr. A. Jackson; which is as follows: "I have examined, at different schools, indiscriminately, under ten years of age, 100 boys, all born in India, and of Creole extraction, of whom 80 may be called of dark complexion, eighteen have flaxen hair and olive eyes, 2 very fair, with grey eyes. Of the 80, a *majority* are subject to glandular disease; of the 18, none are free from glandular tumors, but not suppurating. The 2 fairest are also scrofulous."*

Second, Dr. Spry's. He examined 75 children of mixed parentage, of whom *all* had swelled cervical glands; 4 had open scrofulous sores; 136, of pure English parentage, of whom none were scrofulous; 504 native children, of whom 300 were scrofulous.

In the Children's Clinique, of Stœber, at Strasburg, we find that of 300 children treated, 40 were for scrofulous diseases, of whom 21 had glandular swellings in the neck, 7 scrofulous ulcers, 11 scrofulous caries.

At Madeira, with a climate said to be singularly favourable in Phthisis, Dr. Renton states, that of 405 children examined,

* I think 8 out of 10 half-cast children scrofulous.
5 out of 10 native kind.
4 out of 10 English.
1 out of 10 Mussulman.

53 had sensibly enlarged cervical glands, 3 suppurating ones, and 4 had cicatrices; in all, 15 per cent., as large a proportion as is found among the boys in the Parkhurst Prison.

Paris and Geneva possess Mortuary Tables which enable us to compare their condition as regards Scrofula with that of our own capital. Taking a series of years, the deaths from Scrofula in Paris amount to 1 in every 3221 of the population; in Geneva to 1 in every 2790; in the year 1842, taking the population at 61,871, and the deaths from Scrofula at 16, the proportion is 1 in 3867, while in London, taking four years ending in 1842, they amount to about 1 in 9,000. For the rest of France we have no means of comparison in so far as regards the mortality from Scrofula; but we have materials for instituting a comparison with reference to the condition of Recruits.

Taking the whole of France, the total number of Recruits rejected for all causes, other than want of the necessary height, are as 54 to 86, (54,668 rejected in completing the amount of the conscriptions, 86,000); our own rejections are under 1 in 4. The rejections for marks of Scrofula are 2 per cent., or 1754 in obtaining 86,000; our own proportion is 1 in 119. The rejections for Scrofula in the Département du Nord, are 46 per 1000; in the Eastern Pyrenees, 1 per 1000. It appears, then, that comparing Paris with London, the deaths from Scrofula, when compared with the population, are six times as many in the former as in the latter capital; and that for the whole of France, the marks of Scrofula presented by recruits are twice as many as among our own recruiting population.

Is it not, then, abundantly proved, that the notion that Scrofula is eminently an English disease, is incorrect; and am I not warranted in stating that there is no country, so far at least as our information extends, in which the people are more free from the disease than in England and Wales?

CHAPTER VIII.

IS THE OCCURRENCE OF SCROFULA PROPORTIONALLY MORE FREQUENT THAN FORMERLY?—OR, IN OTHER WORDS, IS IT ON THE INCREASE IN OUR LAND?

THE opinion is strongly and generally expressed, that Scrofula, as well as ordinary tubercular disease, affects a larger proportion of our population at present than it did formerly. It is, therefore, important to inquire whether that opinion be well founded. Although, if the question be answered in the affirmative, we may have no present means to lessen the evil. The materials for coming to a correct conclusion on this point are scanty, and are very much confined to the population included within the Bills of Mortality.

The first uninterrupted series of weekly Bills of Mortality, commences on the 29th Dec., 1603, nearly two centuries and a half ago; at which period those Bills comprised only thirteen out-parishes, in addition to ninety-six parishes within the walls of the City of London. Subsequently to 1603, additional parishes were included. In 1625, the number of burials in every parish was, for the first time, published. The Report of Diseases and Casualties was first published in 1629; it then included twenty-six parishes, besides the ninety-seven within the walls. It may be urged that but little confidence can be placed on their Tables of Disease. To some extent, this is no doubt true; but it is also true, that in their earlier period, the

rule was "to appoint in each parish, *searchers*, who, on a death being announced, visited the house of the deceased, and inspected the body, inquiring the age and disease which occasioned the demise." I do not mean to say, that a Return so made would exactly represent the causes of death, but at all events, it is the nearest approximation to accuracy which we possess, and in my opinion, it is near enough to justify a comparison. If we look at the deaths from Consumption, which form so prominent a feature in the Catalogue of Diseases, and observe the uniformity of its relation to the population, through a long series of years, it constitutes a good ground for believing that there is, at the least, a considerable approach to accuracy. And with respect to the disease, popularly known as the King's Evil, the chances of error seem fewer than in most diseases, because the marks are external, and they were well known.

For the evidence which I now propose to use, I am indebted to Mr. Marshall's Tables, published in 1832; and in order to ensure as much accuracy as seems practicable, I shall discard the earlier Returns, and begin with 1750 as my starting point. It will be most convenient to limit the population and the deaths to the district comprised within the Bills of Mortality; and I shall give the Mortality, whether general or special, in an average of a decennial period, ending at the commencement of the year named in connexion with such mortality.

In 1750, the population was 654,000, the general mortality 25,350, or 1 in 26; the deaths from Consumption 4530, or 1 in 144; and the deaths from Scrofula 22, or 1 in 29,727 of the population. In 1801, the population was 777,000; the general mortality 19,680, or 1 in 40; the deaths from Consumption 5028, or 1 in 154; and the deaths from Scrofula 5, or 1 in 155,400 of the population. In 1811, the population was 888,000; the general mortality 18,575, or 1 in 48; the deaths from Consumption 4511, or 1 in 196; and the deaths from Scrofula under 5, or 1 in 177,600 of the

population. In 1821, the population was 1,050,000; the general mortality 19,056, or 1 in 55; the deaths from Consumption 4491, or 1 in 233; and the deaths from Scrofula 10, or 1 in 105,000 of the population. In 1831, the population was 1,223,000; the general mortality 20,910, or 1 in 61; the deaths from Consumption 4735, or 1 in 258; and the deaths from Scrofula 9, or 1 in 135,888 of the population.* The small number of deaths from Scrofula, within a period of ten years, subjects any calculations which may be based upon such a period to be unduly influenced by accidental, or special, or temporary causes; and I will, therefore, give the aggregate deaths from Scrofula between the 1st of January, 1700, and the 31st of December, 1750, between the 1st of January, 1751, and the 31st of December, 1800, and between the 1st of January, 1801, and the 31st of December, 1830. Now, during the first of those periods the deaths were 2076, or 41 per annum; during the second, 579, or 11 per annum; and during the third, 248, or 8 per annum; and estimating the mean population within the Bills of Mortality, between 1700 and 1750, at 660,000, between 1750 and 1800, at 715,000, and between 1800 and 1830, at 1,000,000, the deaths from Scrofula, on the average of a year in the first period, will be 1 in 16,097; in the second period, 1 in 65,000; and in the third period, 1 in 125,000 of the population. It will thus be seen, that whilst in 1750 the general mortality was 1 in 26, and in 1801, 1 in 40, it was reduced in 1831 to 1 in 61; that whilst the deaths from

*Period.	Population.	General mortality.	Consumption.	Scrofula.
1700	665,200	20,900=1 in 31	3589=1 in 182	73=1 in 9,180
1750	654,000	25,350=1 in 26	4530=1 in 144	22=1 in 29,727
1801	777,000	19,680=1 in 40	5028=1 in 154	5=1 in 155,400
1811	888,000	18,575=1 in 48	4511=1 in 196	5=1 in 177,600
1821	1050,000	19,056=1 in 55	4491=1 in 233	10=1 in 105,000
1831	1233,000	20,910=1 in 61	4735=1 in 258	9=1 in 135,888

Consumption were in 1750, 1 in 144, and in 1801, 1 in 154, they were reduced in 1831 to 1 in 258; and that whilst the deaths from Scrofula averaged, between 1700 and 1750, 1 in 16,097 of the population; and between 1750 and 1800, 1 in 65,000, they were reduced between 1800 and 1830, to 1 in 125,000; and in the last ten years of that period, to 1 in 135,888 of the population.

Such is the best evidence which can be obtained of the prevalence of what are regarded as scrofulous diseases, namely Scrofula and Consumption, at different periods in the last two centuries. Although the evidence be, to a certain extent, defective, from uncertainty in the designation of the disease in the Bills of Mortality, it has a certain value with reference to all diseases, and a very real one as regards Consumption and King's Evil.

The next best evidence we possess, as to the relative prevalence of the disease in past and present times, may be regarded as very shadowy, and so it is; for it is that furnished by the practice of the Royal Touch. The extent to which the practice of the touch was carried would not fairly represent the prevalence of the disease, because only a very small proportion of the afflicted were likely to find their way either to London, or to Windsor. It has been suggested, that the piece of gold which was suspended around the sufferer's neck, was an inducement to many to present themselves for the touch, who had not the Evil at all. But to prevent this abuse, a sufficient precaution seems to have been taken in the time of Charles II., a reign in which the touch was practised on a great scale, and in which only have we anything like an accurate enumeration of the number touched. No one could present himself to the King who was not provided with a certificate from the clergyman and churchwardens of the parish in which he lived, stating their belief that he was afflicted with the King's Evil, and that he had not before been touched. Possessing that certificate, he was in a condition to go before the King's

surgeons, who examined him, and if they were satisfied, they furnished him with a ticket of admission to the royal presence.

Mr. Donkley, and others, Clerks of the Royal Closet, kept a Register of the persons touched by the King from 1660 to 1664 inclusive; during that period the number registered was 23,601; from May 1667 to May 1684, the number amounted to 68,506, giving a total of 92,107 in a period of twelve years. The intermediate two years are wanting; probably the occurrence of the plague caused the practice to be discontinued at that time. From these tables it would seem that a very large majority of the cases was presented at a time when the greatest number of cases of Scrofula are always to be seen—March, April, and May. In 1669, out of 2983 touched 1898 were presented in those three months. In 1682, out of 8577 touched, 4285 were presented in February, March, and April. But I most freely admit that these numbers are no proofs of the extent to which Scrofula really prevailed. It is said that the number presented to Henry III. of France, say 700 persons five times a year, would only show that in the then population of that country, the disease prevailed to that extent; and an obvious objection presents itself: "were they all cases of Scrofula?" Were not many induced to feign disease as a means of obtaining those alms which so commonly accompanied the royal touch? And on the contrary, as neither of the Kings made progresses through the whole of his States, a large proportion of those afflicted with the disease might not be able to avail themselves of the opportunities which were presented for access to the Sovereign.

Still, the number touched in our country during the reign of Charles II. was very large; it amounted, on an average, to 7675 per annum; and when it is further observed, that of scrofulous cases under treatment at any time, not quite a third are new cases, the number then assumes a still more formidable appearance. In the practice of the

King, all reasonable precautions were taken to prevent any individual from presenting himself more than once. We may therefore assume, that the cases presented did not exceed a third of those to be found in the district from whence they came; and if we multiply the number by three, which we are justified in doing, we get a gross number of 23,025 existing cases, unless we admit that all who had been touched were cured. It is true that some of the cases touched may not have been Scrofula, but it is no doubt equally true, that many suffering from the disease were not touched. I have good reason to think, that but few of the persons who were presented to the King came from far, and that the bulk were inhabitants of the Metropolitan District. It was necessary that an entry should be made in the parish register when an individual sought a certificate to enable him to be touched, and if the registers for that time were preserved, the evidence thus furnished would be tolerably conclusive as to the fact, but many of them are missing, and it is, therefore, less satisfactory. Still, I have had access to many registers which included the period during which Charles II. reigned; but, in them, the entries of certificates granted, did not exceed six. It seems, then, fair to assume, as I have done, that the bulk did come from the district around London, and I think the estimate I have made from the number actually touched, of 23,025 existing cases is not an unreasonable one; and supposing we strike out 1000, which multiplied by 3 gives 3000 for the contingent coming from a distance, we have remaining for the Metropolitan District, 20,000 scrofulous cases existing at one time. The population of the metropolis at that time may be estimated at 600,000; we therefore find that 1 person in 30 was suffering from Scrofula so as to require relief.

The Registers of Dispensaries in London to which I have had access, show that at the present time the number of cases entered, Scrofula does not exceed $1\frac{1}{4}$ per cent.;* and

* The Returns I have collected from Metropolitan Dispensaries include the cases of 46,800 applicants for medical relief; of these 538 are registered Scrofula, scarcely 1.2 per cent.

then it must be recollected that nearly 2 out of every 3, so afflicted, have been under treatment for the disease before. And when it is borne in mind, that only about 1 out of every 4 of the gross population seeks medical relief annually, we find that the proportion which new cases of Scrofula, requiring treatment, bears to the general population, does not amount to 1 per cent.

Tried, then, by such tests as I have been enabled to apply, which though not strictly accurate, are the best we possess, and which, when used with caution, constitute a fair body of evidence on the point, the conclusion seems a fair one that Scrofula is much less prevalent in the present day than it was in the seventeenth and eighteenth centuries.

CHAPTER IX.

CAUSES OF SCROFULA.

THE alleged causes of Scrofula are so many, and their action is said to be so constant and so efficient to produce the disease, and so few human beings can be wholly protected from their influence, that it is wonderful so many persons should appear to be exempt from the affection. It is equally surprising how slender usually is the proof offered by the advocates of a particular cause, in support of its complete efficiency, to induce the development of the disease. The consequence of such vague assumption is, that those who are not satisfied with the sufficiency of one alleged cause, are prepared to advocate as conclusive the influence of another, and it may be, a very opposite one, with no stronger evidence in support of the latter theory than was furnished in favour of its predecessor.

One person advocates the opinion that the *hereditary* is the only cause; another contends that the disease is *always acquired*, and never inherited; one regards *contagion* as an efficient cause; another maintains that the disease is never thus communicated. One points to the *bad air of towns* as the cause; another finds the disease more prevalent in the country; one refers the evil to *farinaceous;* another, to *animal food.* It would be easy to enlarge this catalogue,

but it will be sufficient to mention, that hereditary influence, syphilis, bad air, bad food, and a cold and damp atmosphere are the causes to which have been most frequently assigned the production of Scrofula. The error of each theory is its exclusiveness; and when we reflect upon the difficulty of estimating the unmixed influence of any single cause, and when it is made probable that many causes are in action, we can scarcely comprehend how it happens that able inquirers should maintain, with so much pertinacity, not alone the efficiency, but also the universality of one.

The difficulty of estimating the force of any of the so called causes of Scrofula, is owing to the fact that the opportunity of observing a single agent in action alone is very rarely afforded; where one cause exists, another is, almost certainly, intimately associated with it; and to assign to each its proper influence is rarely possible. This is particularly the case with bad food, bad air, and bad clothing; the existence of one almost implies the presence of another. He who is too poor to buy good food, is also too poor to procure good lodging; and although there may be instances where we find much privation associated with the casual occupation of good lodgings, usually it is not so, and we have not had opportunities of observing such cases with sufficient frequency to make any useful deduction from them. As far as it can be accomplished, however, we must attempt to estimate the power of the many influences which are said to be efficient to produce Scrofula, because it may be easier to avoid the causes of the disease than to effect its cure when once developed; and therefore if we can indicate the sources of evil with sufficient clearness, much may be done to withdraw people from their influence.

We will commence with the consideration of those agents which are more or less independent of external circumstances —hereditary causes; and we will then endeavour to estimate the effects of agents whose influence may be independent of the parent.

THE HEREDITARY CAUSE.

The belief in the hereditary nature of particular diseases is so deeply rooted in the minds of a large majority of the people of our own and of other countries, and the importance is so obvious, of determining whether or not that belief be well founded, that it is a matter of surprise, that no means which could or ought to satisfy any rational inquirer, have hitherto been employed to solve a question so intimately connected with the happiness of families, and the welfare of communities. The subject is, however, surrounded with much to embarrass him who endeavours to attach its fair value to the term; and it is possible that when he has carried the inquiry far enough to satisfy himself, he may have stopped far short of what is necessary to satisfy others.

The opinions which prevail on the subject of hereditary diseases are so wanting in precision, that we can obtain but little that is useful in considering them. At the same time, the very obscurity in which this doctrine is involved, renders it proper that we should shortly state the ideas which are most prevalent on the subject, inasmuch as the doctrine has a direct application to Scrofula. One author regards as hereditary any disease which the child presents at, or soon after, the time of birth, no matter whether either parent presents the disease or not; another thinks, although the disease should not be found in the parent, yet that it must be inquired for in the grand-parents. In this view of the case, a parent may *transmit* to his child a disease he never had himself.

Lugol says, "if we do not discover evidence of the disease in the present condition of the parents, we must ascertain what was their condition many years before the birth of the scrofulous child, and if we fail to make out any taint in them, then we must proceed to investigate into the condition of preceding

generations. He says: "We shall, then, prove that Scrofula does not alone proceed from parents *actually* scrofulous, but that it may proceed, *first*, from parents who have been scrofulous, but who no longer appear to be so; *second*, from parents who think themselves exempt from Scrofula, but whose brothers and sisters are scrofulous; *third*, from parents who have not exhibited any sign of Scrofula until after the birth of the scrofulous child." And as if to show the inconsistencies of the human mind, this unflinching advocate of the hereditary origin of the disease says in the next page, "that scrofulous persons rarely reach the age to propagate the disease from which they suffer, for most of them die in the first months or years of life, rarely passing the age of puberty." And supposing no evidence to be discoverable that any of the family have suffered from Scrofula, M. Lugol would assume that the child still derived the disease by inheritance;—that he was the result of adulterous intercourse! He says: "Many times it has been necessary for us to take into account adultery, to complete our observations upon the causes of Scrofula. But it will be understood, that we are disinclined to say much on this thorny subject, and that is why we shall leave it to the sagacity of the reader to fill up many lacunæ that he will find in this short sketch. Persons, the least observant, are often struck with likenesses to strangers, evidently originating in illicit intercourse; we have also occasion to remark the absence of Scrofula in a family where it ought to exist, the father being evidently scrofulous; at other times we see the first children born with symptoms of Scrofula; and those which come after, presenting all the attributes of a good organization. All those facts, rigorously analysed, flow from the hereditary law, and far from being exceptional facts, are, in truth, confirmations of that law."

But supposing no taint of Scrofula can be discovered in the

parents, it is said they may induce it in their offspring under many circumstances. Thus, they may have debilitated constitutions; there may be disparity of age or of strength; excessive age, or youth; particular diseases, such as dyspepsia or syphilis, mental or bodily ailment during pregnancy, conception during menstruation. Take, for instance, as a means of illustrating the difficulty of the question, the following case; we have seen that many advocates for hereditary transmission will not admit the perfect freedom from taint of the father and mother as a proof that the disease is not hereditary. It may, they say, come from the grand-parents; but of all of these we cannot get any satisfactory account; we may, perhaps, on the father's side when we cannot on the mother's, and *vice versâ*. Is it fair then to assume, that in a case in which Scrofula exists in the child, but not in the father or mother, not in the paternal grand-parents, not in the maternal grandfather—but of the maternal grand-mother no satisfactory account can be obtained, except that she died young—is it fair, I say, to assume that she died scrofulous, or tuberculous, and that the transmission is, therefore, proved? I think not.

Again, in speaking of hereditary disease, are we justified in saying, that because a parent dies at forty of tuberculous disease, that therefore he had it twenty years before, at a time when the connexion took place from which a scrofulous child resulted? And if not, what ground have we for assuming that the child inherited the disease? Supposing again, that a parent were scrofulous at ten, and in robust health at thirty, when she gives birth to a child which becomes the victim of tuberculous disease, are we justified in recording that as a case of hereditary transmission of disease? I apprehend not.

To escape from the difficulties to which I have alluded, I had recourse to the celebrated work of Portal on "Hereditary Diseases," and after reading his Essay, I rose up in doubt, whether in the strict sense in which alone I think

the question should be regarded, there be clear evidence that almost any disease is hereditary, though with respect to syphilis and small-pox the proof may be sufficient. It is no proof that because certain family resemblances may be perpetuated, that therefore diseased conditions must be; or because a child is born with a nævus, does it follow that it is more than connate? I do not regard the following aphorism of Van Swieten: "Morbos ex parentibus propagari in progeniem, innumeris observationibus confirmatur," as any addition to the evidence favourable to this view of the subject. Who, for instance, in the present day is prepared to admit in extenso the doctrine of Hippocrates: "Ex pituitoso pituitosus, ex bilioso biliosus gignitur, ut ex tabido tabidus; quid prohibet ut cujus pater et mater hoc morbo correpti fuerunt etiam posteriorum ac nepotum aliquis eo corripiatur; semen enim genitale ab omnibus corporis partibus procedit, a sanis sanum, a morbosis morbosum?" Portal uses as evidence in favour of the doctrine, the following statements: "In a town in the department of Tarn, there is much Scrofula; the community was first infected by two or three bad marriages." The individuals resulting from those marriages intermarried, and thus this hereditary disease was successively multiplied. There can be no doubt, that in large towns the evil is from time to time arrested by the arrival of men and women from the country, by whom the race is in some measure renewed. In London, for instance, persons are generally persuaded of the truth of this opinion. I have heard many English physicians, and particularly Pringle, state that the Irish and the Scotch revivify the inhabitants of London; who, without that, would be reduced to the lowest depth of misery."

In the Commentaries appended to the Aphorisms of Boerhaave, by Van Swieten, we find the following opinion expressed: "Uti externa corporis formâ et magnitudine, ingenio animi affectibus, proles parentibus similes sæpe fiunt;

sic videtur et intima partium corporis constitutio frequenter referre eandem similitudinem."

In the Treatise of Laurentius,* says Baudelocque, (I do not know the book myself), is the following opinion: "Esse autem hæreditarium, id est a parentibus in liberos transferri, certissimum est: quia et cerebri imbecillioris affectus, et capitis male conformati vitia, una cum semine in natos facile abeunt. Ut ergo ex macrocephalis, macrocephali, ex epilepticis, epileptici; ita ex strumosis strumosi generantur." Lemasson Delalande says: "Qu'il n'est point de scrophule acquise, qu'il est impossible qu'un individu bien organisé, mis dans telle condition qu'on voudra, fût-il enfermée dans un cachot pendant des années, devienne jamais franchement scrophuleux."

Cullen says, "Scrofula is commonly and very generally an hereditary disease, and although it sometimes may, yet it rarely appears but in children whose parents had at some period of their lives been affected with it. Whether it may not fail to appear in the children of scrofulous parents, and discover itself afterwards in their offspring in the succeeding generations, I cannot certainly determine; but I believe that this has frequently happened."

It has been maintained by some authors, that the transmission comes more frequently from one parent than the other; and it has also been remarked that the child may inherit the constitution of either parent; that in some circumstances, it gets the constitution of the father; and in others, that of the mother; and that the more the infant resembles in person either parent, the more it is disposed to the diseases of that parent. Thus Cullen says: "It appears to me to be derived more commonly from fathers than from mothers; but whether this happens from there being more scrofulous men than scrofulous women married, I am not certain. With respect

* De Strumarum Natura et Curatione.

to the influence of parents in producing the disease, it deserves to be remarked, that in a family of many children, when one of the parents has been affected with Scrofula, and the other not; as it is usual for some of the children to be in constitution pretty exactly like one parent, and others of them like the other, it commonly happens that those children who most resemble the scrofulous parent become affected with Scrofula, while those resembling the other parent entirely escape." Richard, (de Nancy,*) in opposition to Clark, Nasse, and others, thinks hereditary influence is more certain when the father is diseased. He says, "I have rarely seen infants born of phthisical fathers escape disease of the lungs; and on looking over my notes, I see many cases of children proceeding from phthisical mothers, who have already passed the ordinary period of development of the disease."

It has been stated that the transmission occurred from fathers to daughters, from the mother to the son; but at present, we have no proof of the correctness of the statement. Baillarger's evidence as to Insanity is in opposition to this opinion; of 274 insane women, 85 seemed to inherit it from the father, 189 from the mother. Piorry gave as the result of an examination of 49 tubercular patients, a preponderance derived from the mother. Briquet deduced from 29 cases, that a majority came from the father.

In 1748, it would appear that the Academy of Sciences of Dijon admitted the hereditary transmission of disease, for they proposed as a prize subject, "To determine how this transmission is effected." Instead of admitting the existence of hereditary influence in the production of disease, the French surgeon, Louis, wrote a Thesis to prove that no disease is hereditary. In 1787, the Royal Society of Medicine did not regard the question as settled, for their prize subject in that year was the following: "If hereditary diseases

* Traité Pratique des Maux des Enfants, Introduction, p. 11.

exist, what are they? And is it in our power to prevent their development, or to cure them when they are declared?" In neither of the Essays sent in at the time, do I find any thing, for or against the question, which I could profitably transfer to these pages. And although our own Mead is equally positive in declaring for the hereditary transmission of particular diseases, I find nothing to justify the dictum: "Eo autem terribilius est hoc malum quod a parentibus ad parentes sæpe transit, et hæreditate, quum cæpit, haud facile se privari sinit."*

Such are the statements which have been made to prove that Scrofula is an hereditary disease. Some of them we admit—they are matters of daily observation. No one would deny family likeness, but many would deny that its transmission is the ordinary rule; no cautious person would, however, admit that because such resemblances were frequent, particular diseases must be communicable from parent to child. If, however, it were admitted that diseased peculiarities were as often impressed upon descendants as certain personal resemblances, the case in favour of hereditary transmission would still not be a very strong one.

An opinion, hostile to the belief in hereditary transmission, has been stoutly maintained, but the advocates of the opinion that no diseases are hereditary, though able men, are few in number. Among them are the French surgeons, Louis and Faure; our own Thomas White, who wrote an admirable Treatise on Scrofula at the latter end of the last century; Dr. Henning and Baudelocque.

Faure says: "Elle passe pour être héréditaire; mais outre qu'il n'est pas démontré qu'il y ait des maladies de cette espèce, nous tâcherons de faire voir, en parlant des causes, que nous n'avons pas besoin d'embrasser cette opinion pour expliquer la succession et la propagation de cette maladie." Again,

* De Strumis.

"Mais doit-on admettre la succession héréditaire de cette maladie? Elle ne paraît pour ordinaire que vers la quatrième où cinquième année; elle n'attaque pas tous les enfants d'une même famille; le nourisson ne la communique point à sa nourrice, ni la nourrice au nourisson, comme la maladie vénérienne, qui malgré cela, ne peut être regardée que comme acquise. Enfin, les écrouelles ne commencent que lorsqu'on se nourrit d'alimens solides, &c."

As I cited some of the views of Portal on the hereditary transmission of disease, I shall exhibit some of the reasons of Henning in opposition to that theory as applied to Scrofula. He says: "What constitutes this strange material which children thus inherit, and which, according to Pemberton, may be suppressed, if not extinguished, merely by a regimen continued during a very inconsiderable period, but according to Mead and others, can rarely, if ever be dispossessed? If it be some particular conformation of part, or of the whole of the body, some deviation from the usual structure of it, how can that be corrected by these, or by any means? It cannot be maintained that the actual disease is born with us, because unless it be evinced by its appropriate symptoms, which are swellings of the superficial glands, there is no evidence of it. If these be present, they must be manifest. If, then, there be no local affections, for these are not only the diagnostic symptoms of Scrofula, but constitute its very existence, it is not present; and to contend that it is, is but to support a contradiction; for to use the old saying of the schoolmen, 'De non apparentibus, et de non existentibus eadem est ratio.' If a fomes, or vice in the fluids of the body, and congenital with it, be the materia morbi of the scrofulous, why does it so generally delay to show itself during the weakness of infancy? Or, why does it so often fail to show itself at all at any other period of life?

"But instead of inheriting a disease, it is said a predisposition may be inherited. Can we regard the alteration as any

thing more than the substitution of one term for another, without obviating any of the objections? For that a peculiar propensity to Scrofula is inherited, is a position quite incapable of being proved or disproved; because children may be attacked by it, though not descended from scrofulous parents, and they certainly may pass through life without being attacked by it, although they are. It is quite as presumptive that all mankind, if alike exposed to the proximate or exciting causes of Scrofula, under the circumstances which enable those causes to act, are alike susceptible of its influence. It may also be urged, that if either the disease, or the predisposition to it, be hereditary, it should be constantly, not occasionally inherited; upon the principle that the operations of nature are for the most part uniform and constant, and that the same cause is usually productive of similar effects. From this principle, it ought to follow that all the children of the same bed, should alike inherit and possess the same predisposition.

"It must be either hereditary in this full sense, or never can be inherited. There can be no middle course. In the accurate and well defined language of the law, an hereditary estate of necessity devolves on the heir; and so, in strictness of language, should be the devolution of hereditary disease. Here all the children are heirs alike, and that which constitutes the primordium of disease ought to descend to all of them in common, or to none. All must participate in it, or all must be exempt. If to this reasoning, I can imagine an objection, it is that children derived from a father, scrofulous himself, or descended from scrofulous progenitors; and from a mother altogether exempt from it, both in her person and descent, may be supposed to inherit or escape the disease according to the stronger resemblance of their constitution to the first or last. If, however, both parents be contaminated by it, there is then no ground left for denying that the whole of the issue should exhibit symptoms of the disease, if indeed

it be impartible by inheritance. But these suppositions, however plausible they may appear, far from being verified by experience, are perpetually refuted by it; even if we take gout, and every person will refer you to abundant proof of its being hereditary. Many years ago, Dr. Cadogan, however, made these very sensible remarks on that subject. "Our parents may undoubtedly give us constitutions similar to their own; and if we live in the same manner as they did, we shall very probably be troubled with the same diseases, but this by no means proves them to be hereditary. Those who insist that the gout is hereditary, because they see it so sometimes, must argue very inconclusively; for if we compute the number of children who have it not, and women who have it not, together with all those active and temperate men, who are free from it, though born of gouty parents, the proportion will be found at least 100 to 1 against that opinion. And surely I have a greater right from all these instances to say that it is not hereditary, than they have from a few to contend that it is."

Kortum says: "Fuere e recentioribus varii qui similes progeniei et parentum morbos a simili dietâ et vitæ genere potissimum repeterent."* Henning concludes in the following words: "If, then, it be allowable to doubt, whether Scrofula be at all derivable from parents, how much more reason is there for disputing the position that it is obtainable in no other manner; or, in other words, that none, but the children of scrofulous persons are susceptible of scrofulous complaints. That Scrofula often occurs to individuals whose predecessors were never known to have it, is so abundantly proved by every day's experience, that it would be quite superfluous to adduce more evidence in support of it. There is, however, one fact which furnishes irrefragable proof of it, and that is, that the natives of the temperate climates, where

* Vol. I. p. 281.

Scrofula is unknown, upon migrating to the cold and fluctuating regions of the North, are there invariably attacked by it."*

Such are the arguments which have been used in support of, and in opposition to, the opinion that Scrofula is an hereditary disease. It will be observed, (whatever truth there may be in either opinion), that beyond assumption and stray facts, nothing has been urged by any, even by the latest advocate of the doctrine—Lugol—to settle or unsettle the prevailing impression on the subject.

Before I proceed to make my own observations on the influence of hereditary transmission in the development of disease, let me clearly define what I mean by an hereditary disease. The meaning which I attach to the term I thus explain. Any disease which affects either parent at the time of the sexual intercourse from which the conception resulted, or the mother during any period of utero-gestation, and is manifested in the child born under those circumstances, in a greater number of instances than if one or both parents were free from the taint of the particular disease, I regard as hereditary. It matters not, in this view of the subject, whether the preponderance be to the extent of 1 or 20 per cent. All that I conceive necessary to be proved is, that the parents—the tainted on the one hand, the healthy on the other—shall be living under as nearly as may be, similar circumstances, that their offspring shall be similarly situated, and that the children proceeding from the tainted stock shall suffer from the disease which is present in the parent to a greater extent, than those children who have proceeded from the untainted source. In fact, I entirely put aside the notion that has been regarded as a *sine quæ non* of the hereditary nature of a disease, that it should affect equally

* I might here ask, which are the temperate climes where Scrofula is unknown ?

every child of a family. "Si vere hæreditarium esset malum omnes fratres sororesque invadere deberet," is a position which I do not maintain, because I conceive that one can inherit as well as one thousand. Neither do I think it necessary that the child, proceeding from scrofulous parents, should present the ordinary signs of the disease at the moment of birth, because the character of the disease is, usually, to manifest itself after the second year of life.

It is true, the difficulties of proof that a disease which is not usually manifested during the earlier years of life is hereditary are much increased, because it is no easy matter to make out how far causes, whose action has not commenced during intra-uterine life, have contributed to its production. There are but few who are prepared to maintain, that Phthisis, or Insanity, Cancer, or Scrofula, is never seen except in those persons who have proceeded from families similarly affected. It will, therefore, be admitted, that any of those diseases may result from the influence of the circumstances in which the individual is placed, and the difficulty of estimating the relative value of hereditary influence and surrounding circumstances must be increased in proportion to the length of time which has elapsed between the birth of the individual and the manifestation of the disease.

I now propose to consider, *first;* whether any disease existing in one or both parents at the time of the connexion from which the pregnancy resulted, or in as far as concerns the mother, during any portion of the uterine life of the fœtus, is manifested in the child, at or soon after the moment of birth. *Secondly,* whether under similar circumstances, the disease, though not presented in the child, at or soon after birth, may be manifested at an after period of life, and this in either event, in a larger proportion of cases than in the children of parents not thus afflicted. Upon those two questions, according to my views, the subject of hereditary disease hinges.

There are, however, other questions, very nearly connected with hereditary influence which we must not overlook, viz.: Supposing the father or mother to suffer from any particular constitutional disease, is there any proof that their offspring are likely to become the victims of particular diseases, unlike those of their parents? In other words, whether any disease, other than Scrofula, existing in either parent, tends to develop Scrofula in the child?

Have we reason to believe, that when parents are otherwise healthy, conception occurring at a particular period, that of menstruation for instance, is likely to occasion any disease in the child resulting from that conception?

Is there any reason to conclude, that the relative age or strength of the parents exercises any influence in determining particular diseases in their offspring?

Have we any proof that intermarriages tend to the development of Scrofula in the child?

All those questions have reference to the influence supposed to be exerted by the parent upon the child; but there is another question intimately connected with them, namely:

Have we sufficient reason to conclude, that a child suckled by a person, either its mother, or its foster-mother, may with the milk it takes in from the breast of its nurse imbibe the germs of any particular constitutional disease, such as Scrofula, which may pervade the system of that mother or foster-mother?

Have we then positive proof, that any constitutional disease affecting either parent at the moment of the connexion from which conception has resulted, or the mother, during any period of intra-uterine life, is manifested in the child at the moment of birth, or soon after? I think it must be admitted, that both in Syphilis and in Small-pox, this may happen with sufficient frequency to prove that the child can in this way inherit the disease by which the constitution of the mother is tainted. And in Syphilis, it is a question if

it may not happen, whether the tainted parent be the father or the mother. Although difficulties often occur in verifying the truth of the statements made by parties under such circumstances; "Yet," says Lallemand, "when I see a father and mother, who have not at present any symptom of Syphilis, the father having previously suffered from it, give birth to four children, who all died from the effects of constitutional Syphilis; when I see a fifth covered with pustular Syphilis, and infecting two nurses; when I cure this child with sublimate baths and the mercurial treatment; and lastly, when after an anti-venereal treatment, administered to the parents, I see four children born to them perfectly healthy, how can I refrain from admitting that the virus has existed in the spermatic fluid of the father, and that it has passed from the child to the nurse?" It is under these circumstances, when the disease is transmitted through the spermatic fluid of the father, or the blood of the mother, that the nutrition of the fœtus is so seriously compromised; and if it do not determine abortion, the child comes into the world offering all the characters of age and decrepitude, and dies in the last stage of Marasmus. Some persons conceive that this stain may be impressed on succeeding generations; though it may be manifested under different conditions, scrofulous or otherwise. Hahnemann, and others, appear to think the stain is indelible, or that for many generations, the poison is felt, and that by a long mixture of races only can the last traces of the evil be existinguished.

With respect, then, to Syphilis, I think, that in the cases of Dubois and others, there is proof that the constitution of the infant may be affected in utero, that the disease may be apparent in the child *at the moment of birth*, or may be manifested after months have intervened. But it is impossible to explain how the possession of this taint is consistent with the attributes of high health frequently presented by the child at the time of birth. With the exception of Syphilis and Small-

pox, I know of no disease in which corresponding evidence of such transmission can be adduced.

Even in reference to Insanity, the case of all others in which the truth of the hereditary influence might be most easily tested, and in which the conviction of its existence is perhaps the strongest, I know no conclusive evidence. A recent writer on the subject, Baillarger, assumes it to be made out, for he says: "All agree about hereditary influence in the production of Insanity." There is scarcely a medical man in charge of a Lunatic establishment who has not a conviction of the hereditary transmission of Insanity. Esquirol, for instance, says: "Hereditary influence is the most ordinary predisposing cause of Insanity;" and yet in his Table of 466 cases, at Salpétrière, it is assigned as a cause in only 105 instances. I may add that Rush and others deny its influence. Of 191 patients admitted into Bethlehem Hospital in 1844, an hereditary cause could only be discovered in 26 cases. And of 14,362 cases mentioned in the work of Devay, 1682 only were presumed to be hereditary.

Those who regard Cancer and Insanity as hereditary diseases do not maintain that they must be manifested at, or even soon after the moment of birth. With respect to Phthisis, persons may be found prepared to advocate the opinion that it possesses that distinctive hereditary quality of being manifested at, or even before the moment of birth in the child of phthisical parents; but the evidence by which this opinion is supported does not appear to me satisfactory. Thus, with the exception of Syphilis and Small-pox, we have then, no sufficient proof that disease existing in the parents may be expected to manifest itself in the infant at, or immediately after the moment of birth.

Have we then any proof that when particular diseases exist in the parents under the circumstances already stated, they will, during any period of life, be more frequently found in their offspring than in the offspring of persons not so

affected? I know of no evidence bearing out that opinion, in as far as concerns Insanity or Cancer, though an impression exists that they will be so manifested. But with respect to Phthisis, the impression is so strong as to amount to a generally received conviction.

That tubercular depositions in the lungs have been observed at a very early period of life is quite true. Evidence of this fact has been furnished by specimens in the Museums of Langstaff and others, in which such depositions in the fœtal lungs might be seen; by the observations of Husson, (who dissected two infants, one still-born at the seventh month, the other lived eight days, both had softened tubercles; one in the lungs, the other in the liver), Dupuy, Andral, Œhler, (the latter of whom found the mesenteric glands tumid and scrofulous, not only in fœtuses born of scrofulous mothers, but also in those proceeding from mothers on whom no suspicion of scrofulous taint rested), and Chaussier, (who speaks of scrofulous tumors in a state of suppuration, as well in fœtuses as in new-born children; but the condition of the parent is not noticed). Still, even such cases are very rare. Billard only saw two or three examples, and in those instances the state of the parents was not known; Velpeau and Breschet, during their investigations in Embryology, never saw an instance; and of 400 still-born children examined by Guyot, he only found tubercles in a single case, and the condition of the parent was not known. These facts, therefore, are of no use as a means of estimating how far the power exists in the parent suffering from Scrofula or Phthisis to transmit it to the child. Cullen speaks of a child dying scrofulous at three months; Baudelocque has seen several similar cases; but they are exceptional, and in nowise unsettle the dictum of Bertrandi: "Raro infantes ubera sugentes scrophulosi fiunt."

That a sickly mother will probably give birth to a sickly child, I do not deny; the point which I do not admit is, that

a scrofulous mother does ordinarily produce a scrofulous child. The best evidence we have on this point is that of Louis, and that of Rilliet and Barthez, which though referring only to Phthisis, we may fairly use in this place. Louis seems to have taken great pains to ascertain how far an hereditary taint could be distinguished in 100 cases of Phthisis. The result of Louis' investigation is conveyed in the following words: "The tenth part of the subjects that we have observed were born of parents, the father or the mother, having, most probably, died of Phthisis; but as the disease might equally well have been transmitted to them, or developed in them, spontaneously; and as we have not ascertained the kind of death of which their brothers and sisters died, it results that we have not really collected any fact in favour of the hereditary nature of Phthisis. We would not say that the hereditary influence is doubtful, because too many examples appear to justify the opinions entertained by authors on this subject. We would even say, that the proportion of consumptive patients in our notes, born of parents who have died of that affection, is probably below the truth, seeing that it is not always possible to ascertain from hospital patients the kind of affection from which their parents have died; but we believe, that to show the exact influence of hereditary communication, to make out the exact limits within which it acts, it will be necessary so to arrange the Tables of Mortality that we can compare a certain number of persons born of phthisical parents with an equal number who are not." He adds, "But as the disease might have been transmitted in these cases, or have been developed independently of such influence, it follows in reality that I have observed nothing decisive in favour of the hereditary character of Phthisis."

Of 314 tubercular children, examined by Rilliet and Barthez, the parents, or either of them, were certainly tubercular in only 25 instances, probably so in 21 more; probably, or certainly not so, in 138 instances; in 130 instances,

the information was incomplete. Of 211 children, non-tubercular, the parents were certainly tubercular in 12 instances, probably so in 4 more; probably, or certainly not so, in 95 instances; in 100 instances, the information was uncertain. The following Table contains a further analysis of these cases.

	314 tubercular.	211 not tubercular.
Hereditary influence without hygienic causes	17	5
,, with ,,	18	6
,, with different diseases	9	10
,, without ,,	37	6
Hereditary causes alone	11	2
Hygienic causes without hereditary influence	46	35
,, ,, other diseases	61	36
,, with ,,	20	25
Hygienic causes alone	43	18
Diseases without hereditary influence	48	48
,, hygienic causes	18	21
Diseases the only cause	8	10

It is clear that this is the only method of investigation by which the point can be determined, in respect to any hereditary disease, whether Phthisis, or Cancer, or Scrofula, or Insanity. And until this can be done on a large scale, and much time must elapse before it can, our ideas on the subject will remain as unsettled as they are at present, and a very serious social evil will be perpetuated. I do not mean to say that all men are prevented from intermarrying with females proceeding from scrofulous families; though if it be a fact, that a scrofulous mother brings forth scrofulous children, such marriage is a serious evil. Still, since a young lady will have her chance of marrying very much lessened if an impression exists that she is scrofulous herself, or comes of a scrofulous family, it is very important to seek the best evidence we can obtain, for the purpose of approaching the truth, in a matter so deeply affecting society.

The means which I have taken to acquire accurate data

as to the extent to which hereditary causes operate, in the propagation of Scrofula, are the following. I examined myself, and procured to be examined by others, in the Metropolitan, the Factory, and in Rural Districts, upwards of 2000 families, each consisting of from three to five children, and living, as nearly as may be, under similar circumstances. In one portion of the cases, both parents were apparently free from scrofulous taint; in another portion, there was reason to think that both parents were tainted; in another, that the father was tainted; and in another, the mother. The number of families examined was 2023, the number of children was 7587; and the number bearing such marks of Scrofula as I have already indicated, was 1738, or nearly 23 per cent. In 506 instances, derived from many localities, and under the most varied circumstances, both parents were apparently untainted, and their offspring amounted to 2021. Of these, 421, or something less than 21 per cent., presented marks of Scrofula. In 276 instances, there was reason to think that both parents laboured under scrofulous taint; their offspring amounted to 1092 children; of these, 271, or nearly 25 per cent., bore the ordinary marks of Scrofula. In 589 instances, the father carried about him marks of having suffered from Scrofula, whilst the mother was free from them; their children amounted to 2107, those having marks of Scrofula to 483, or nearly 23 per cent. In 652 instances, the mother bore upon her person the marks of Scrofula, whilst the father did not; their children amounted to 2367, and of these, 563, or nearly 24 per cent., presented marks of Scrofula.

In glancing over those results, it must be kept in mind that the offspring of the tainted, on the one hand, and of the untainted on the other, are not intended to represent their relative fecundity, for means were taken to collect only such families as were represented by not less than three, nor more than five children.

It will be observed, that although an hereditary influence must be admitted to be present, and is apparent in each class; yet at its maximum, the influence does not appear to be quite 4 per cent. It would seem that the influence of a scrofulous mother upon the offspring is greater than that of a scrofulous father.

I do not pretend to regard these results as an accurate representation of the influence of Scrofula when existing in the parent to reproduce itself in the child. I would even admit, that as the cases were seen with many eyes, the data may be more defective than if they had been the result of one person's examination; but however defective they may be, they are the only approach I know of, to a reasonable amount of evidence, to enable us to judge how far it is probable that Scrofula in the parent will reproduce itself in the child. And from that evidence, it would seem that in children, subjected after birth to similar circumstances, the hereditary influence does not appear to be exerted beyond 4 per cent. This result is in opposition to two parties, one maintaining that the disease is always hereditary, and never acquired; the other, that no diseases are hereditary, but that they are always the result of circumstances which come into action after birth.

PREDISPOSITION.

I have already stated, that there are persons who have limited the signification of hereditary transmission, so as to make it necessary that the child, *upon coming into the world*, should manifest the disease of the parent, and who, having found a large number of facts which could not be reconciled with that limitation, have at the same time been so convinced that in some shape or other their principle operated, that they have deemed it necessary to find some mode of explaining its influence other than by assuming that the disease

existed already in the fœtus in the womb of its mother. They have, therefore, suggested that the *disease* itself was not hereditary, but only the predisposition to it. This seems to have been the opinion entertained by John Hunter, and it has been neatly expressed by Baudelocque.

His opinion on the subject is more reasonable than those generally current. He admits that children do not usually inherit the disease, but simply a predisposition to contract it. He thinks that this hereditary predisposition does not necessarily, or inevitably, bring about the development of the disease; but that for this to occur it is necessary, that to the predisposition a particular cause should be added. And though he does not deny that cases may occur in which Tubercles or Scrofula may be observed in fœtuses or new-born infants, he thinks that these facts are only observed in certain conditions which serve to explain them. Thus, for the full influence of predisposition to be shown, he conceives it to be necessary, that the mother shall be affected with Scrofula at the moment of conception; and that she shall remain during the whole of her pregnancy surrounded by those circumstances which have caused the development of the disease in her. "She cannot transmit to her infant other elements of nutrition than those she uses herself; those elements being of an injurious nature, should exercise on the fœtus the same injurious influence they have already done on the mother; and the duration of pregnancy is quite sufficient to ensure, not only a scrofulous constitution, but the appearance of the disease itself at the moment of birth."

Many other able men advocate the opinion that the parent only communicates a predisposition to the disease, which may, or may not be evolved, according as the circumstances in which the child is placed, are favourable or unfavourable for its production. Thus, Hufeland says: "The greater number of the children who proceed from scrofulous parents bring with them into the world a disposition to that disease. It has even been observed, that it is usually not slow to develop

itself. It is in vain to throw any doubts upon the point, the testimony of experience cannot be gainsayed. I know whole families, in whom Scrofula has been perpetuated through two or three generations, not attacking a single child, but five, six, or more. In those countries where the affection is very common, (as it were endemic,) as in England, this truth is so firmly established, that one of the most important points in choosing a wife, is to ascertain that she is exempt from Scrofula."

John Hunter was one of the most illustrious supporters of hereditary predisposition. On the trial of Donellan for the murder of Sir Theodosius Boughton, he was asked: "Is not apoplexy sometimes apt to run in a family?" To which he replied: "There is no disease whatever that becomes constitutional, but what can be given to a child; there is no disease that is acquired, and becomes constitutional in the father but can be given to a child. The father has a power of giving that to the child by which means it becomes hereditary. There is no such thing as hereditary diseases, but such a thing as hereditary disposition."

Henning regards it as an absurdity on the evidence we at present possess, and that, he says, seems all to which we can hope to attain, to speak of parents imparting to their children a disposition to receive particular diseases. "It is undoubtedly the dispensation of Providence, that mankind in general, if sufficiently exposed to the exciting causes of disease, shall be afflicted with them, no other disposition being necessary for this purpose than the structure and composition of the human frame."

It has been said, "That the hereditary predisposition to tubercular disease increases from generation to generation; and that if there were no intermarriages between those who were affected, and those who were exempt, the human race would very soon become extinct. That if this organic vice be not combated, either by favourable circumstances, or by intermarriages, the end would be that all must suffer; because in

each generation, the new progress of the evil is superadded to the sum of that which is hereditarily acquired; the first generation has *acquired* the tubercular cachexy, without being predisposed to it; the second *inherits* the diathesis, and succumbs to the cachexy more readily than the first; the third receives the cachexy, at the first, or second degree, and dies ordinarily before it could give birth to a fourth generation."*

Plausible explanations for this view of the case have not been wanting. Van Swieten† says: "Forte in prima generatione nondum se exserere potest impressus character morbosus, et in secunda tantum se manifestat progeniei." And Boerhaave himself says: "Silente sæpe morbo in genitore dum ex avo derivatur in nepotem." But there is no analogy in support of this idea. Syphilis may be taken as a fair example of a disease which can, under particular circumstances, be communicated from parent to child; but did any one ever see a case where a first generation constituted a bridge over which the disease could pass to the second, leaving the first scathless?

I feel very strongly that the term predisposition has been employed only for the purpose of avoiding a difficulty which the hereditary theory is supposed to present, and that it offers a something still more difficult to test than the principle of hereditary transmission. If it were simply intended to maintain that a parent may bring forth a sickly or weakly child, and therefore predisposed to many diseases, it cannot be doubted that this happens; that such a child may become scrofulous is equally true, even when there is no appearance of scrofulous taint in the parent, and in such a sense the influence of predisposition may be admitted, because there can be no doubt that a weakly child, exposed to the causes of Scrofula, will be more likely to become the subject of the disease, than a child who possesses more power of resistance.

* Barrier.

† Commentaries upon the Aphorisms of Boerhaave. Aphor. 1075.

But I apprehend the theory of predisposition was assumed for other reasons; parents having marks of Scrofula, brought forth children without any similar marks, and the advocates of the theory of hereditary transmission, which required that the child should come into the world with the signs of the disease, finding it did not, abandoned the peculiar theory, and substituted for it that of predisposition; but I do not so far limit hereditary influence as to require that the disease derived from the parent should of necessity be present at the moment of birth. It is true that the difficulties we meet with in the solution of this question are much increased if the disease be not presented in the child for months or years after birth, because the influence of other causes upon the child have then to be estimated, and this is no easy matter, as is evident upon a statement of the following case.

Let us suppose a child to be the issue of parents in robust health, to be blessed with a strong constitution, shown by its vigour and its tone; let that child be placed under circumstances calculated to debilitate him, let him be badly fed, let him breathe impure air, let his habitation be damp, his person neglected, and the effects of these influences on his constitution will be marked enough; his person will be blighted, and tubercle and scrofulous matter will be deposited in different organs. Every observer has, unhappily, had but too frequent opportunities of witnessing such cases; and I must regard the frequency of their occurrence as proofs that the circumstances in which many persons are placed are sufficient to induce the development of Scrofula. It is no proof to the contrary that children may be found who resist the action of such causes. I saw a child in the wretched old Workhouse of Bethnal Green, born there, the child of misery; living under-ground, in a dark, damp, ill-ventilated room, yet presenting all the appearances of robust health. But what a contrast it exhibited to those around it! I do not doubt but

that individuals do possess tendencies, or predispositions to contract particular classes of disease; but where such tendencies give no indication of their existence, they are elements of which no use can be made in scientific inquiries.

In the present state of our knowledge, it is impossible to say in what consists the predisposition to Scrofula or to indicate the characteristic signs, except those constituted by organic or functional changes, which show the actual existence of the disease. The predisposition to Scrofula conveys, to my mind, a condition of the economy which has no external, distinct and constant signs; although I would by no means say that its existence is not real, or that direct observation may not hereafter make it known.

IS THE EXISTENCE OF ANY OTHER DISEASE IN THE PARENT CAPABLE OF DEVELOPING SCROFULA IN THE OFFSPRING?

The answer to the above question has been strongly expressed by Sir J. Clark.* He says, "That a state of tuberculous cachexia is not the only morbid condition of the parent which entails the tuberculous predisposition on the children; there are several diseases which have this effect, the most important of which are a disordered state of the digestive organs, gout, cutaneous diseases, the injurious influence of mercury on the system, debility from disease, age, &c. In short, a deteriorated state of health in the parent, from any cause, to a degree sufficient to produce a state of cachexia, may give rise to the scrofulous constitution in the offspring. There are doubtless other circumstances in the state of the parents' health capable of giving rise to the strumous diathesis in their offspring, which are not so evident as those which I have noticed; but there can be little question of

* A Treatise on Pulmonary Consumption, &c. p. 222.

their influence, as we often see children presenting the characters of the strumous diathesis at the earliest age, (query, what is meant by the earliest age?) while their parents are in the enjoyment of good health, and free from all appearance of tuberculous or other diseases, constitutional or local."

An opinion so clearly expressed by so competent an authority, we cannot pass over without remarking that, except in very rare instances, children are not born with any marks of Scrofula upon them, neither are they commonly presented during the first two years of life. Is the parent, under those circumstances, the only source from which the damaged health of the child may be derived? Are the conditions in which the child is placed unlikely to deteriorate its health? Sir J. Clark may be right in the opinion he has expressed; but in its present shape it cannot be admitted to have been established. I have admitted that unhealthy parents are less likely than healthy ones to procreate healthy children; but it is not of necessity that a sickly child must be either phthisical or scrofulous. A large number of sickly children do die tuberculous, but a still larger number do not; and of those who die, it happens that many are not destroyed by tuberculous disease. Of 66 examinations of children under five years, made by Barrier,* 41 were totally exempt from tubercles, and in 13 others, there were very few. Of those who die phthisical, a majority are weakly. Of 93 tubercular children examined by the same physician,† 21 only were strongly constituted, 27 moderately well constituted, 45 feeble. Of 55 children, in whom there was no trace of tubercle, 23 were strongly, 15 moderately, and 17 feebly constituted. This evidence tends to the conclusion that a feeble constitution, however engendered, powerfully favours the development of tubercle. If the facts be grouped, this

* Loc. cit. p. 528. † Ibid, 540.

conclusion becomes more apparent; of 166 children strongly constituted, 21 only were tuberculous, that is to say, 1 in 8; of 114 children moderately constituted, 27 were tuberculous, or nearly 1 in 4; of 99 feeble children, 45, or nearly 1 in 2, were tubercular. The following evidence from Barrier is corroborative of that which we have already adduced:

	Tubercular.	Not tubercular.
Strong Constitution .	47	60
Feeble . . .	133	4
Medium . . .	94	46
Not noted . . .	40	101

The result of the facts now offered is, that a feeble constitution is a favourable, though not a necessary, or indispensable, condition for the development of the tuberculous cachexia; that a feeble constitution is more likely to be the offspring of diseased than healthy parents; but that we are not in a condition to point out the causes in the parent which tend most to entail feebleness upon the child, nor what kind of disease or feebleness in the parent tends most to induce the development of Scrofula in the child.

DOES A SYPHILITIC TAINT IN THE PARENT TEND TO PRODUCE SCROFULA IN THE CHILD?

It is maintained by many authors, that the existence of a syphilitic taint in either parent will induce Scrofula in their offspring; and many authors have conceived Scrofula to be only a degenerated species of Syphilis. Astruc thought so, and at the same time suggested that the transmission of Syphilis must occur through several generations before it assumes the form of Scrofula. Bierchen, Camper, Stoll, Portal, Hufeland, Alibert, strongly advocated the same opinion. Alibert said, that almost all the scrofulous cases at St. Louis were owing to a syphilitic infection, transmitted hereditarily. "We may easily convince ourselves that this is the most common cause of

Scrofula, by attending patients, the victims of the debauch and libertinage of their fathers." But there are not wanting opponents to this theory; among them we find Kortum, Cullen, Baumes, and Baudelocque.

The identity or similarity of the two diseases has been maintained on the following grounds: the strong resemblance between them, both affecting the lymphatic system; the symptoms of both being similar—local inflammation, peculiar ulcerations, caries, affections of the skin, inflamed joints, spots on the cornea, and other diseases of the eye; the alleged fact that the children of prostitutes frequently become scrofulous; and lastly, that the same remedies cure both diseases. Those are among the most plausible of the reasons for maintaining that Scrofula is caused by a degenerate syphilitic virus. Baudelocque has very fairly tested the question: he says, "We see in both cases a local inflammatory affection, ulcerations, glandular swellings, caries; &c., but is there no difference in their ordinary seats, mode of development, progress, aspect, or termination? Do they present no difference as to the action of remedies? Is the differential diagnosis difficult? Is it not usually very easy? In Syphilis, the glands of the groin are those which usually suffer; in Scrofula, those of the neck. In Syphilis, caries usually affects the bones of the cranium and the face; in Scrofula, it is those of the extremities which suffer. If we glance at the remedies, do we not see the promptitude and certainty of the results in Syphilis—the tardiness, the uncertainty, in Scrofula? It seems unnecessary to carry the test further."

I do not deny but, that a scrofulous child may proceed from a syphilitic parent, yet that is no proof that the child becomes scrofulous because the parent was syphilitic. And we have abundant proof that it is not usually Scrofula, but Syphilis, which under those circumstances is entailed upon the child. Bierchen's cases are not conclusive enough to destroy this rule, and Kortum's remark in reference to them seems to me to be quite applicable: "Bierchenii

observata sententiæ nostræ nullam plane vim inferunt, quos enim ille sub scrofularum nomine describit tumores, aperte quidem venerei sunt."* Cullen observed, many times that the children proceeding from syphilitic parents were often syphilitic, but not scrofulous. Kortum's observations were similar.† Baudelocque knew many children of parents who had often been infected with Syphilis, and had even suffered under the constitutional form of the disease; some of those children had passed their tenth year, but had never shown the slightest sign of Scrofula.‡ And even in those instances, where a scrofulous child proceeds from a syphilitic parent, we shall usually find that he has been placed under circumstances which would have been likely to determine the disease, even if the parents had been healthy. "A woman presented herself with a child severely afflicted with Scrofula, having large tumors around the neck, some of them suppurating; on the legs and arms were abscesses and fistulous canals, with thickening of the periosteum, and caries. It appeared that she had four children; the elder five years old, strong and well; the second, a year younger, equally well; the third, under observation, two years and a half old; a fourth, which she still nursed, was perfectly well. The first three had been put out to nurse; the elder two returned well; the third was taken from the nurse at the end of a year, emaciated, and having diarrhæa, a tumid belly, and the legs attenuated. This woman became syphilitic soon after her marriage; with her husband, she had been subjected to an anti-syphilitic treatment, and they have since been well. The first child was conceived soon after the cure. A medical man who was consulted, attributed the Scrofula of the third child to the Syphilis from which the parents had suffered." It is hard to conceive that an ill-cured or degenerate Syphilis should have no influence on a first, a second, and a fourth child, and that it should concentrate all its fury on the third. And yet this is the kind

* P. 194. † P. 295..

‡ Baudelocque, p. 40—2.

of evidence most commonly met with in support of the theory we are now considering. The circumstances which surrounded the third child afford a sufficient cause for the development of the disease. The Marasmus and Chronic Enteritis present when the child was restored to its parent, were a proof that the child was neglected and badly fed. As happens often, when a child is "put out," it was found convenient to leave it in the cradle at all times, except when it was dressed and suckled. The disposition to Scrofula was thus developed; when he came home he was better fed, but as the mother had to go out to work, the child was left in bed, being taken out for a few minutes only, morning and evening. The room in which it lay was small and close, and thus the disease was developed. I think, then, we are not warranted in supposing that the Syphilis of the parents had any influence in developing the Scrofula with which the third child was afflicted. I know no well proved fact which can be received as evidence, that a syphilitic taint in the father, or the mother, can, exclusive of other causes, produce Scrofula in the child. I cannot take Girard's case as such a fact. He saw in Germany, a family, of which the father died of Syphilis,—two sons had Scorbutus, and one Scrofula, from their cradle. The latter, who was the elder, had a daughter, who from her birth was syphilitic—(*Lupiologie.*) Supposing this observation to have been exactly made, is it possible to conceive, that on the one hand, Syphilis shall produce Scrofula, and on the other, that Scrofula, thus developed, shall reproduce Syphilis? Alibert used to show to his students an old man, upwards of eighty, syphilitic—and who had never troubled himself to get it cured. Two generations proceeded from him, with well marked Scrofula.* All that this case seems to show is, that the children of syphilitic parents may become scrofulous. Hufeland, no mean authority, expresses the strongest conviction, that Scro-

* Monographie des Dermatoses, p. 615.

fula is frequently only a consequence of Syphilis, transmitted from the mother to the fœtus; indeed, says he, it is remarked that since the appearance of Syphilis, Scrofula is much more common than it was before. "In the present day, it is more frequent in the countries where there is more Syphilis than elsewhere."

The crowning reason for their identity, is the allegation, that the same remedies cure them. "Mercurials, antimonials, and certain vegetable decoctions."

For the first assertion, that where there is most Syphilis there is most Scrofula, Hufeland had no proof whatever to offer. Neither have those authors who state, that nowhere is there more Scrofula than in the villages of the Alps and the Pyrenees, where the primitive manners and simplicity of the people have preserved them from the ravages of Syphilis. Kortum strongly felt, that if there was any thing in the course of reasoning employed on this part of the subject, there ought to be a direct relation between the frequency of the two diseases. "Et quidem ego medicinam facio in regione et urbe tali, quam nefanda illa pestis, syphilidem intelligo, a Deorum certe ira in mortales conjecta, et vel vehementibus ac manifestis malis misera puniens corpora atque devastans," &c.*

Kortum's reasoning does not apply to large towns, he practised in a country where Scrofula was common, and Syphilis rare. And Baudelocque says that there is more of Syphilis, and less of Scrofula at Palermo, than in any other part of the world, but we have no evidence to support this statement.

The most important argument yet remains, namely, the time during which the two diseases have been known. Believing that the Struma of Celsus and Galen is the Scrofula of their successors, I regard Scrofula as a disease known in their time. If that be so, and if Syphilis was unknown in Europe before the return of Columbus from his second

* Page 193.

voyage, it then follows, that whatever may be the cause of Scrofula in the present day, Syphilis could not have contributed to its production before the end of the fifteenth century. Some of those who advocate an intimate relation between the two diseases, maintain that Scrofula was not the Struma of the ancients; and that we have allusions to Syphilis in the Levitical books; but it is evident, that those allusions, as well as the indications to be met with in Hippocrates, Aretæus, Galen and Celsus, refer to a purely local disease, and not to a constitutional or contagious affection. My opinion is, that Syphilis was not known to the ancient Greeks or the Romans, and my reasons for the opinion are the silence of their erotic authors on the subject. In describing diseases of the genital organs, Celsus never speaks of their being contagious. Galen* mentions a single case, in which he was consulted, where there was a discharge from the urethra, accompanied by pain and heat, and that the patient had communicated the same disease to women with whom he had connexion. Rosenbaum conceives this case to be a proof that Galen knew contagious discharges from the urethra. If so, it is certainly singular that he only speaks of that one case. And is it not possible to have been some such case as may even now be seen where the case is not syphilitic?

It is true that vegetations about the prepuce, described as Thymus, are mentioned by succeeding authors, but for centuries they were not regarded as contagious; and we have no mention in the early Greek or Latin, or in Arab authors, of the constitutional disease. After the Crusades, there can be no doubt that diseases of the genital organs were more frequent; and the silence about contagion is broken. William of Salicetus, who taught surgery at Verona towards the middle of the thirteenth century, expresses himself thus: "De pustulis albis vel rubeis, et de milio, et de scissuris,

* De Sanitate tuenda, L. VI. c. 14.

et de corruptionibus, vel hujus modi, quæ fiunt in virgâ vel circa præputium, propter coitum cum fœtidâ muliere aut cum meretrice, aut ab aliâ causá." A difficulty occurs with regard to this passage, should we understand by the terms *fœda*, *fœtida*, or *immunda mulier*, a woman affected with syphilis?

Our own John of Gaddesden speaks of ulcers on the penis, but among their causes, he mentions coitus with a girl who was too young, or who was menstruating;—or retention of urine, or of semen. All this leaves on the mind a doubt, at least, whether Syphilis was much, if at all known, before 1494. And supposing it to have been known, we may conclude, at least, that its occurrence was unfrequent; for Gruner in his Supplement to the Aphrosidiacus of Aloysius Luisinus, collects the opinions, on the subject of Genital Diseases, of twenty-five medical men, who flourished between the end of the eleventh and that of the fifteenth centuries, of whom only six speak of contagion. But it is said, we have conclusive evidence, in the fact that police regulations were instituted for the purpose of sequestrating women living in houses of debauch, who were suffering from contagious diseases. A statute of Joanna of Naples, made in 1347, and applied to a house of prostitution at Avignon, has been particularly referred to; but documents, which have been found since the time of Astruc, seem to render it more than probable that such a statute never existed.

To me, the evidence in support of the opinion that the disease was unknown to the ancient Greeks and Romans, seems very strong, whilst that having reference to the middle ages may be regarded as less conclusive; and yet if the disease was known in Italy during that period, why did the Italians and other nations call it Morbus Gallicus? Simply because its appearance coincided with the arrival of Charles VIII. in Italy; why did the French call it Mal de Naples? Only because it seemed to be connected with their unfortunate expedition against that town. Why did the Russians call it Mal Polonnais? Because they thought they had received it from

the Poles. And does not this lead to the conclusion that these different people regarded it as a new disease?

From all these circumstances, I arrive at the conclusion, that Scrofula and Syphilis are independent the one of the other; that each has a character proper to itself, and that the same treatment is inapplicable to both diseases. For example, if Scrofula be rife where Syphilis is rare; if Syphilis affects all periods of life while Scrofula is more confined to a particular period; if hereditary Syphilis be manifested at, or soon after birth, while Scrofula unfrequently appears before the second or third year; if Syphilis, whether inherited or acquired, be rarely cured spontaneously, and if, as every one knows to be the case, Scrofula often disappears at the approach of puberty; if Syphilis usually yield to mercurial treatment, while Scrofula does not—should we not conclude that the one has no dependence on the other? Besides, if Scrofula were derived from Syphilis, it surely would not be rare to find it in those children who have resulted from infected parents, and to whom Syphilis has been hereditarily transmitted. But how frequently do we see Syphilis thus communicated, and how rarely, at the same time, do we find the child presenting a scrofulous taint.

DOES CONCEPTION HAPPENING DURING MENSTRUATION TEND TO PRODUCE SCROFULA IN THE CHILD?

There are not wanting persons who believe, that even in the absence of any apparent scrofulous taint in either parent, or in their progenitors, and in the absence of any morbid condition of the system, the parent may induce Scrofula in the child.

It has been assumed by Lepelletier and Lallouette, that a child resulting from impregnation, during the existence of the menstrual evacuation, will be scrofulous. Indeed the latter author does not hesitate to bring forward, what he regards as a proof, that the opinion is well founded. He says " I knew two

children, one of the age of six, scrofulous and ricketty, the other aged three, scrofulous, where the disease could only be referred to that circumstance, both parents being of good constitution." A more gratuitous assumption cannot well be conceived. Was the experience of these authors so limited, that they had not seen cases, in all else similar, except that in them impregnation of the mother, had not taken place during menstruation?

HAS THE AGE OF PARENTS ANY INFLUENCE IN THE PRODUCTION OF SCROFULA IN CHILDREN?

Many persons, again, cling to the opinion that the age of the parent influences the development of Scrofula in the child. Thus it is said, the parents, or either of them, may be so young, or so old, so strong, or so weak, that their progeny will be scrofulous as a consequence of the one or the other of these conditions. Of the correctness of this assertion no proof is offered; and the often quoted phrase in Horace: "Fortes creantur fortibus," or that of Fernel, "Senes et valetudinarii imbecilles filios vitiosa constitutione gignunt," cannot be admitted as truths in science, without some better evidence in their favour, than that they are contained in the works of Horace and Fernel. Yet Lepelletier believed that a young man, not yet perfectly developed, would furnish a thin, ill-elaborated spermatic fluid, and that, a woman, too young, would present such feeble and delicate organs as would be unfit to nourish a child—and that the condition of two superannuated persons would be similar. There is much propriety in the remarks of Baudelocque as applied to these ideas: "If experience demonstrated, that when the strumous affection is manifested in a family, it always, or even usually, affected the last born, that might be explained by other circumstances than the advanced age of the father, or the mother, at the moment of fecundation. If the age were a matter whose influence was so decided, then, where the parent

is young, the first born, and not the last should be scrofulous."

Probably Kortum has placed this matter in its proper light: "Et primo quidem loco occurrit parentum ætas nimis juvenilis. Pluries observasse mihi videor neogamos 14-18 annorum, quales inter plebem apud nos multi sunt, prolem progenuisse scrofulosis et atrophicis affectibus misere detentam. Ratio in propatulo est. Venus quippe præmatura tum parentibus tum inde procreatis infantibus exitiosa est. In temperati vero climatis regionibus, homines serius paulo perveniunt ad eum pubertatis gradum, qui soboli sanæ et robustæ progenerandæ sufficiat. Et si insuper accedant causæ occasionales plebeiis vix evitandæ, per se satis imbecilles infantes in morbum nostrum facile incidunt. Ita quoque e contrario a nimis annosis parentibus debilis, morbisque infantilibus valde obnoxia nasci solet proles. Neque minus ab iis qui in castris Veneris nimium et maturius militando, vel onaniticum vitium exercendo corpus enervarunt."*

I do not, however, deny that children born of parents advanced in life, as well as those born of youthful parents, may present less of vigour than the offspring of persons in the prime of health and strength, but it is not proved that they usually become scrofulous.

Carmichael's opinion is, no doubt, favourable to the notion that the children of old men are predisposed to Scrofula. Our difference with him is on one point. I admit that they are often, though not always, weakly, and I admit that a weakly child, placed under unfavourable circumstances, is more likely to suffer from Scrofula than a strong one, but simply because he is weakly. Carmichael says: "Even the children of old men, though healthy, appear to be predisposed to Scrofula. A few years since, I was consulted on account of two children, a boy and a girl, under ten years of age; the one had caries of the vertebræ, the other had hip-joint disease in its

* Vol. I, p. 294.

second stage. The lady under whose care they were, who was herself apparently fifty years of age, told me that these children were her brother and sister. Seeing some surprise in my countenance, she added, 'But by different mothers. My father, when eighty years of age, thought proper to marry a second time. The family he had by his first wife are, like myself, all stout and healthy; while the family he had by his second wife, like those you see before you, are all mere sickly blights.' I then inquired if the mother of the latter was healthy, and was told that she was a remarkably fine healthy-looking woman, and nursed these children herself."

I do not hold that Carmichael's illustration is enough to prove his case. The circumstances attendant upon the bringing up of the two families may have been very different. The child of old age is usually pampered, and the seeds of the disease may have been the result of improper early training.

DO FREQUENT INTERMARRIAGES TEND TO THE PRODUCTION OF SCROFULA?

There is another train of circumstances which has been regarded as capable of determining Scrofula in the child; namely the occurrence of a too frequent "marrying in and in." On this subject, Mr. Carmichael says: "But there is another circumstance which may occasion an hereditary or congenital claim to this disease, in which the human race is obliged to submit to the same law that governs all organized beings, not only in the animal, but vegetable kingdom. I allude to that law which ordains the necessity of avoiding frequent and close intermarriages; they are generally followed by a puny race; and Scrofula, in one shape or another, seems to be the punishment inflicted for this breach of the organic laws. Hence the more frequent occurrence of this disease amongst the privileged orders in society; and even crowned heads themselves seem, above all others, to suffer by their neglect of a law

which was made equally for them, as for the humblest individual upon the earth."

I doubt whether we have any clear evidence of the bad consequences, either on the mind or the body, of frequent intermarriages. I know that in the management of stock, a notion adverse to breeding in and in prevails, but I know also that it is most extensively practised, especially with the best bloods and breeds, and therefore I conclude that the apprehended evils are not realised.

In so far as concerns the human race, this point is not easily elucidated, and even with reference to brute animals the evidence is very inconclusive. The only mode of satisfactorily examining the question in the human species, is to observe people who are more or less isolated, and are therefore obliged to intermarry within a narrow circle. For if the principle be operative, it should be found under these circumstances. The classes most favourably situated for the inquiry are the inhabitants of small islands, having little intercourse with other islands and main lands; and on our own coasts, the people of the Isles of Portland, Man, and of the Channel Islands best realize those conditions, but I do not find that Scrofula is more prevalent among those Islanders, than in places where the circle is much larger. The Quakers, again, have for years married within a comparatively narrow circle, certainly much narrower than other classes of people in Britain; and I do not find more Scrofula among them than among other people of a similar social condition. The Jews, again, marry within a narrow circle, and in their early history near intermarriages seemed to be sought for; and we have no authority for saying that Scrofula is more than usually prevalent among that isolated race. And with respect to noble and royal families, I know of no evidence which favours the belief that frequent intermarriages tend to the production of Scrofula. The knowledge we possess of the condition of tribes in Africa, in Asia, and in America, among whom the evil influence of intermarriage, if it exert any, should be

severely felt, because they rarely marry out of their own tribe, is too scanty to warrant any satisfactory conclusion. My impression is, that intermarriages among healthy persons tend to no such calamity as the production of Scrofula; but I must not be understood to assert that other physical or mental influences may not result from such unions.

IS IT PROVED THAT THE MILK OF A SCROFULOUS NURSE TENDS TO PRODUCE SCROFULA IN THE CHILD?

It is very important to ascertain whether, with the food which the child takes from the breast, he can also acquire a disease existing in the constitution of the individual from whom the nourishment is derived. John Hunter denied, upon theoretical grounds, that a nursling could derive any specific disease from the milk of his nurse, or communicate to his nurse, by the contact of his lips with the nipple, a constitutional taint, which he had derived from his own parents. A similar opinion was expressed by Faure. But I think the evidence we possess with respect to Syphilis is sufficient to justify the belief that the child of healthy parents may possibly derive Syphilis from a foster-mother whose constitution is tainted with that disease, possibly even in the absence of any broken surface. The question is difficult; but I think the weight of evidence favours this view of the subject. Richard de Nancy* mentions several cases of the communicability of constitutional Syphilis by this means. I do not, however, think that we have satisfactory evidence of the communicability by such means of any other constitutional disease.

With regard to the disease more immediately under consideration, it seems that so long as the belief in a scrofulous virus was prevalent, so long was an opinion generally entertained that a scrofulous nurse might communicate the disease to her nursling, which took in the virus with the

* Traité des Maladies des Enfants.

milk. "We cannot doubt," says Baumes, "that nurses contribute to extend the disease from which they are themselves suffering, because in support of this truth, reason and facts are peremptory." M. Madier, among others, is referred to for facts in proof of this opinion. He says, "there is no climate which appears less proper than *Bourg Saint Adeol* to give birth to Scrofula, in as far as concerns air, water, and the aliments of the inhabitants; still it is very common there, and there can be no other cause for this, than the strangers, who each year establish themselves in this place; the greater part coming from the mountains of Vivarais and Dauphiny to seek for service. No person doubts that the greater part of the inhabitants of those countries are affected with this disease, which, like a Proteus, manifests itself in so many different ways. The women marry, and being fairer and fresher looking than the natives of the place, are commonly chosen as wet nurses. The mothers are seduced by the healthy appearance of these women, and the innocent victims suck in with the milk a poison, as much more shocking, as it is the cause of the great number of phthisical persons found in that town." Bordeu, said we usually see scrofulous nurses communicate the disease to the child. White, on the contrary, positively denied that a nurse could transmit Scrofula to her nursling. Faure affirmed, that neither can a nurse give this disease to her sucking child, nor receive it from him. Lalouette and Pujol adhered to this opinion. But the impression, that the disease may be thus communicated exists on the minds of many medical authorities in the present day.

Yet in support of that opinion, I know no single well observed fact on record. Either it has been assumed as so incontestible that it was not necessary to chronicle facts in proof of it, or these facts have never been observed. It was held, that a virus which so thoroughly pervaded the system, must pervade all the secretions, and must therefore develop the disease in the sucking child. We have no proof that the Vivarais suffer from Scrofula to any great extent;

we have no proof that the people of *Bourg Saint Adeol* suffer from it to any greater extent than those of other similar towns; we have no proof that the wet nurses in that place, or the children they have nursed, have suffered; and we can only wonder that such unproved assertions could ever have become current.

The observations of Dupuy* prove that the milk of a tuberculous cow may contain a greater quantity of phosphate of lime than that of a healthy cow. Labillardière has proved that there may be seven times more phosphate of lime in the milk of a cow affected with pulmonary tubercle than in that of a healthy animal. But I do not believe that there is so strong an analogy between the milk of the cow, and that of woman as to warrant us in assuming that the condition of the milk of a tuberculous cow would properly represent the condition of the milk of a human female suffering from Scrofula; though men who are authorities in our profession have, I know, thought they were warranted in adopting such a conclusion when considering scrofulous affections in the human subject. I admit, however, that assuming such a difference to exist in the milk of the woman as has been observed in that of the cow, it is fair to suppose that it must exercise a very decided influence upon the digestive organs of the child.

The following is Meggenhofen's analysis of the milk of two women,† of whom, it does not appear that either was scrofulous, yet the difference in the proportion of the elements is very striking:

Water	0.8835	0.7893
Alcoholic extract, (butter, lactic acid, &c.)	0.0881	0.1712
Aqueous extract	0.0129	0.0088
Cheesy matter	0.0147	0.0288
Phosphate of lime and magnesia . .	0.0008	0.0019
	10.000	10.000

* Recherches sur les Maladies Tuberculeuses.

† Zeitschrift für Physiologie, B. III. p 274.

I have not succeeded in procuring any human milk, which yielded any thing like a similar difference; but then those specimens which I have been able to procure, were not taken from persons actually suffering from Scrofula, but from persons who presented marks of the previous ravages of the disease. In the absence of experimental proof, analogy would fully warrant the assumption, that changes are produced in the secretion of milk, as well as in the other products of the human economy. In a highly scrofulous patient, most of the secretions seem to be preternaturally acid; the cutaneous transpiration, the urine, the fœcal matter, and purulent fluid, all exhibit that character, frequently in considerable intensity. The same character is detected in the odour of the breath; but what influence milk so changed will have upon the child is not shown. A mother does not knowingly choose a scrofulous wet nurse, because such a person is unhealthy, and because her milk will of course be so also. If a mother suckling her own child were scrofulous, and the child were to become so, three things would have to be decided; and these in a presumed case surrounded with infinite difficulty, namely: was it hereditary—was it acquired with the milk—or was it owing to other circumstances? Although I adhere to the opinion I have expressed, that Scrofula is not to be contracted at the nurse's breast, I should be quite as unwilling as any one could be to have a child suckled by a scrofulous nurse. At the same time then, that as I conceive, there is no proof in support of the opinion, that the disease may be propagated in this way, neither is it easy to procure proof that it could not happen, since such proof could only be negative; meanwhile, as all our present evidence is negative, we are justified in saying that such communication, is, in the present state of our knowledge inadmissible.

It has been suggested that the milk of a menstruating woman is unfit for the nourishment of a child; but no sufficient reason for this has ever been given. M. Raciborski has made some careful observations upon milk, under those

circumstances, and one can only regret that they were not on a more extensive scale. The results of his investigations are thus given: "Menstruation does not exercise any influence upon the number, or the size of the milk globules. The reaction of milk continued to be alkaline during the whole time of the menstrual evacuation. The only sensible modification that the milk seems to experience, under the influence of menstruation, consists in the diminution of the quantity of cream. It is also to this peculiarity that we must attribute the bluish aspect which milk presents in women at the menstrual period. This modification does not, however, seem to exercise any injurious influence on the health of the nursling." There is, therefore, no sufficient reason for rejecting a nurse, merely because she menstruates; though at the menstrual period she is probably less well fitted than another to afford unexceptionable nutriment to the child.

CONTAGION.

From very early times, the idea has been entertained, that Scrofula is a contagious disease, but within what limits, and in what manner the disease could be thus transmitted, are questions on which various opinions have been expressed. Aretæus believed the communicability was so perfect, that a healthy person should not be permitted to enter into conversation, face to face, with a scrofulous person; that the disease could be transmitted to a certain distance; that it was dangerous to live in the same room with a scrofulous person; that the volatile miasmata exhaled by scrofulous persons might be absorbed by the pores of the skin, or might be mixed with the saliva; and that food left in a room with scrofulous persons might become saturated with these miasmata. It was said that "there is in nature a kind of scrofulous miasm, formed by the revolutions to which the different humours are subject, and that it might in passing from one person to another, very well act like leaven in paste,

and disorder the humours." Baumes said that Scrofula ought to be regarded as contagious in all cases, as it is proved that it is transmitted to infants who are suckled by scrofulous nurses. Charmetton thought that contagion might be effected through the intermedium of the air; and such opinions are even now not entirely abandoned. In 1578, the Parliament of Paris applied to the Faculty of Medicine of that day to set this question at rest, but although its organ, Dulaurens, says: "Contagiosum esse multi experiuntur," the reasons assigned by him for this opinion are not very forcible.

Whatever plausibility there may be in the reasons urged for the communicability of Scrofula by mediate or immediate contact, by inoculation, or by the agency of the milk of a scrofulous nurse, we have no satisfactory proof of the reality of such transmission. Bordeu says that, "young healthy women have married men coming from scrofulous families, and have become so themselves." But there is no proof that the young women referred to, did not themselves come of scrofulous families; there is no proof that the young men were scrofulous; still less is there evidence that the women derived the disease from their husbands. And those and other statements urged in support of the opinion that Scrofula is a contagious disease, are so wanting in reasonableness, that further reference to them would be unprofitable.

Many who advocate the doctrine of contagion rest their case on a belief in the existence of a *virus*, and on its communicability by inoculation, but they are not able to point out the particular fluid which should be used, and with which the virus is supposed to consort. By most authors, a virus is regarded as a morbific principle existing in some of the fluids of the body, and by its presence determining a particular affection, and capable when inserted in the body of another person, of determining in him a similar disease. Now we have no proof that such a principle exists in Scrofula, although experiments have not been wanting to determine the question.

The simplest form of communication would be by mediate or immediate contact, and if observed at all, ought to be met with where many children are collected together; but there is no proof of its extension by contact in schools—there is no satisfactory evidence of its extension, by contact, in families.

Baudelocque, in speaking of the Hôpital des Enfans Malades, says, there are in that Institution one hundred and fifty beds occupied by scrofulous patients, but that he has never observed any thing to give rise, in his mind, to even a suspicion of contagion. In several Institutions which I have visited, I have found scrofulous children mixing indiscriminately with the other children, day and night; but no single instance of communication by contagion had ever been observed by the medical officers. In some cases I found children suffering from Scrofula, who had traces of the disease when they were admitted into the establishment; but no other child had been known to acquire the disease from them. At St. Louis, the children mix without any kind of constraint, and both Pinel and Richerand stated that they had never known a case where the disease had been propagated by contact or association.

If Scrofula were essentially a contagious disease, it is natural to expect that it would be most prevalent where the largest number of people were gathered together. It ought to be found most rife in densely peopled towns. My returns of the condition of the living, however, do not show that it is so, and as it regards the mortality from Scrofula, the ratio of deaths from that disease in Towns and Rural Districts is as 52 to 101.

Inoculation of scrofulous matter was practised by Hébreard, at Bicêtre, upon dogs; in some cases simple friction was employed; in others, the skin being removed by a blister, lint smeared with scrofulous matter was kept for some time applied upon the part; and it was sometimes deposited in wounds inflicted upon the animals; but no sign of scrofulous infection was produced in any instance. Lepelletier tried

similar experiments on guinea-pigs, believing them "to be more lymphatic, and therefore more likely to be affected." He placed those animals in a small, dark, damp place, "as being favourable for the development of Scrofula." He then took pus from four eminently scrofulous patients. At first, this pus was introduced with food into the stomach, daily, in the dose of half a coffee-spoon; in the next place, he injected eight or ten drops of the same fluid into the crural vein, and deposited a certain quantity in the wound, made for the purpose of exposing the blood-vessel, among the lymphatic ganglia of the groin; next, the hair was carefully shaved off the animal's neck, and the matter well rubbed in; after some months, the animals were destroyed, but no sign of Scrofula could be detected. Some persons have gone still farther—have even practised inoculation on the human subject; a colleague of Lepelletier had the audacity to perform such experiments, by inserting a certain portion of scrofulous pus in the wounds made for vaccination in children—the vaccine lymph succeeded, but no scrofulous inflammation was developed. Lepelletier and Goodlad inoculated themselves, but without success. They made many punctures, in which the pus was inserted, but no strumous symptoms followed: the former gentleman applied a rag smeared with scrofulous matter upon a blistered surface, and with the same result.

Kortum attempted to excite the disease by rubbing pus taken from a scrofulous ulcer upon the neck of a child; he also inserted similar pus in a small wound behind the mastoid process; the results of these unwarrantable attempts he gives in the following words: "Neque materies ex ulceribus scrofulosis benignis effluens contagiosam vim habet, id quod ex nonnullis à me institutis tentaminibus apparet. Quippe materiem ex talibus ulceribus desumtam puello sano ad latus colli integrâ cute infricavi, alii vero puero cuticula exiguo vulnusculo, velut in variolarum insitione fieri solet, disrupta, itidem in superiori colli regione, nempe infra et pone pro-

cessum mastoideum applicavii et ne ullam quidem inde observare potui morbi communicationem."*

If uniform, or nearly uniform, results had followed these attempts to communicate the disease to inferior animals, by contact or by inoculation, there would be proof that the disease might be developed at will in this way; but I do not think we should be justified in concluding, that because it failed in different orders of brute animals, it must therefore fail in man; the effects of a virus, on one and the other, are very different. And the experiments made upon helpless children, unwarrantable, and even criminal as I conceive them to have been, are not more conclusive.

Although I see no danger, therefore, of propagating Scrofula, by causing a healthy child to associate with, or even to dine at the same board, play at the same games, or even to sleep in the same bed with a scrofulous child, I should always object to the cohabitation of a sickly child with one in good health. "Quotidie occurrunt exempla ubi sani infantes cum scrofulosis arcto et ipsius lecti consortio fruuntur nec tamen ipsis morbus communicatur,"† is a remark of Kortum, in which I entirely concur.

IS PUS, ARISING FROM OTHER DISEASES, CAPABLE OF PRODUCING SCROFULA?

The opinion has been expressed by several authors, that the disease may be communicated by pus proceeding from a scrofulous person, even though that pus be not derived from a scrofulous abscess or ulcer. Thus Lepelletier maintains, that blennorrhagic discharges which, as he believes, men sometimes contract from scrofulous women, suffering from leucorrhæa, are a consequence of the absorption of scrofulous matter. But he must have been aware how common such cohabitation is, and how uncommon such blennorrhagic discharges are, if

* Vol. 1, p. 218.

† Loc. Cit. p. 216.

there be no reason to suspect Gonorrhæa. He must also have known that they frequently result from cohabitation where there can be no suspicion of Scrofula.

It is also believed by some persons that *variolous* virus, taken from a scrofulous person, is capable, when inoculated, of producing Scrofula. Dehaen stoutly maintained, that inoculated Small-pox was a common cause of true Scrofula; but then he was a decided opponent to variolous inoculation, and did not exercise an unbiassed judgment.

Dr. Fordyce* mentions the case of a young lady of sixteen, who had not menstruated. She was inoculated. The disease was mild, and her recovery was rapid—with this exception, that small ulcers of a scrofulous character formed around the punctures and continued troublesome for some weeks. At the same, time the region of the parotid became tumid, the lymphatic ganglia about the neck enlarged, and assumed a strumous appearance, but the affection yielded to bark, sassafras, and generous living. Similar cases are mentioned by Bocquis and others: thus,

Rowley says,† "A young gentleman, aged 10, son to an officer in the army, came under my care, August 1774. He had been inoculated about five years before, for the Small-pox, under a reputable surgeon. Soon after, there appeared several glandular swellings about the neck and throat, some came to suppuration, &c." In a note, he says, "I have seen several instances where inoculation has produced the King's Evil; therefore we should be very cautious what subject we take the matter from."

That Scrofula should present itself in a child who has been broken down by an attack of Small-pox, is not surprising. Is not Scrofula, however, I would ask, as frequently seen after other debilitating diseases? Does it not, for example, as often succeed to Measles? And here there is no inoculation! I therefore agree in opinion with Cullen, who regards Dehaen's

* Med. Obs. and Inquiries. † Select Cases, 1779.

position as untenable, and with Kortum, who says, "Scrofulas cum variolis propagari posse cum Whitio negare haud dubito. Qui illud comprobare videntur casus, aliâ ratione explicandi sunt."* Cullen mentions many examples of natural Small-pox occurring in children already affected with Scrofula, in whom the symptoms of Scrofula had given way. In the second volume of the Memoirs of the Academy of Toulouse are many seemingly most conclusive facts of scrofulous tumors and ulcers radically cured during, or by, the suppuration of Small-pox; but they cannot be regarded in any other light than as coincidences.

An important question is raised by Rilliet and Barthez, with reference to the influence of Small-pox upon Scrofula. We have seen that Dehaen and Rowley were of opinion, that the inoculation for Small-pox, had a tendency to excite in the system the development of Scrofula; while Rilliet and Barthez state, that in any of the variolous cases they have observed, the eruptive fever had not been terminated by tuberculisation. They believe it to be proved, that Small-pox and tubercular disease are of different natures and mutually repel each other; that since the use of vaccination, tubercular diseases had become more frequent; that those children who die without having had Small-pox, are more frequently tubercular than otherwise; and that of those vaccinated, a greater number are disposed to tubercles, than of those who have not been vaccinated. They, however, guard themselves from assigning vaccination as a cause of tubercle; all they have been able to observe is, that a greater number of vaccinated children die with than without tubercles. The only precise evidence they furnish for the opinion is the following: of 208 vaccinated children, 138 died tubercular, 70 non-tubercular. Of 95 children who died without having been vaccinated, 30 were tubercular, 65 not so.

We have seen that tubercular and scrofulous matter may

* Page 218.

become cretaceous, and that in this state it may remain quiescent for a length of time, but we are not acquainted with any means of producing this result. Rilliet and Barthez, however, advance the opinion that Typhoid Fever, Scarlatina, and especially Small-pox, have a tendency to determine this transformation. If there were better reasons than we at present possess for believing their opinion to be correct, it would be easy to avail ourselves of the power of Small-pox to accomplish that transformation; but until we have proof, first that such an influence is exercised at all, and next, that it is permanent, few persons will be disposed to avail themselves of so formidable a remedy.

CAUSES CONTINUED.

I have sought to determine, what is the extent of the influence which the constitution of the parent exercises in the development of Scrofula in the child;—whether a child can acquire the disease through the medium of the milk which he derives from the breast of a scrofulous nurse;—and whether it can be communicated by contact or by inoculation; and I have maintained, that the influence of the first agents, though real, is less energetic than is commonly supposed; and is, I conceive, quite insufficient to explain the prevalence of the disease. I do not, however, mean to say, that one child does not come into the world, with tendencies whereby he is prepared to profit, or to suffer, more than another, from the influence of the circumstances which surround him; but I do mean to convey my strong conviction, that whatever may be his condition, on coming into the world, it will be modified, either for good or for evil, by the circumstances to which he is exposed during childhood. They may tend either to develop a vigorous constitution, or to produce Scrofula, or other disease. I must, therefore, proceed to show what are the circumstances, to which the child is exposed, which tend to induce the development of Scrofula.

To exhibit clearly the influence of different agents in producing great changes in the constitution, I must refer shortly to the general mortality, but I shall do so only as a means of establishing results which bear upon the question of the development of Scrofula. It may be thought that in alluding to the general mortality, I am entering a wide and not strictly relevant field of inquiry; but I have a strong conviction, that many of the causes which tend to destroy life, do, when acting with less energy, tend to develop Scrofula; and that where they are intense enough to determine a large general mortality, they leave a scanty harvest for the slower moving ravages of Scrofula. I will adduce examples for the purpose of making this law evident.

There are places in England and Wales, where the general mortality scarcely exceeds $1\frac{1}{2}$ per cent., whilst there are others where it amounts to $3\frac{1}{2}$ per cent. on the gross population. In the former districts, the deaths from Scrofula are 1 in 7000, a number nearly double that of the average of England and Wales; in the latter, they only amount to 1 in 20,000. Again, the Registrar-General's Reports for 1838—42, show that in the districts of Melksham and Bradford, the deaths from Scrofula are nineteen times more numerous than in the districts of Durham, Exeter and York, whilst the general mortality is less. In England and Wales, the district in which the mortality is greatest, is the North-western, comprising Lancashire and Cheshire, where it amounts to 2.64 per cent.; and a district where the mortality is among the lowest, is that of Monmouth and Wales, where it does not exceed 1.96 per cent. In the former district, the deaths from Scrofula, compared to those from all causes, are as 1 to 505, while in the latter, they are as 1 to 173. In the North-western District, the acute disease destroys life, and a small harvest is left for Scrofula; whilst in Monmouth and Wales, the causes by which life is destroyed act with less intensity, and the chronic disease becomes more extensively fatal. My next example I take from another country, in order to show the extent to which the law I

have alluded to prevails, and not because similar evidence might not be furnished amongst ourselves. In France, the mortality, as proved in the Memoir of Legoyt, is not greatest in those Departments where the rejections for Scrofula among Recruits is most frequent. Thus the mortality is greatest in the three Departments of *Bouches du Rhône*, *Vienne* and *Var*, where it amounts to 3 per cent.; the mean for the whole of France being 2.4. The rejections for Scrofula, in those Departments, are 5.3 per 1000; whilst the mean for the whole of France is 20.4 per 1000. *Corse*, *Orne* and *Sarthe*, are three Departments where the mortality is amongst the lowest, it amounts to 1.9 per cent. only. But the rejections for Scrofula in those Departments are 7 per 1000, or nearly 35 per cent. more than in the districts where the mortality is greatest. The largest amount of rejections for Scrofula occurs in *Nièvre*, *Nord* and *Oise*, and is 38.3 per 1000; the mortality being 2.5 per cent., a fraction only, as 25 to 24, over the mean, for the whole of France. The smallest amount of rejections for Scrofula, occurred in *Landes*, *Vendée* and *Pyrenées*, *(Orient)*, where it is 2 per 1000, while the general mortality was greater than in *Nièvre*, *Nord*, and *Oise*: viz. 2.6 per cent.

Those examples, and they might easily be multiplied, show a very definite relation between the general mortality and that from Scrofula, and fully justify us in referring to the one while considering the other subject.

A similar rule applies when we compare Consumption and Scrofula. Where the general mortality is largest, that from Consumption is also, almost always, largest, but that from Scrofula is smallest. It is, therefore, almost a safe assertion to make, that whenever the general mortality, and that from Consumption, are large, that from Scrofula is small.

The evidence of Dr. Willis shows, that in Dublin, among people "not destitute," under the age of five years, the mortality is 12.45 per cent. per annum; while in Herefordshire, it is only 3.8. Now, however we may differ about the causes of such different rates of mortality, it is certain, that some

agent, or group of agents, must exercise a very powerful influence when producing such disastrous effects as are experienced in Dublin; and that if the same agents exist at all in Herefordshire, they act there with much less intensity.

Although the comparative value of life in different localities, and under different conditions can be thus clearly estimated, and the combined influence of many associated causes can be shown, we are unable to determine the actual value of each one of the many causes so associated which influence the duration of existence. We can show, indeed, that employment, social position, and locality, is each accompanied by a proper mortality; and that certain groups of morbific agents are more directly in action under one condition of existence than another. But the comparisons which have been made for the purpose of estimating the influence of certain agents, in the duration of life, have too often been very unsatisfactory; and on this point the following observations of Mr. Neison* are most judicious.

"At present it is right to assume, that either the employment or occupation—condition in life, or rank in society—poverty or riches—has as direct an influence on the duration of life, as peculiarity of locality or habitation; for the effect of neither the one nor the other of the presumed influencing causes has yet been correctly defined. The truth of this assumption may appear more evident thus:—suppose that the town of Liverpool were compared with some purely agricultural district, and that a much higher rate of mortality was found to prevail in the former; it would be no more right to assign this result wholly, or indeed any given portion of it, to the badly-conditioned streets and ill-planned houses of Liverpool, than to any other of the supposed causes.

"In order to determine the simple influence of locality, like classes in the respective districts must be compared. In a comparison of districts A and B, if it so happened that in A

* Contributions to Vital Statistics.

two elements, *c* and *d*, were found to influence the value of life, while in B one only of those elements existed, the grounds of comparison would evidently be fallacious. Now this is precisely a parallel case to the state of things which exists in comparisons that have frequently been made between the Manufacturing Towns and Rural Districts of England, and between one Manufacturing Town and another. Causes influencing the duration of life, independent of locality itself, frequently exist in one, and not in the other; by overlooking which, observers are often led to assign excessive mortality to imaginary causes. If simple elements were compared, errors of this kind would be avoided. Keeping this in view, and referring to the preceding case, let *c* be supposed to represent comfort, and *d* distress. If, comparing comfort in district A with comfort in district B, a greater mortality were found to prevail in the former than in the latter, it would then be right to assume that the remaining elements—ill-ventilated houses, badly drained streets, and the like—in district A, were not so favourable to life as in district B; but it would have been wrong to draw such a conclusion, had comfort and distress in the one district been compared with comfort only in the other.

"It is evident that, in a comparison of the general mortality of any one place with that of another, such errors could not be avoided. It may happen that the prevalence of a particular kind of employment or occupation in the one, which is not common to the other district—but which employment is of an unhealthy nature, or perhaps subject to great fluctuations in prosperity, or probably both combined—may produce an excessive mortality, the cause of which may be attributed to badly-planned dwellings, instead of poverty and its train of direful consequences.

"If it were possible to compare any one class in a given district with the same class, under exactly similar circumstances, in another district, the only distinction being the difference of district or locality, then it is plain that the influence of locality, if any, would manifest itself.

"Again, if different classes of persons in the same locality were compared—for example, those following different employments—the only distinction being difference of employment, then the effect of that element, if any, on the duration of life, would appear."

The following illustrations will serve to give point to these observations of Mr. Neison. The mortality of a town is found to be larger than that of a rural district, whereupon, insalubrity in the town is assumed, and the causes of that insalubrity are sought for, while the materials to be compared may be unequal, and the difference is only apparent. In one place, the juvenile population amounts to a fifth, in the other to a fourth of all living. Now, it is upon the juvenile population that the mortality falls heavily. To make the comparison equal, the proportion at different ages should be also equal; but this adjustment has been usually overlooked. Places where a large mortality occurs are regarded as unhealthy; whilst others, where the general mortality is smaller, are reported to be healthy. And yet, if the conditions of the population were only adjusted, the results might be reversed. Thus, a town, A, has 10,000 inhabitants, whereof 2000 are young children, among whom the mortality is 4 per cent. A town, B, has also 10,000 inhabitants, but only 1500 children; the rates of mortality are the same in both; the deaths among the children are 80 in A, and only 60 in B; all else being equal, and the mortality alone being regarded as the test, A would be pronounced an unhealthy town as compared with B, while the salubrity would in fact be the same, and the populations only, different. Here is a pertinent case extracted from Mr. Neison's paper: "In the year 1840-1, the actual mortality at Bethnal Green was 2.38 per cent.; that of St. George's, Hanover Square, was 1.73; but if the population be adjusted, that is to say, if the proportions of the living at different ages be made equal, and the actual force of the mortality at each place and each age be applied, then St. George's would be represented by 2.50."

At Sheffield the fork-grinders, (a class whose age at death, according to Dr. Knight, averages only about thirty-six years, and among whom the mortality, between the age of twenty and forty, is, according to Dr. Holland, 88 per cent.; while among the general population there, it is only 35 per cent.), do not live so long as the knife-makers; the earnings of each are sufficient to procure the necessaries of life, the locality to which they belong is the same; it is therefore the particular employment alone which determines the larger mortality.

The people of Norfolk do not live so long as those of Devon or Surrey; and as they are all mainly agricultural, it is, probably, locality which causes the difference of mortality.

Rank in society, or social position, also has its proper mortality. Take the most elevated class in this country—the Peerage—amongst whom the duration of life is given by Dr. Guy.* "A class combining the greatest number of physical advantages, and having at its command all the means by which health may be preserved, and the best advice and assistance procured in case of accident or illness. There is no class which possesses all these advantages in so eminent a degree as this, and what is the result?

At 20	the expectation of life is	38.47	years.
30	„	30.87	„
40	„	24.45	„
50	„	17.92	„
60	„	12.56	„

While, at corresponding ages, among the general population, a very large proportion of whom are deprived of advantages enjoyed by their more elevated countrymen,

At 20	the expectation of life is	40.69	years.
30	„	34.09	„
40	„	27.47	„
50	„	20.84	„
60	„	14.58	„

* Journal of the Statistical Society.

Here the increased mortality is owing, I apprehend, to *social position*. It is unnecessary for the purposes of the present inquiry to carry the illustration further. But none of these circumstances should be lost sight of when we are estimating the salubrity of a district.

It is strongly urged in the present day, by persons who are regarded as safe authorities, that the causes of the larger mortality of particular places may be easily extiugnished; that the mortality in the worst districts may be reduced to an equality with that of the most favoured; and that by so legislating as to secure an improved system of sewerage, and better ventilated habitations for the poor, the mortality of England and Wales can be lessened by 25,000 or 30,000 per annum. I do not, however, believe that even if sewerage were good, and the dwellings of the poor were clean and well ventilated, the mortality of the country would thereby alone be greatly lessened; and yet no one would less desire than I should to impede any well-meant efforts to better the condition of the poor, or more gladly see procured for them more roomy dwellings; these, with the removal of impurities and increased cleanliness, are not less efficacious as moral than as physical means of improvement; but to exaggerate expected advantages is to ensure disappointment and to paralyse future exertion. Cold and hunger will still remain, amongst those agencies, which the most impair health and most abridge the duration of life, and these are agencies which legislation can but slightly modify; and although other influences are in constant operation upon our bodily frames, yet the food which is introduced into the stomach, and the air which passes into the lungs, are among the most energetic agents in supporting health or inducing disease.

FOOD.

Conceiving, as I do, that nutrition holds the first place amongst those agents which influence the production of Scrofula and the duration of life, and that it is by the materials which are introduced into the stomach, that nutrition itself is

mainly influenced, I shall now inquire to what extent food acts in developing Scrofula. And as the following inquiry into the influence on life and health, of the food of infants and children, may appear to some persons to be more minute and detailed than the subject we are considering required, I would state at the outset, that in my judgment, the food exercises a most important influence in the production or prevention of Scrofula, and that the seeds of that deterioration of the bodily frame which predisposes to Scrofula are sown in infancy or early life.

There can be no doubt, but that an infant's natural food, when obtained from the breast of a healthy mother, is that best adapted to the wants of the child; but it often happens that this cannot be obtained; and it then becomes necessary to provide a substitute. An unexceptionable one, under certain circumstances, may be found in the breast of a foster-mother. I say under certain circumstances, because I am aware that it has been shown by Benoiston de Châteauneuf, that, at Paris, of 100 infants nursed by their mothers, 18 die in the first year; while of those nursed by "strangers," 29 die in the same time. By the bulk of our population, however, a foster-mother cannot be procured, and some plan of artificial feeding is their only resource. But any plan of artificial feeding leaves much to be desired, and an undue proportion of the children subjected to it, languish and die; because, exclusively of less care and tenderness on the part of the substitute, such food does not furnish them an appropriate nourishment; and in many of those who do not die in infancy, the foundation of Scrofula is surely laid. The mortality of Infant Institutions, where the child is brought up by hand, is unusually large; and although other circumstances may contribute to increase the mortality of such establishments, we have proof that the method of feeding exercises a most material influence on the extent of that mortality.

The researches of Casper confirm that view. The Report of the French Minister Laine, on Foundlings, (1818), showed that from 1787 to 1789, the deaths amounted to 90 out of 100;

from 1815 to 1818, they amounted to 75 per cent.; in 1824, to 60 per cent.; in 1838, for Paris,* to 50 per cent. At *Parthenay*, where the children were brought up by wet nurses, the mortality in the first year amounted to 35 per cent. At —— where they were brought up by hand, to 80 per cent. At *Poitiers*, the usual mortality was 12 per cent. for the first month. In 1834, the Conseil-Général of the Department of *Vienne*, closed the Tours; 164 infants were taken to the Hospice; 43 died in the first fortnight, and 16 in the second, or 35 per cent. per month;—being three times the mortality which was experienced when they were provided with wet nurses. At *Rheims*, the infants were brought up by hand, and from 1826 to 1835, the mortality in the first year was 63 per cent. At *Lyons*, a crowded manufacturing town, where the infants were suckled, the mortality in the first year amounted to 33 per cent. The ordinary mortality at *Lyons* during the first year of life does not exceed 20 per cent. In *Loiret*, the mortality amounted to 31 out of 57, or 55 per cent. in the first year. In the *Vosges*, in the same time, the mortality was only 38 out of 400, or $9\frac{1}{2}$ per cent. In the *Pyrénées Orientales*, 20 out of 33, or 60 per cent. In our own Foundling Hospital, where the children are provided with wet nurses, the mortality does not exceed 22 per cent. during the first five years of life; and of these 10 per cent. only, die during the first year. But it must be borne in mind that a child is rarely admitted into that establishment before the third month, and that it is during the first three months of life, that the mortality is relatively very large. It would, therefore, seem that the mode of rearing infants, and the food which is furnished them, according as it is derived from the mother's breast, or one or other of the vicarious methods, namely, by a foster-mother or by spoon food, influence greatly the amount of the mortality of infant life.

I know that some people maintain a contrary opinion, and

* Villermé.

Baudelocque urges, that in Normandy and Maine, where the greater part of the children are said to be brought up by hand, the population is robust, and Scrofula is not more frequently observed there than in other countries, but we have no proof that this statement is correct, and it is certainly opposed to all the evidence with which I am acquainted.

When a child is brought up by hand, there are two material circumstances to be noted, the food he takes, and the manner in which it is taken. The food, even if it be milk, (instead of being taken at the moment from his mother), has probably been obtained, some time before, from a purely herbivorous animal—the cow, and between that fluid and human milk, the differences are considerable, as will appear from the following analyses.*

The great difference in those results shows that the composition of the fluid is very variable, but in one respect they concur in showing that the milk which most resembles that of woman is that of the ass, which is obtained by very few children. That of the cow contains more than twice as much caseine, and less butter and sugar of milk, so that ordinary dilution cannot make its composition to resemble that of the milk of woman. But there is a further difference, which cannot be unimportant. If an infant be suckled by two different persons, his digestion is likely to become deranged, and yet the food

	Cow.	Ass.	Woman.	Goat.	Ewe.
* Caseine . . .	4.48	1.82	1.52	4.02	4.50
Butter . . .	3.13	0.11	3.55	3.32	4.20
Sugar of milk . .	4.77	6.08	6.50	5.28	5.00
Various salts . .	0.60	0.34	0.45	0.58	0.68
Water . . .	87.02	91.65	87.98	86.80	85.62

Henri et Chevallier, Journal de Pharmacie, t. xxv., p. 340.

	Cow.	Ass.	Woman.	Goat.
Caseous matter . .	8.95	1.95	1.93	4.38
Butter	2.68	1.20	8.97	4.56
Sugar of milk . .	5.68	6.29	1.20	9.12
Water	84.69	90.95	87.90	81.94

Meggenhofen, Van Stiptrian, Luiscius Bonpt. Peligot.

taken by the child, brought up by hand, may be derived from the mixture of the milk of many cows. Again, when he derives his food from his mother's breast, it is of a proper temperature and homogeneous; when obtained from the cow, it may have been drawn so long as to have become separated into two parts, or to be even further decomposed. How often is the influence of these things apparent; a child loses its mother, an attempt is made to bring it up on cow's milk, it gradually droops and languishes;—a foster-mother is then procured, and it rapidly recovers. Again, even if the milk of a healthy cow were unexceptionable food for the child, it happens, particularly in large towns, where the animal is kept in a state of close confinement, that she becomes liable to disease of a tubercular nature, and her milk undergoes considerable change in its composition; acquires a sweeter taste than is natural, and the proportion of its saline elements is much increased. In this state, it is said to be less easily digested, more apt to disagree with the delicate stomach of the infant, and to impair nutrition.

Then the mode of taking the food exercises an important influence upon the health of the child. By the act of sucking, a certain quantity of saliva is pressed into the mouth, and is mixed with the milk so as to render its digestion easier. Indeed the admixture of saliva with the food is an essential condition of a good digestion, not only in children, but in grown up persons. Add to all this, that the natural mode of taking food is to some extent a protection against improper feeding. The act of sucking is an exertion which can only be maintained for a certain time, and therefore the chance of improperly distending the stomach is not great; but when fed by hand, no such exertion is necessary, and the only measure of the capacity of the child's stomach and of its wants, is the judgment of the nurse. And the chance of harm from overfeeding is thus considerably increased.

If these evils are attendant upon bringing up by hand, even when milk is used, they are unquestionably greater where

the food is of a different kind. In the great bulk of cases, instead of milk, vegetable substances are used; gruel, with a little milk, sopped bread, or flour, or other farinaceous substance. The delicate mucous surface of a child is at first only fitted for the conversion of such food as is very easily assimilated, and the breast of the mother furnishes such a pabulum; but the ordinary farinaceous food is difficult of assimilation, and the digestive surface becomes so far deranged as to unfit it for the purpose of healthy nutrition. The evils upon which I have dwelt, are made evident by the following facts. In Lancashire and the West Riding of York, the deaths in the first year of life, are, to the total deaths, as 1 to 3.9; while in Devon and Wilts, they are as 1 to 6.4! Now it is in the great Factory Towns of this country, which are found in Lancashire, Cheshire and Yorkshire, that the system of bringing up the child by hand is most commonly practised, and where its evil effects are most apparent; first, as we have seen, in the great destruction of infant life, and failing that, in the development of Scrofula. It is not that the mother has no milk, but that in such places she is enabled to make what she considers to be a more profitable use of her time than by staying at home and nursing her child.* Her child may be suckled at early morn, and again in the evening, possibly too, at the middle of the day; but whatever food it may require at the intervening periods, if furnished at all, is afforded in the shape of the crudest and most inappropriate substances, and restlessness is known in many places to be habitually repressed by Godfrey's Cordial.

The digestion of infants is very rapid, and as the quantity of food taken at a time is small, it is necessary that feeding should be frequently repeated, and that during the first month the interval of feeding should not exceed from one and a half to three hours, because if longer periods are allowed to inter-

* Thus, in the Cotton Districts supervised by Mr. Horner, 141,450 persons above eighteen are employed; of these, 77,208, or 54½ per cent. are women.

vene, nutrition languishes, disease is developed, and life is ultimately sacrificed. The proof of the statement I have made, that bringing up by hand tends to produce Scrofula, is to be found in the larger Factory Towns, where during the first year of life, the deaths from tuberculous and scrofulous diseases are as 1 to 31 of the total deaths, whilst in the Metropolis they are as 1 to 42. During the whole of life, they are 1 to 5.6, in the Factory Districts, and 1 to 6.4 in the Metropolis. The facts I have adduced prove, as I submit, that because the food itself is not appropriate, and the mode of taking it is not natural, it acts injuriously upon nutrition, and that a larger proportion of scrofulous disease is found among children who have been brought up by hand than among those who are suckled by a mother, or even a foster-mother; and that therefore the system of bringing up children by hand deranges nutrition, and adapts the constitution for the deposit of scrofulous matter in the child.

Having then ascertained, that during the earliest periods of life, food is thus influential in determining the general mortality, and failing that, in the development of Scrofula, we will now inquire how far that influence is continued in after life. And difficult as is the inquiry even in infancy, that difficulty will increase rather than diminish as we proceed; because in after years the action of many other causes than those which apply in infancy is associated with the influence of food. We have shown that in poor districts the proportion of scrofulous cases is unusually large, and that in such districts, (of which Melksham is a good example), want of proper food is the great privation to which the people are subjected. But it may be said, granted that the district is poor, and that Scrofula is prevalent, why select food as the cause when so many other agents are equally in action? It is true that deficient or improper diet is seldom unaccompanied by deficient clothing, and insufficient or ill-ventilated dwellings and l calities, as well as by other causes of disease, and it is not easy to assign to each its special influence. Yet it will

be shown hereafter, that where the health of numbers has been degraded, where Scorbutus and Scrofula have become rife, a change in the single element of food, all else remaining the same, has been sufficient to arrest the further progress of the disease. The experience of many persons with regard to Scorbutus and Scrofula, the records of certain Asylums in our own and other countries, and the Reports of the Inspectors of Prisons,* with respect to Scrofula, conclusively establish the power of food alone to check the progress, and even in some instances wholly to eradicate either of those affections.

But let us consider the question of the influence of food more in detail. Although man be an omnivorous animal, yet it will not be denied but that certain kinds and combinations of food are better adapted than others to maintain his body in health and vigour. It is true, that climate, and, perhaps, other influences may render alteration in diet necessary. What may maintain vigorous health in the Esquimaux, would induce disease in an inhabitant of the torrid zone. There is no universal standard by which we can measure the quantityor quality of food best adapted under every circumstance to man's wants. What is best under one train of circumstances may be worst under another. For example, the Esquimaux requires a supply of from seven to fourteen pounds of blubber to support a vigorous existence; whilst a moderate supply of rice will enable the Hindoo to endure much fatigue; yet because the blubber is best suited to one, and the rice to the other, we are not justified in concluding that either is the most appropriate food for the natives of central Europe. Again, the population of the Rural Districts of England live longer than that of towns. According to the experience of Friendly Societies, the expectation of life in Rural Districts, at 30, is 38.4 years, and in Cities 32.8 years. Of the total population living at the age of 10, one half will have disappeared in Cities before the age of 62. And

* See various Reports of Inspectors of Prisons.

in Towns before 65, whilst in Rural Districts half the population will attain nearly 69 years.

Now the rural population of this country subsists on a much less highly animalized food than the population of our towns, yet that fact would not justify us in saying, that the inhabitants of towns might safely lessen the quantity of animal food they consume, and that their health would be improved by the change, or that the rustic would not be stronger and better, could he obtain a larger supply of animal food. All that we are justified in saying is, that the value of life among the peasantry is greater than among the inhabitants of crowded towns; not that it might not be made better, by better food; nor even that amongst the dwellers of the country less Scrofula is found than amongst the inhabitants of our towns.

Whatever may be best within the tropics, or in the arctic circle, I believe that in temperate countries, and especially in our own, an admixture of animal and vegetable food is essential to the perfect nutrition of the body. Bread alone is sufficient to sustain life, but it is evident that it is not enough to develop fully the bodily energies; of this many proofs might be given.

Although it be true that the consumption of animal food in a Factory Town is much greater than in the adjacent Rural District, that circumstance must not be taken as an evidence that the townsman is properly fed. The consumption of a large quantity of animal food does not necessarily imply proper feeding. On this subject I will here adduce the opinion of a man whose opportunities of observing the habits of factory operatives were very favourable—Dr. Baron Howard. In his pamphlet on the morbid effects of deficiency of food, he says: "the following observations on the morbid effects of deficiency of food have been made, almost exclusively, among the manufacturing population, and as these effects are very considerably influenced and modified by the habits and mode of life of this class, a few preliminary remarks on the subject may not be irrelevant,

inasmuch as those who are not familiar with the usually delicate state of health and enfeebled constitutions of these people, would be surprised at the serious evils which result from what might be considered no intolerable deterioration in the quality, or diminution in the quantity of their diet.

"With the exception perhaps of a few particular branches, I think it will be generally allowed, that the earnings of those employed in manufactures, are adequate, with prudence and economy, to provide a sufficiency of wholesome food and clothing, and to procure all the necessaries of life. But these classes are notoriously improvident; even in times of the greatest prosperity, they rarely show any disposition to practise economy in the management of their household, or have the prudence to make any provision for periods of sickness, or other accidental causes, which may occur to put a stop to their earnings. A large proportion of those who regularly receive high wages, are constantly in a state of the greatest poverty, and often bordering on actual starvation; their houses are almost destitute of furniture, comfortless and uncleanly; too often damp, cold and ill-ventilated. Their families are ill-fed, scantily clothed, and badly lodged. They live much on innutritious and indigestible food, and often use articles of bad quality, or such as are rendered unwholesome by adulteration, or by being kept too long. They are extremely intemperate in their habits, and instead of purchasing wholesome food and proper clothing, the greater part of their wages is often expended, by anticipation, at the public house. The effect of the intoxicating liquids they consume, is of course to produce a temporary excitement of the whole system, which is succeeded by a corresponding depression; they lose all relish for plain nutritious food, and their appetites can be stimulated only by something savoury and piquant. This kind of diet does not afford sufficient nourishment to repair the losses the body is continually sustaining; great languor and debility are the consequence; for the removal of which

stimulants are again had recourse to, and thus an alternately excited and depressed state of the system is kept up. By this mode of life too, the digestive organs become impaired, and the function of digestion is so feebly and imperfectly performed, that even much less nutritive matter is extracted from the indigestible and impoverished diet they use, than would be the case if the stomach and its appendages were in a healthy and vigorous condition. Those circumstances, together with the want of an abundant supply of good air and a proper amount of exercise, are sufficient to show, that even in times of the greatest prosperity, a large proportion of the manufacturing classes is far from being in a state of vigorous health, and that many of them are on the verge of actual disease. And it must be acknowledged, that even when the utmost precautions are taken to avoid the accession of disease, and the most judicious means are adopted to preserve their health, they will necessarily be less robust and more delicate in constitution than those inhabiting the country. When to their often deleterious occupation is added their bad lodging, their habits of dissipation, an alternation of suffering and excess, their consequent poverty and destitution, their inattention to cleanliness and domestic comfort, and the neglect of important hygienic measures, we cannot wonder at their imperfect health and enfeebled constitutions." And again, "Scrofula in all its varied forms may be mentioned as one of the commonest diseases prevalent among the destitute poor, and which frequently originate in deficiency of food." Still, irregular as may be the mode of life of our factory operatives, it produces less Scrofula than is found in Rural Districts; their habits, therefore, tend rather to destroy life than to produce Scrofula.

My own researches have shown me poor districts in this country, where the marks of Scrofula prevail to the extent of 72 per cent., and others, less poor, where similar marks are not found in more than 11 per cent. of the

population. So, in the Tables of the Registrar-General, there are districts where the mortality from Scrofula does not exceed 1 in a given number, and others where it amounts to 19 in the same number.

Carmichael* adduced important evidence as to the tendency of bad feeding to produce Scrofula, he says: "Some years ago, I had a very melancholy but convincing proof of the effects of improper food in producing Scrofula upon five or six hundred children in the House of Industry, of all ages, from a year old to puberty. The diet of the children consisted of coarse brown bread, stirabout, and butter-milk, in general, sour, for breakfast and supper; of a mixture of potatoes and esculent vegetables, (either cabbage or greens), for dinner; and sour butter-milk again for their drink. They were confined to their dormitories and school-room, of insufficient extent for their number, there being no play-ground for the children, consequently they were deprived of that exercise, so natural and necessary for the development of the frames of young animals, and which might have enabled them to digest, in some degree their wretched and unwholesome diet. Under this cruel mismanagement, they lost all spirit for exercise or play; and on visiting the rooms in which they were incarcerated, the air of which was impure, to a degree only to be compared to jails of former times; these wretched little beings were seen squatted along the walls of their foul and noisome prison, resembling in their listless inactivity an account, I have somewhere read, of savages met with in Australia; their faces pale and bloated, and their stomachs, as they sat, nearly touching their chins. On a closer examination of these children, it was found that in general the upper lip was swelled, the tongue foul, or sometimes of a bright red, (indicative of acidity of stomach), the breath offensive, the nostrils nearly closed by the swelling of the

* Lectures on Scrofula.

mucous membrane, the abdomen tumid and tense, and the skin dry and harsh; but that which most appertains to my present subject, the cervical glands were more or less swelled and tender; and I am within bounds when I assert that nearly one half of those unhappy children, had thus the characteristic signs of Scrofula in their necks."

In order to test the influence in early life of food in inducing or arresting Scrofula, I have collected extensive materials for a comparison between children in Union Houses, and in certain Charitable Institutions in our own country, and a similar class, less well fed at their own homes; and for comparing, in other countries, the condition of children in establishments where the food is good and sufficient with those where it is not so, and for showing the influence of improved diet upon the failing health and strength of persons under confinement.

The first establishments to which I shall call attention, are Union Houses, and the observations which I am about to make, refer to children found in them.

The food on which the inmate of the Union House subsists is, I conclude, represented by one of the following Dietaries. Of the six Dietaries contained in the Poor Law Circular, I extract the highest and the lowest; in the former, every able-bodied pauper gets weekly, 116 ounces of bread, 6 pints of soup, 18 ounces of meat, besides $10\frac{1}{2}$ pints of gruel, 24 ounces of suet pudding, and 14 ounces of cheese; in the latter, 102 ounces of bread, 8 ounces of meat, 2 pints of broth, 13 ounces of cheese, 38 ounces of yeast dumpling and suet pudding, and 24 ounces of potatoes. And for children under nine years old, the common direction is, that they are to be dieted at discretion.

The dietary for children above nine is, as nearly as may be, the following. Highest, 70 ounces of bread, $10\frac{1}{2}$ pints of gruel, 15 ounces of meat, $4\frac{1}{2}$ pints of soup, $4\frac{1}{2}$ pints of broth, 12 ounces of suet pudding, $1\frac{1}{2}$ lbs. of potatoes, 8 ounces of cheese. Lowest, 98 ounces of bread, 14 ounces of cheese, 10 ounces of meat pudding, 20 ounces of suet pudding.

The condition of the independent labourer in Norfolk and Suffolk will be fairly represented by the following statement furnished me by a clergyman, who has taken much pains to inform himself of the condition of the peasantry in those districts.

" The common estimate among the peasantry is for bread, 1 stone of flour for each grown person, ½ a stone for each child, a week. It is, however, clear that this must be subject to great variations; I am inclined to think it the minimum, where there are sufficient means. Butchers' meat may be said not to enter at all into consumption as an article of food. A part of a pig, when they can afford to keep it, is a luxury; 2 or 3 stone reserved after harvest is, I think, all that the most prosperous in this parish have done. Butter is here constantly bought, a pint when it can be afforded, ½ a pint always, if possible; 1 lb. of cheese may also be set down as a regular weekly supply. I enclose you a couple of papers, containing a very exact account of the gains and expenditure, during the past year, of two large families in the parish; and the mode of existence among the peasantry is so similar, that they may be taken as a general view of the subject.

Family: man and wife; 4 girls, from six to twelve; 1 boy, three.

£. s. d.		£. s. d.
Total income 31 4 0	Rent	2 10 0
	Rent of ground	0 11 0
	Shoe bill	3 3 6
	Club	0 12 3
	Children's clothes	1 1 0
	Weekly expenses, as below	21 13 3
		£29 11 0
	WEEKLY.	
	3½ stone of flour, 1*s.* 8*d.*	0 5 10
	Yeast and milk for baking	0 0 3
	½ lb. candles	0 0 3¼
	½ lb. soap	0 0 3
	Tea 2*d.*, sugar 3½*d.*	0 0 5½
	Butter 6*d.*, cheese, 3*d.*	0 0 9
	Sundries	0 0 6
		0 8 3¾

Man and wife and 6 children.

	£. s. d.		£. s. d.
Total gains	34 2 8	Rent of house	2 10 0
		Rent of ground	0 11 0
		Shoe bill	3 5 0
		Tools	0 17 6
		Weekly expenses . .	24 18 3
			£32 1 9

WEEKLY.

$3\frac{3}{4}$ stone of flour, 1*s.* 8*d.* . .	0	6	3
Tea 4*d.*, soda 1*d.*, soap 3*d.* . .	0	0	8
1 pint butter 1*s.*, 1 lb. cheese 7*d.* .	0	1	7
Sugar $3\frac{1}{2}$*d.*, candles $3\frac{1}{4}$*d.* . .	0	0	$6\frac{3}{4}$
Sundries	0	0	6
	0	9	$6\frac{3}{4}$

Nothing for milk, coals, bacon, meat, clothes, (except shoes).

It appears by the Reports of the Agricultural Employment Commission, "That in Wiltshire, the food of the labourer and his family, is wheaten bread, potatoes, a small quantity of beer, but only as a luxury, and a little butter and tea. To this may sometimes be added, cheese and bacon; but I am inclined to think that the use of bacon only occurs where the earnings of the family are not limited to those of the husband. In Devonshire and Dorsetshire, when the labourer is in constant employment, more bacon is used." In Somersetshire, the food is similar to what is obtained in Wiltshire. In Lincolnshire, it would seem to be somewhat better; but even there, what was said by Mr. Howman, is no doubt strictly true, "that no independent labourer can obtain the diet which is given in the Union Workhouse." In Yorkshire and Northumberland, Sir F. Doyle says "the food consists chiefly of oatmeal porridge, bread made of barley and pea-meal mixed, potatoes, and occasionally bacon."

To ascertain how far Scrofula prevails in Union Houses, 9342 children, the inmates of 63 Houses, in different dis-

tricts, were examined; and of these, 2139, or nearly 23 per cent. presented marks of Scrofula.

In a large town, I examined 784 children in endowed, and other schools, who for the most part had been well cared for before admission, and judiciously managed afterwards; and the "marks of Scrofula" could be detected in 127 instances, or 16 per cent.;—500 children in National Schools, brought up at home, of whom the most part were not well fed and lodged; and of these 164 or 32 per cent. bore similar marks of Scrofula. And 500 children examined in Workhouses yielded 126, or 25 per cent. bearing marks of Scrofula.

If we compare the children in the St. Marylebone Workhouse with the children of the National School in High Street, St. Marylebone, there will be no question of the physical superiority of the former, for while the children in the Workhouse are affected with scrofulous swellings to the extent of $26\frac{1}{2}$ per cent. only, those of the National School are affected in the proportion of 32 per cent.

In the same districts with those of the sixty-three Union Houses, 22,704 children living at their own homes, or in Institutions other than Poor Houses, have been examined; of those, 8,353, or $37\frac{1}{2}$ per cent. had marks of Scrofula.

The dietaries of Union Workhouses, as contained in the Poor Law Circular, having been compared with the food of the agricultural labourer, and the prevalence of Scrofula in each condition having been shown, we arrive at this result, namely, that the Workhouse child is better fed, and less subject to Scrofula than the child reared in the cottage of the peasant: and when it is considered that many pauper children are received into the Workhouse when suffering and destitution have probably developed disease, and have almost certainly produced debility, the comparison is even less favourable for the child of the independent labourer, than the result which is shown by the numbers actually examined. Now with the exception of food and clothing, the Workhouse child enjoys no advantages, of which the child reared in the cottage is deprived. The rooms he

inhabits may be larger and better ventilated, but a greater number of persons is collected in those rooms, and the breathing space for each person may even be less than in the narrow limits of the cottage.

In making known the results of an extensive inquiry into the condition of our pauper children, I have no desire to influence opinion on a subject so prolific of controversy as the present or past administration of the Poor Laws. It must be remembered, that I have no concern with the supposed tendencies of the Workhouse System, to deteriorate the condition of the independent labourer, and that my investigations have been directed to the influence of paupers' dietary upon the health of children ; and believing, as I do, that the health of the child, and the vigour of the man, depend upon the sufficiency and nutritious character of their food, a still more liberal diet for pauper children than is at present afforded would, in my judgment, at one and the same time, better the health of our population, and be consistent with a sound national economy.

This view of the subject receives additional force from the strong evidence to be found in the Reports of the Inspectors of Prisons ; and the cases are very many, where prisoners have manifested glandular tumors under the discipline to which they have been subjected, and have quickly rallied under an improved diet.

Still more important is the confirmation of this view given by Dr. Baly, as the results of his experience at Millbank Penitentiary : he says, "A marked difference in respect of their general health and the number of them affected with scrofulous disease, is presented by the convicts sent to the central prison at Millbank, from different parts of Great Britain, preparatory to their transportation. By far the thinnest convicts, *and those having the largest proportion of unhealthy and scrofulous individuals* amongst their number, come from the Scotch prisons, in which the diet consists of a sparing allowance of vegetable and farinaceous food."

Similar in its nature is the evidence obtained from the Deaf and Dumb Asylum of London and that of Paris.

The information which was kindly afforded to me by Mr. Watson, the able Superintendent of the Deaf and Dumb Asylum of London, in so far as concerned the inmates of that establishment, is most important. A considerable proportion of the children thus afflicted are scrofulous, and it is found that a very generous diet is necessary to maintain them in health. M. Menière, the directing Physician of the *Sourds-Muets*, at Paris, informed me that at the time of reception, more than four fifths of those children bear evident marks of Scrofula, and that he had obtained information to the same effect from the principal Deaf and Dumb Asylums in Europe. Mr. Watson, without being able to state the proportion, is satisfied that it is very large. To enable the children to bear up against this taint, it has everywhere been admitted that a very generous system of diet is necessary. At the Institution in London, the diet is at present, bread and milk for breakfast; roast and boiled mutton and beef, "a couple of helpings if they like," for dinner; and bread and milk for tea or supper; and under that diet the quantity of scrofulous swellings is lessened until it has become stationary at 30 per cent.

The number of children I examined in that Institution was 262, of whom 77, or 30 per cent., had marks of Scrofula.

Another proof furnished me by Mr. Watson of the influence of food is this, that when children leave the Deaf and Dumb Asylum, to be apprenticed, or to return to their friends, a large proportion get into ill health and die, in consequence, as he conceives, of their being worse fed and clad than they were when resident in the Institution.

At Paris, in the Asylum of *Sourds-Muets*, the diet would seem to be still more liberal; and with the exception of Friday and Saturday, the fast days of the Gallican Church, the children have animal food, commonly twice a-day but it

is less substantial than that of the London Institution. Very admirable means are taken to keep their rooms at an agreeable temperature; they are judiciously clad, and sufficient time is allowed for relaxation. Under the system practised at this establishment, the number of scrofulous swellings is much reduced, and the present average is very small; but the inmates are less robust looking than the children in the London Asylum. I was assured by M. Menière, that although accidents, such as sprains, are very frequent, from the senseless violence with which they enter upon their games, yet he very rarely sees scrofulous inflammation result from such accidents.

The Registrar-General's Tables of Deaths for the four years ending 1842, show that although the deaths from Scrofula throughout England and Wales bear the proportion of 7.6 only to 100,000 of the total deaths, yet that the deaths from Scrofula amount to 18 in 100,000 of the total deaths, in the following districts, namely, Great Yarmouth, Caernarvon, Rye and Battle, Witney and Chipping Norton, Plomesgate, Melksham and Bradford.

Imperfect ventilation, or insufficient drainage, do not explain so increased a mortality from Scrofula as is evident in those districts. Poverty was at work, and cold and hunger were unquestionably the agents by which Scrofula was developed, and became thus unusually fatal.

I think, then, it has now been shown that in Great Britain, Scrofula is least prevalent where children and others are best fed, and although I by no means assume that the immunity is entirely owing to better feeding—because where much attention is bestowed upon the food, it is hardly likely that other means of maintaining health will be neglected; yet I would submit as a fair deduction from the foregoing evidence that food exercises a more important influence than any other agent in the production of Scrofula.

I have already shown, as far as this is practicable, that Scrofula is less prevalent in this country than it was

formerly, and I believe there has been a corresponding improvement in the food of the people.

Although every one would desire that the food of the labouring population were better than it now is, yet I have satisfied myself that during the last half century it has been better than it was for centuries before.* Animal food, the peasant seems never to have enjoyed largely, and his bread was of the coarsest kind, such as is at present the food of the peasant in most European countries. Within my own recollection, barley bread was the food of a large part of the labouring people in certain districts, even in England; but in the peasant's cottage good wheaten bread is now everywhere found.

The daily wages of the peasant, seem usually to have represented, about a twentieth part of the value of a sack of the corn he consumed; formerly this was rye or barley, now it is wheat. Twenty days' labour of the agricultural labourer may be estimated at thirty shillings; and for some years, the average cost of a sack of wheat may be taken at twenty-five shillings.

For the last twenty years, the rate of wages has implied a greater ability to procure the principal articles of prime necessity, than probably at any former period in the history of this country. And it would seem that a corresponding diminution has taken place in scrofulous diseases.

If those views, with respect to the influence of food, be correct, this truth should be conspicuously apparent in Ireland. In that country, it is unquestionable, that the food of the people is inferior to that of the population of England and Wales, for whilst among our own agricultural population bread is the staple food; in Ireland bread is rarely used by the peasant, with whom potatoes are the main support of life. It is stated in Mr. Hall's Report, that "It is matter of notoriety that meat is rarely, if ever, tasted by the peasant."

Mr. Hawley says: "That the potato is the staple food

* See Appendix.

of the peasantry. It is eaten at every meal and throughout all seasons of the year. A failure of the crop sometimes obliges them to use, though sparingly, other species of food, such as oatmeal, eggs, butter, lard, dripping and herrings." Where dairy farms abound, milk, after being skimmed, is also much used; "When the supply of milk fails, water becomes the only beverage of the working classes." It appears that the average quantity of potatoes consumed by an able-bodied labouring man, at each meal, is about $4\frac{3}{4}$ pounds, or $9\frac{1}{2}$ pounds at the two meals of breakfast and dinner; milk, $1\frac{1}{3}$ pints at each meal, making $2\frac{2}{3}$ pints a day. By an able bodied woman $7\frac{1}{2}$ pounds, and $2\frac{2}{3}$ pints.

The above calculation is made on the raw vegetable, and the waste in cooking is about two ounces in sixteen.

Let us compare the children of the Union Houses in some districts in Ireland and those of the out-door poor of the County of Waterford, with those in the Workhouses of London, as well as those of other districts in England.

Although the mortality from Scrofula and its prevalence, in the Dublin Union Houses has not been clearly ascertained, it is certain that in 1840 the disease was very rife, and was, as stated by Dr. Kirkpatrick, largely engendered in the establishment. Dr. Duncan says, "I remember no case in which, upon examination after death, scrofulous tubercles were not found in some part of the system; and to better the condition of the children, the principal suggestion of Drs. Kennedy and Corrigan, who were directed to investigate and report upon the subject, was to improve the diet, both of mothers and children.

Among the children examined by Dr. D. Griffin at the Limerick Union House, the marks of Scrofula were present in 55 per cent., and in a better class in the town, to the amount of 52 per cent. Now in point of crowding and bad ventilation, the juvenile population of Limerick is not worse off than many districts of this metropolis; and yet, the marks of Scrofula are present in 55 per cent. of the former, and in only 23 per cent. of the latter.

The examination of the people of the Portlaw District, in the County of Waterford, was kindly made for me by Dr. Martin, and it strengthens the opinion I have expressed.

"In 100 children, under thirteen years of age, of people of the poorest class, not employed in factory labour, 17 had fair hair and blue eyes; enlarged glands were to be felt in the necks of 83, and 2 had suffered from necrosis of the tibia. In 50 children, under 13, in the class of small farmers and petty shopkeepers, 28 were of fair complexion and grey eyes; enlarged glands were detected in 18 of the 50; 1 suffered from morbus coxæ. In 60 children, under 13, belonging to parents of the poorest class of factory operatives, 8 had decidedly fair complexion and blue eyes, the majority had light brown hair and grey eyes; enlarged glands were to be detected in the necks of 37; 1 had a scrofulous cicatrix, and 1 was suffering from white swelling. In 60 children, under thirteen years, of the more comfortable class of factory operatives, 8 had decidedly fair complexion and blue eyes; enlarged glands were to be detected in the necks of 26. In 100 girls, between fourteen and eighteen, employed for more than a year at factory labour, 9 were of decidedly fair complexion and blue eyes; enlarged glands were to be detected in the necks of 79, scrofulous cicatrices in the necks of 2; marks of necrosis in 4, namely, in 2 instances affecting the femur, in 1 the tibia, and 1 the metacarpal bone. In 100 boys of the same ages, 14 were of decidedly fair complexion and blue eyes; enlarged glands were to be detected in the necks of 71; none had cicatrices in the neck; 3 had necrosis of the tibia, 1 of the humerus." Altogether 470 children, under eighteen years of age; of whom 315, or 67 per cent., had marks of Scrofula—14 having scars.

This evidence, including as it does the examination of the children both out of and in, Union Houses, the evidence derived from the Registers of Dispensaries, (Limerick excepted, where there is a large general mortality, and a consequent smaller prevalence of Scrofula), and the condition of Recruits; con-

firmed too as it is, by all the information I have obtained from that country, and compared with that of England and Wales, can leave no doubt of the influence of food to induce Scrofula.

In further corroboration of that influence, I shall now introduce very important evidence derived from Institutions for children in other countries.

At *Amsterdam*, in the *Orphan Asylum*, the diet is as follows: for breakfast, a slice (" une beurrée") of black bread; those under seven having white bread; for dinner, meat once a-week, rice three times, leguminous vegetables three times; for supper, a slice (" une beurrée") of bread, or some milk.

At *Lisbon*, at the *Casa Pia*, the food is principally salt-fish and beans stewed, or made into soup.

At *Munich*, *Orphan Asylum*, the morning meal on Wednesdays and Thursdays, is milk-soup; other days, water-soup boiled with onions and schmalz. At noon, rice or barley-soup, with boiled beef, twice a-week; dumplings, sourkrout, and water-soup, on other days. The evening meal in winter is, Sundays and Fridays, boiled potatoes and half-a-pint of beer; on the other days, soup with schmalz, and a piece of bread. In summer, it is, Sundays and Fridays, salad and radish; on the other days, soup with schmalz, and a piece of bread.

At *Berlin*, *Frederick's Orphan Asylum*, the breakfast is composed of rye-meal soup, and bread; the dinner, of beans, peas, lentils, potatoes, carrots, turnip-tops, cabbage, with $\frac{1}{4}$ lb. (raw), of cooked meat on Sundays, Mondays, Wednesdays, and Fridays; the little children receive meat daily. For supper, vegetable soup, bread and butter. The larger children have daily $\frac{3}{4}$ lb. of black rye bread.

At *Vienna*, the *Royal Imperial Orphan House*, the ordinary breakfast is composed of $2\frac{1}{2}$ ounces of bread, and a " seidel"* of soup. The ordinary dinner, beef-tea, boiled beef, vegetables, and $2\frac{1}{2}$ ounces of bread. The four o'clock meal, $2\frac{1}{2}$ ounces of bread. The supper, strong beef tea, and $2\frac{1}{2}$ ounces of bread.

* *Seidel*, a pint (German); or, $\frac{2}{3}$ of a pint (Rhenish).

At *Moscow Foundling Hospital*, all the information I have obtained as to diet, is that it is good, but more vegetable than animal.

At *St. Petersburg*, all the information furnished me by the Director, is that the food is of good quality, consisting of animal food, bread, and vegetables. M. Kohl says that the children have meat daily, with the exception of the fast-days of the Russo-Greek Church, and that on those days they have fish, kapusta, oil, and vegetables.

In *Greece*, the food of the children attending Mr. Hill's schools, was pulse, olives, bread, fruit, fish, cheese; very rarely indeed, meat, "perhaps five times during the year." After leaving the school, the cuttle-fish (sepia) is a good deal eaten.

In *India*, the food of the children is almost entirely vegetable.

In *Philadelphia*, the diet of the Alms House Asylum, consists of milk, coffee, tea, bread, sugar, rice, molasses, potatoes, beef, mutton, ham; and the general diet of the children attending the public schools is much the same. Meat, if not eaten once every day, is eaten at least five days out of the seven, and often twice in the day.

Let us now see whether the food of the children bears any evident relation to the prevalence of Scrofula in the Institutions I have named.

At *Lisbon*, of 800 children examined, 279, or 35 per cent. were scrofulous.

At *Munich*, of 300 examined, nearly two-thirds were scrofulous.

At *Vienna*, of 412, coming under medical treatment, 45 were for Scrofula, a proportion four times greater than our own.

At *Amsterdam*, of 495 examined, 209, or 42 per cent. were scrofulous.

At *Berlin*, of 230 examined, 129, or 56 per cent. were scrofulous.

At *Paris*, of 132 orphans examined, 56, or 42 per cent. were scrofulous.

At *St. Petersburg*, at the *Imperial Foundling Hospital*,

the proportion of scrofulous cases is returned at 249 out of 840, or nearly 30 per cent.; but I am inclined to think, if all cases had been included in which the finger could detect a sensible enlargement, the number would have been much greater, because of the 840 cases, 26, or 3 per cent. are returned as presenting scrofulous ulcers or sinuses, a proportion double that which is found in our own institutions. Five times a week they have animal food. "The Foundling Hospital of St. Petersburg," says Laurent, "accommodates 18,000 children. Under the Chief Physician, M. Doepp, every thing which is humanly possible is done for the preservation and the education of the children. The ordinary receptions are 5000 annually, the usual number of nurses 800, part of them engaged in suckling the children, others in waiting for new arrivals. These women usually remain five weeks in the establishment, and do not leave it until the children entrusted to them are vaccinated. In spite of all this care, a large number die annually. From 1822 to 1831, a period of ten years, out of 39,114 admissions, there were 31,779 deaths; and, it is said, the proportion of deaths among new-born children of the poor in the same district is greater, when cared for by the parent. For the district of Moscow the mortality under 5 is 854 out of 1000. In St. Petersburg it is 816*. Those who survive are maintained in the Institution until they are twenty, when they are discharged, well educated and knowing some profession. Whatever talents they manifest are cultivated; music, painting, dancing, &c." The severity of the climate of St. Petersburg appears to be very inimical to infant life, and it is evident that a large number of weakly children who might, in other countries, continue to live and bear about them the marks of Scrofula, are here speedily cut off. This, of itself, would lead us to expect that scrofulous children, after six years of age, should be less commonly seen there than if the infant mortality were less severe.

The mortality in the Foundling Hospital of St. Petersburg

* Herrmann, Ann. d'Hygiène, T. XIV.

appears very large, and so it was at one time; in our own Foundling Hospital, when in consequence of a resolution of the House of Commons, in 1756, the admission was indiscriminate for a time; but although it only lasted for three years and ten months it is said, the consequences of this general admission, "were indeed lamentable." The Governors having neglected to provide themselves with proper means of rearing so many children during the most critical period of human life, by far the greater number of the infants admitted under the new system, died. Of 14,934 children received during the three years and ten months, no less than 10,389 perished in early infancy.

At *Moscow*, of 15,515 children examined, 1294 had marks of Scrofula, obvious on simple inspection. The fact certainly is, that at Moscow, with a mean temperature of 3^0 $6'$ Reaumur, the proportion of scrofulous cases is less than at Lisbon, with a mean temperature of 66, at Munich, or Berlin, in India, or even in some parts of our own country.

In the schools of *Philadelphia*, 2998 children were examined, of whom 13, or less than $\frac{1}{2}$ per cent. had marks of Scrofula.

In *Greece*, according to Mr. Kayes' examination, of children in the district of Athens, 26 per cent. were scrofulous;—according to the notions of the Greek surgeons, 19 out of every 20 are so. Indeed, so satisfied are the natives of Greece of the prevalence among them, of the disposition to this disease; and so great is their dread of its effects, that, according to Mr. Kaye, as soon as a child attains his eighth or ninth month, they scarify the back, parallel to the spine, with a razor, making from twenty to thirty incisions on either side, "to let out the bad blood."

In *India*, Dr. Spry examined a school of 509 native children, of whom 300 had marks of Scrofula.

The *London Orphan Asylum* I cannot compare with similar establishments of the other countries of Europe, because the authorities of that Institution declined to allow me to examine the children. Without presuming to find fault with

such a decision, I may mention that it is the only Institution in Europe or America, in which, upon a similar application, to make the necessary investigation, permission was withheld.

I think the evidence now adduced must produce a belief, that whether children are brought up in town or country, whether their accommodations as to space be ample or confined, whether born of healthy or unhealthy parents, the influence of food in the production of Scrofula is most important, and that the extent to which it prevails, has a very evident relation to the diet of the child.

INFLUENCE OF PARTICULAR KINDS OF FOOD IN THE PRODUCTION OF SCROFULA.

An opinion has been expressed, that a tendency to Scrofula is less frequently produced by coarse and inappropriate, or insufficient food generally, than by the use, for food, of particular substances. Indeed, there is scarcely an article of food in common use which has not been charged with inducing Scrofula. Bordeu conceived that even milk produced the disease; whilst Wiseman believed it to be an excellent anti-scrofulous agent.

Haller mentions it as the common opinion in his time, that the people of Göttingen owed the prevalence of Scrofula to the extensive use of potatoes. Although the proof may not be complete, that the use of potatoes, as the staple article of food, tends to produce Scrofula, it has been made extremely probable that they afford insufficient nourishment; and it is certain that in Ireland, where they are largely and exclusively used, Scrofula is more prevalent, and the value of life less than in England. Reference has been made by some authors to the Bussorah porters and the boatmen of the Bosphorus, whose diet consists of vegetable matter, and who are capable of great exertion, but whatever may be the truth of the statements made on this subject, and to whatever degree those men can endure fatigue and support labour, without the

stimulus which animal diet affords, we must remember how different is the climate they inhabit from that of our own country, and how far removed is their social condition from that of our own labouring poor.

That those who live almost exclusively on vegetable food in this country are less robust, and exhibit a greater tendency to Scrofula, than those who subsist on an admixture of animal and vegetable food, is, I think, true. Our own rural population, as well as that of Scotland and Ireland, bear out the assertion. But, although it has been shown, that insufficient and improper food, however associated, may lay a foundation for that disease, we have in truth, no conclusive proof that any particular article of food directly tends to the production of Scrofula.

INFLUENCE OF A CONTAMINATED ATMOSPHERE IN THE DEVELOPMENT OF SCROFULA.

Before I proceed to estimate the extent to which Scrofula is developed by impure air and insufficient ventilation, I will shortly consider the influence, which those agents exercise upon the general mortality; and should it be thought that I have given to this preliminary inquiry more prominence, than the general question ought to assume, in a work professedly treating of a single disease, my excuse will be found, first, in the fact, that the general mortality bears a very direct relation to that from Scrofula, (inasmuch as where the one is large the other is small), and next, in the practical importance of correct views of the nature and extent of atmospheric influence on human life, more especially at the present moment. The overcrowding of our densely peopled districts is said to be a fruitful agent of disease, and estimates have been made to show that many thousand deaths occur every year from this cause alone. Public attention is thus strongly directed to the subject, and the Report of a Royal Commission, by whom the question has been investigated, must soon be considered by the legislature. Believing, though I do, that exaggerated views are enter-

tained of the extent to which disease is generated by what is called overcrowding, as well as of the efficiency and value of any measures for the amelioration of that evil which can be ensured by legislation, I would approach the consideration of the subject, in no controversial temper, but with a sincere desire by calm and patient investigation, to promote the best interests of humanity, (as those interests ever must be promoted) by the discovery of truth.

When it was shown that the mortality of Towns is much larger than that of Rural Districts (the ratio of such mortality being represented by the respective numbers, 2.733 and 1.906), inquiry was naturally directed to the discovery of some malignant agent, to which the town population was peculiarly subject; and as it was evident that there was crowding in towns, it was assumed that crowding implied the existence of an impure atmosphere, "because human beings must corrupt the air they respire." That condition was, therefore, assigned as the exclusive cause of the larger mortality of towns; although, if the question had been sifted with more care, that excessive mortality would be found either not to be real, or to result from the combined influence of many causes rather than the exclusive agency of one.

If we adopt the selection made by Mr. Farr to show the comparative mortality in Towns and Rural Districts, we find the question stated thus: of twenty-five towns, excluding the metropolis, and having a population of 1,883,693 souls, the deaths amount to 2.733 per cent.; whilst in Rural Districts, having a population of 3,440,501, the deaths amount to 1.906 per cent.

The result of the comparison made by Mr. Farr is this, namely, that in contrasting certain town populations, with certain Rural Districts, the mortality of those towns exceeds, by nearly 50 per cent., that of the country districts with which they were compared. But overcrowding cannot be assigned as the exclusive cause of that excessive mortality, unless it be

found to operate uniformly, and to act in a direct ratio to the density of the population. Now whilst the population of the Metropolis in each square mile is greater than that of Bristol or Leeds, the mortality of those towns is greater in proportion to the population than that of the Metropolis.* And the proportion which the deaths, under five years of age, bears to the whole population, is less in the Metropolis, than in Sheffield, Leeds, or Exeter; is less in Manchester than in Sheffield, Leeds, or Exeter; and is less in Liverpool than in Sheffield, although the Metropolis, Manchester, and Liverpool are more densely peopled than the towns with which they are respectively compared.† And if we compare certain districts of the Metropolis with each other, we find, that in the Unions of East and West London, St. James's Westminster, St. Martin's-in-the-Fields, St. Giles's, Holborn, and the Strand, there is the least space and most crowding, and the mean mortality is 2.6 per cent., the highest mortality being 2.95. On the other hand, there are sub-districts, less crowded, where the mortality averages 3.2, and in one case amounts to 3.6 per cent.; whilst in Bethnal Green, to which attention

* Metropolis, 1838-42		2.563	per cent.
Bath	(seven years' average)	2.435	,,
Leeds	,,	2.591	,,
Bristol	,,	2.911	,,
Manchester	,,	3.273	,,
Liverpool	,,	3.368	,,

† In Herefordshire the proportion which the deaths under five bear to the living is	3.8
,, Devon ,, ,,	4.3
,, Suffolk ,, ,,	5.2
,, Bethnal Green ,, ,,	7.9
,, Metropolis ,, ,,	8.8
,, Manchester ,, ,,	9.2
,, Exeter ,, ,,	9.3
,, Leeds ,, ,,	9.9
,, Liverpool ,, ,,	11.2
,, Sheffield ,, ,,	11.8
,, Dublin ,, ,,	12.54

is usually called as the most unhealthy portion of the Metropolis, the mortality in the several divisions varies from 2.7 to 2.2 per cent. only; so that if the mortality of a sub-district be adopted as a test, the salubrity of Bethnal Green is equal to that of the most favoured parts of the Metropolis.

The *arrondissement* in Paris, in which, with one exception, the population is the most crowded, is the second, and the mortality is there the least, being 1 in 71. The quarter in which, with a single exception, the population is least crowded, is the eighth, and with one exception, the mortality is there the largest, being 1 in 46. Thus, the quarters in which the mortality is the largest are amongst those where the streets, gardens, and public places are the most spacious and airy, and *vice versâ*. Again, the eighth arrondissement, the district where, with a single exception, the crowding is least, the space for each person is $46\frac{51}{100}$ square mètres, and there, as has been already stated, the mortality is, with one exception, the largest. The densest crowding is to be found in the fourth, where the space for each person is $6\frac{56}{100}$ square mètres, and, with three exceptions, the mortality is there the least, being 1 in 62. From 1822 to 1826, the annual mortality of the six arrondissements where the population has most space, was 1 in 57; and in the six where they had the least, 1 in $59\frac{1}{2}$.*

The arrondissements of Paris in which the payment of impost is the least, in proportion to the population, and therefore where poverty is the greatest, are the eighth and the twelfth, and there we find the mortality the greatest; and this result is obtained wherever we can apply the test of destitution.

In the second arrondissement, the proportion of untaxed houses is 0.07, and the deaths, 1 in 62. In the twelfth, the proportion is 0.38, the mortality, 1 in 43. It is, unfortunately, not always easy to apply this statistical test

* Villermé, Annales d'Hygiène, tom. III.

satisfactorily, because the population in two given districts, though comprising all classes, may have those classes in different proportions; there may be much poverty, but there may be also much comfort or wealth, and the data with which we are furnished, apply to all the persons indiscriminately in each district, but do not represent any single class.

Manchester, for example, is an unhealthy town, the mortality being 1 in 29. Now, supposing we select, for comparison, a densely peopled and confined part of that town, in the vicinity of a large factory, in which employment is constant and the earnings moderate, so that the people are in comfortable circumstances; whilst in another part of the town, less densely peopled and less confined, where the bulk of the people have no constant work, where their earnings are small, and they can scarcely procure the bare necessaries of life. In the former, the mortality will probably be less, the general health better. And yet, in so far as the influence of a contaminated atmosphere would operate, the condition of the latter was the best. I put this case, not as a proof that insufficient food is the cause of increased mortality, but to illustrate the difficulty of the investigation in which we are engaged.

But our observations must not be confined to the comparison of one town with another, and their more or less crowded populations, nor to the contrast of the straggling population of Rural Districts, with the dense masses of Towns; we will therefore refer to extensive districts which present, in so far as crowding is concerned, fair materials for comparison.

Thus, the South Midland district comprises the agricultural part of Middlesex, Hertfordshire, Buckinghamshire, Oxfordshire, Northamptonshire, Huntingdonshire, Bedfordshire, and Cambridgeshire. In this district there are few factories, and no great crowding; the people are principally employed in agriculture, the population is 1,152,000, the mortality is 2.076 per cent. The South Eastern district comprises a

part of Surrey, Kent, (excluding Greenwich), Sussex, Hampshire, Berkshire; the population is 1,542,000, the mortality is 1.877 per cent. The South Western district, which in so far as crowding is concerned, is less favourably situated, comprises Wiltshire, Dorset, Devon, Somerset, and Cornwall; the population is 1,740,000, the mortality is 1.872 per cent.

The results obtained by comparing the general mortality with the population in different localities may be thus generally stated: Over-crowding exercises no such direct agency upon health and life, as that we can determine its actual influence in any given district, with relation to the density of the population, and whatever may be the amount of such agency, it represents one only of many combined elements, acting upon our town population, some one of which, in its separate influence, is greater than that of over-crowding.

Now, is this conclusion materially modified by comparing the rate of mortality and value of life between the different sexes and classes of society?

And first, as to the sexes, woman is more exposed than man to the agency of confined rooms, and to the influence of an impure atmosphere, and yet female life has been usually considered of superior value to that of man.

And next, as to the comparison which has been made between the different classes of society, the result of which seems to me of a very high value, because the very highest and the middle classes of society in this country are either altogether removed from the unfavourable influences which imperfect sewerage, ill-ventilated and filthy courts and alleys, and confined and over-crowded rooms exercise on respirable air, or are subjected to those influences in a very slight degree only. And yet it has been already shown, that at the age of thirty, the expectation of life is in the Peerage 30.9; amongst the Gentry, 31.2; amongst Professional men, 33.9; and for the general population of England and Wales, 34.1: completely reversing, therefore, a very favourite doctrine.

The results of Mr. Neison's examination of the data supplied by Friendly Societies towards determining the value of life amongst their members, have a yet more important bearing upon the question now under consideration, because those societies are composed of the more provident of the labouring population, whether agricultural, mining, or manufacturing, and whether found in over-crowded towns or in rural villages. The extremes of society, whether as represented by the very destitute or the elevated, are wholly, and the middle classes are generally excluded; and we have thus the hard-toiling artisan of our towns, and the industrious peasant of our fields, whose necessities are moderately supplied, and who are protected by provident habits against the vicissitudes and alternations, which exercise so baneful an influence on the health and life of the reckless and improvident amongst our town population; and the results may be thus stated.

The expectation of life is greater in those classes of our industrial population who cultivate provident habits, than in any other class of society in Great Britain.

And by employing the data furnished by the Returns of Friendly Societies, this further result is obtained, that if we exclude agricultural labourers, and divide the remaining members into two classes, those who are engaged in out-door occupations on the one side, and those who are engaged in in-door occupation on the other, the value of life at 40 is $3\frac{1}{2}$ years greater amongst the class which is confined by its employment within-doors; and this although it must be obvious that the in-door labourer is most exposed to the influence of bad air.

The subject is so important, that I may be pardoned for introducing here lengthened extracts from Mr. Neison's very able paper.

"The circumstances in which the humble and working population of the country is placed, have generally been thought adverse to a prolonged duration of life: but the healthiest Life Tables hitherto formed, have not shown any

thing so favourable as the present results, deduced from the operations of Friendly Societies, even among what are generally considered the select classes of society :—

"It may be well to be understood here, that the persons composing Friendly Societies, are almost exclusively the hard-working members of the community, chiefly occupied in the drudgeries and toils of the mechanic arts, and consequently exposed to the inclemencies of seasons, excesses of temperature, impure atmospheres, constrained postures, and other conditions, usually thought objectionable. Their incomes are very limited, affording but the scantiest and simplest means of support. Their habitations are of an inferior order, being of the cheapest kind, and consequently in the worst streets. The members of Friendly Societies are therefore generally placed in those circumstances which persons habituated to the luxuries of the upper ranks of society would regard as unfavourable to health and to a superior duration of life. In making these remarks, however, it is necessary, as will hereafter be seen, to make a distinction between them and the great bulk of the poorer classes of the country. For an individual to remain a member of a Friendly Society, it is required that he should make his weekly or monthly contribution to its funds; and although a few pence is all that is needed, it presumes a certain amount of frugality and industrial habit, sufficient to separate him from the reckless and improvident person, who is more openly exposed to the vicissitudes—poverty, distress, destitution, and disease—incidental to the fluctuations in the demand for labour.

"The superior value of life among the members of Friendly Societies is a very remarkable and important feature in this inquiry, and is a result that generally would not have been anticipated; and the question which naturally follows is: From what source or class does the excess of mortality, which makes up the general average of the community arise?

"Those persons having transactions with Assurance Com-

panies belong, with a few exceptions, to the middle or higher ranks of society; and if the value of life, as deduced from observations in those companies, be admitted as a correct measure for such classes, it will be found that their duration of life is not only less than among the members of Friendly Societies, but also less than in the country generally.

"It may be said, in reply to some of the preceding observations, that the superior value of life in the ranks of Friendly Societies, above the general community, is owing to the effects of selection; but a little reflection will show that the difference must be produced by other causes. Every reasonable means is adopted to test the lives admitted into Assurance Companies, and yet they appear to be of less value than the general average of the country; and Friendly Societies are known *not* to exercise the same degree of scrutiny. In both, the interest of the applicant for admission is opposed to that of the Society; and, looking at the results, it is not unlikely that the vigilance of the one may be neutralized by the interests of the other. Another result, brought out by the observations on the lives in Assurance Offices, will show how inadequate the means of selection usually resorted to are, to raise the standard of life above the average of the country. All other inquiries hitherto made on male and female life, have tended to attach a greater value to the latter than to the former; but the results in the Assurance Companies have been reversed, showing that some other causes, beyond the method of selection, must have interfered to modify the state of health; for if the means of scrutiny had been adequate to determine the actual character and condition of health, the prevailing feature of each sex would have manifested itself, and the anomalous result of male life being of higher absolute value than female life would not have appeared.

"Assurance Companies, it has been stated, are likely to have proposals most freely from among unhealthy persons for sums

payable at death; but that proposals for annuities, or sums payable during life, will be made on the lives of the most healthy only; and that the private opinion of the individual being always brought to bear against the Company, the effects of selection, under this aspect, ought to prevent the results of such observations from being regarded as a true exponent of the value of life in the class of society generally to which those persons belong. There exists no published document, so far as Assurance Offices are concerned, to show whether this opinion is well founded: but there is evidence of the same kind—of equal, or perhaps from its greater extent, of higher value, than any to be drawn from the Assurance Companies. The tables calculated by Mr. Finlaison, on the lives among the nominees of the Government Tontines and annuity schemes, are here alluded to. The facts over which his observations extended possessed almost every advantage that could be desired; and, considering the acknowledged skill and care with which his computations were managed, the Government Table must be entitled to the highest confidence, and the expectation of life thence deduced regarded as the true measure of life, in that particular class of society.

"From a comparison of these data, then, it follows, that the male lives selected for the Government Annuities, are not only of less duration than those of the male population of the country generally, and also of less value than lives in Assurance Companies, but they are actually of less value than those of the members of Friendly Societies in the City Districts. It is evident from these results, that the presumed power of the individual to judge of his own state of health has not shown the remarkable effects anticipated; there is more reason to believe that the natural inclination with which every person is led to look upon his life as good, will very much influence any power of discrimination on his own chances of longevity. It is, however, to be kept in view, that persons of decidedly bad health will rarely purchase

annuities; and the exclusion of these has, no doubt, some effect in slightly raising the standard of the Table. A similar observation is also to be made with respect to the applicants to Assurance Companies. There is a strong temptation for those in really bad, or at least in indifferent health, to offer themselves for assurance; and if all were admitted, no doubt a lower value would be expressed by the Tables. The known caution, however, usually exercised in these matters, and the medical talent brought to the aid of the offices, is a protection against the very worst lives of that class; about 23 per cent. of the applicants being the average number rejected.

"Friendly Societies, although not equally solicitous, are still not without tests for the admission of members, and they possess one advantage over Assurance Companies; the members, and those likely to be candidates, are generally intimately known in their daily habits and ordinary health to each other; and where evidently bad health exists, admission is refused. A consideration of all that has been advanced will show that the greater vitality among members of Friendly Societies cannot be accounted for by the superior mode of selecting lives; for, if that argument were carried out to its full extent, it would go to prove that the other classes in question had, in that respect, the advantage. The blessing thus bestowed on the frugal and industrious workmen of the country, composing Friendly Societies, in having granted them, as appears by the present inquiry, a prolonged duration of life, must therefore be regarded as a really true and distinctive feature of that class of persons, and is no doubt the result of their simple and uniform habits of life, and the more regular and natural physical exercises to which they are habituated.

"Perhaps no statistical facts are better established, than the duration of life among the middle and upper classes of this country; and if the data brought forward in this paper be received as of sufficient merit to represent the duration of life among the working classes, it will then appear clear that any

important change to be hoped for in the value of life, in the Town Districts, must be effected through other means than sanatory regulations.

"Those persons purchasing Government Annuities, and having dealings with Assurance Companies, are certainly beyond the reach of any improvements to be introduced by local regulations; and if cleanliness of habit, comfort of dwellings, and fresh air, be of themselves powerful elements in raising the standard of life, their influence should be felt among that class of persons. But what are the actual results? The poor workmen inhabiting the miserable streets of our large towns, and inhaling their supposed noxious vapours, are actually longer lived than the affluent and upper classes, whose easy circumstances enable them to inhabit comparatively the palaces of the kingdom.

"It is evident from the great disparity in the value of life among different classes of workmen, whose conditions as to whatever is within the scope of public sanatory measures are the same, that other elements must exist having a powerful influence on the duration of human life. It would further appear, by viewing the various classes of society more in connexion with the physical exercises to which they are habituated than in connexion with their moral position and rank in society, and consequently with their sanatory condition, that a better clue will be found to the differences in the duration of life. It is not to be expected that any arrangements whatever as to the drainage and planning of streets are likely to add to the longevity of a tailor; but if it were possible to give to his frame the physical exercises of a ploughman, twenty per cent. would be added to the duration of his life. Neither is it to be thought that the plumber, painter, and glazier, is to be relieved from the poison of the metallic emanations to which he is subject; nor that the clerk can inhale the fresh air, and indulge in those exercises necessary to develop his physical constitution, while he follows the drudgeries of the counting-

house. It is an aggregation of these, and other employments similarly conditioned, which makes up the excessive mortality of our large towns; and since it has been shown in the preceding pages, that this class of lives is also less healthy even in the Country Districts, and that the Town populations are chiefly made up of persons following such occupations, the legitimate result to be expected, is a shorter duration of life in Towns, independent of any local influence on health. If improvements and changes are to be effected in the sanatory regulations of our large Towns and Cities, let them at once be carried out—not upon the necessity of such municipal innovations to avert a pestilential havoc in human life—but on the true merits of the question, the comforts, conveniences, and elevation of taste and moral purity thence arising."

Having thus considered the influence that may be exercised by an impure atmosphere upon the general mortality, it now becomes our duty to ascertain, as far as is practicable, its influence in the production of Scrofula. But before we enter upon that investigation, I will shortly inquire what changes the air usually undergoes in our crowded Towns. I say in the Towns, because the cottages of the peasantry may be as ill supplied with the means of ventilation, and the air may therefore become as much contaminated as in the wretched dwellings which have attracted so much attention in our crowded towns.

Now according to the Report of Dumas,* the proportion of oxygen in the atmosphere does not greatly change under any ordinary circumstances, the variation not exceeding in the same place the difference between 2290 and 2310. The observations of Leblanc† show, that under unfavourable circumstances as to crowding and ventilation, the change in the proportion of oxygen in 1000 parts of dry air, amounted to 4.7 The experiment was made in the Chemical Amphi-

* Comptes Rendus, t. XIII. † Ibid, t. XIV. p. 842.

theatre at the Sorbonne ; and before M. Dumas's lecture, the oxygen in 1000 pints of dry air, amounted to 224.3, after the lecture to 219.6. There were 900 persons present. The breathing space and means of ventilation, indicated 0.74 cubic metres for each person per hour. In the same place, and at the same time, the quantity of carbonic acid gas, to every 1000 pints of dry air, was, before the lecture, 6.5, and after the lecture, 10.3.

The air found in one of the lodging-houses in Calmeil Buildings, in the parish of St. Marylebone, however unpleasant to the sense of smell, is not found to have undergone any very decided change in its ordinary elements, or to have acquired any new elements cognisable by chemical examination.

Hufeland said that one of the most powerful and most frequent causes of Scrofula is, *bad air* ; by which he meant a cold, damp air, with privation of light ; an atmosphere where the temperature is very variable ; an atmosphere strongly carbonised, or charged with animal exhalations,—such as is found in the habitations of the poor, and in manufactories where great numbers of persons are collected together. "Therefore," he says, "a residence in the Country is very preferable to that in Towns. In fact, the larger and the more populous a Town is, the narrower the streets, and the higher the houses, the more frequent are cases of Scrofula." But in support of this opinion, he offers no evidence.

Baudelocque's views on the influence of the bad air which is assumed to exist in Towns, to produce Scrofula, are most decided, and the passages in which he enumerates these views shall be given in his own words : "Atmospheric air exercises an unceasing influence on the maintenance of life, and we know that respiration cannot be suspended without quickly destroying life. This air is continually modified, altered by everything which has life, by combustion, by combinations of all kinds, in which it participates. Still this air is com-

posed of the same principles, and so long as nothing interferes with its free circulation, those principles exist in the same proportions. But when it is isolated, separated from the rest of the atmosphere, imprisoned as it were, the respective proportions of its constituent principles are soon changed by respiration; the alteration it experiences renders it less and less proper to concur in hematosis; and this 'pabulum vitæ,' to use an expression of Hippocrates, becomes an aliment of bad quality. *Such is the true, perhaps the only cause of Scrofula.* If it has not always appeared to be present, it is because it has been overlooked, in consequence of the existence of some more apparent, and as it is supposed, more efficient cause. Before we go further we say, *that wherever there is Scrofula, there is bad air, that wherever there is bad air there is Scrofula, and that where bad air is wanting, there Scrofula is not known.*" Again: "The development of Scrofula is constantly preceded by a longer or shorter continued sojourn in an insufficiently renewed atmosphere. This cause is the only one to be always found, it may be isolated or united to other causes, which are only secondary. When we see, on the contrary, that this disease never attacks persons who pass their lives in the open air, always manifesting itself in those who sojourn in an atmosphere which is not properly renewed; whatever other influence may be present, we must admit that, the non-renewal of the air is a necessary condition, indispensable to the production of Scrofula. And it is not necessary that the sojourn in such an atmosphere should have been long continued; a few hours in the day may be enough. A person may dwell in the most salubrious country, may pass a great part of every day in the open air, and still become scrofulous, because he sleeps in a small, ill-ventilated room at night. Six to eight hours, out of the twenty-four, passed in a narrow, ill-ventilated cabin is enough to produce it in the shepherd, who is in the open air the rest of the day."

M. Baudelocque's ideas are so clearly expressed, and so

unqualified, he adopts in so uncompromising a manner the theory that impure air is not alone the sole, but the certain and necessary cause of Scrofula, and his authority has been so generally admitted, that it becomes an especial duty to sift the evidence by which this view of the disease is supported.

First, then, comes the statement of Richerand, that the greater portion of the scrofulous patients at St. Louis, come from the quarters, La Halle and La Cité, in the Faubourg St. Marceau, where the streets are narrow, and do not admit the sun's rays, where the houses are ill built, and the population is dense. Now this statement is so vague, and so entirely wanting in philosophical precision, that it is difficult to deal with such materials. There is no proof that the number of scrofulous patients coming from those districts, was greater than the number received from other districts in the same quarter, of similar extent and proportion; nor is there proof that the proportion of scrofulous patients, compared to the admissions, was greater in that quarter of the city than in others.

Richerand again remarks that no Town furnishes a greater number of scrofulous cases than Troyes, in Champagne; "The cause of which," says Baudelocque, "may be found in the disposition of the place, and in the mode of life of the inhabitants. All the streets are very narrow: the people are crammed, rather than lodged in their small rooms, and many are employed in the manufacture of cotton in places so small that the air is rapidly vitiated and rarely changed."

In this instance, as in the former, we are furnished with a statement founded upon that most uncertain of all data, vague impressions, often formed, and generally expressed, long after the cases have been observed, and wholly unsupported by that precise enumeration of individual cases which can alone give value to estimates of the prevalence of disease. But the next statement on which M. Baudelocque relies, in support of his theory, is obnoxious to a far graver censure even

than a want of definite enumeration, and is expressed in language so exaggerated, and in terms so inaccurate, that it is a matter of astonishment, so able a man should have committed himself to such a representation. He says: "The same causes of insalubrity which are found at Troyes are also found at Spitalfields, where the entire population is struck with Scrofula, owing to the disposition of their houses, which are eight stories high, and divided into a multitude of cells. In London, for example, there is a quarter called Spitalfields, where we find congregated mechanics and the poor. The whole population of that district is affected with Scrofula. We see only small, blighted, deformed men, as little like the inhabitants of other parts of London, as the Laplander of four feet is to the American Giant. The young man of twenty looks forty. We find no old man, unmutilated by scars, who is not, at the same time, decrepit and deformed; a straight spine is there a marvel; and a man more than five feet high is a giant! At the side of Spitalfields, is Whitechapel, where we see none but large, well-built, vigorous men. The same cold, damp, atmosphere exists in both places."*

I must apologise for introducing into an English work, representations of the condition of numbers of my fellow-countrymen so entirely erroneous, and known by them to be so; but as they are contained in the work of M. Baudelocque, and as recent circumstances have given to that work an unusual importance, I am justified in alluding to them. His views have received the approbation of Learned Societies in England, and been sanctioned by a Royal Commission, to whom was entrusted an inquiry into the health of the inhabitants of Towns. The Commissioners seem to assume, that bad air is the prevailing agent in the destruction of life, and a proposition was gravely submitted, that as a means of preservation against Scrofula, and other diseases, windows shall be provided with zinc plates, through the apertures of which, the atmospheric air shall be admitted into our dwellings.

* Page 117.

If any one will take the trouble as I have done, to examine with care the Schools for indigent children, or the condition of the adult population in the district of Spitalfields, he must come to the conclusion that there is no sensible difference between their appearance and that of the children or adults in Whitechapel. And if he inquire of the Medical Officers of the Hospital, or of the Dispensaries in those neighbourhoods, he will find, that so far "from the entire population of Spitalfields being struck with Scrofula, being small and blighted, and a straight spine being a marvel," there is no reason to think that Spitalfields has more than an ordinary proportion of Scrofulous cases, or that Whitechapel yields less. And should he refer to the Registrar-General's Report for 1841, he will find, that at Shoreditch, the total deaths for two years, were 4697, those from Scrofula, 6; Bethnal Green, 4106, Scrofula, 4; Whitechapel, 5207, Scrofula, 4; and that at St. Giles's and St. George's, with 22 square yards to each individual, the deaths from Phthisis and Scrofula amount to .478 per annum; while at St. James's, Westminster, with but 19 square yards to each person, they only amount to .369; at Bethnal Green, they amount to .230; in Whitechapel, to .452; the mean mortality of the Metropolis for these two diseases being .373. He may also discover, that as large a portion of the people attain the age of fifty, at Shoreditch and Bethnal Green, as in St. George's, Hanover Square.

If, to continue the inquiry he has thus begun, he should look through the Registrar-General's Report for 1841, he will perceive that the total deaths at Shoreditch and Bethnal Green, in 1840, were 2032, of which, 523, or more than one-fourth, were above fifty, being the same proportion as in St. George's, Hanover Square, or St. Marylebone. And if he then turn to Whitechapel, he will find the total deaths to have been 1277, of which, those above fifty, were 301 only, or under a fourth.

The evidence furnished by the living, is of a similar character; for whilst in the whole Metropolis the proportion who attain the age of seventy is 1.33; in Bethnal Green they amount to 1.4; in St. George's, Hanover Square, to .97 only; in Liverpool, .90; Manchester, .76; and Birmingham, 1.07.

Some of this evidence is rather applicable to the question of general mortality, than to the more limited subject of Scrofula; but it has been convenient to me, to consider it, in connexion with the representations of M. Baudelocque, respecting the development of Scrofula at Spitalfields.

By comparing the admission of patients suffering from particular diseases into Hospitals, Infirmaries, and Dispensaries; by a careful examination of children in Educational or other Institutions, in different districts; and by employing the Mortuary Tables of the Registrar-General, we ascertain the influence upon life and health of combined agencies, but none of these indicate the special influence of a single cause. Although each of these sources of information, taken by itself, may be wanting in strict accuracy, from the varying notions of different persons through whose agency these separate classes of evidence are collected; yet, if there be a general or substantial correspondence between the results, it is probable that the influence of errors has been inconsiderable; and with this limitation, the results thus obtained afford satisfactory estimates of the combined influences of existing causes, although not of the separate influence of any single cause.

With respect to the applicants for relief at Hospitals and Dispensaries in crowded Towns, the case stands thus. At the Liverpool Dispensary, in 1832, the admissions were 42,618; of those, 201, or 1 in 213, are registered Scrofula. At Limerick, of 48,578 treated, 381, or 1 in 122, were scrofulous. At Exeter, of 11,528 cases, 208, or 1 in 55, were scrofulous. Now it will not be said that the atmosphere is purer in Liverpool than in Exeter.

The evidence obtained from an actual examination

made by myself of children in Whitechapel, Stepney, Bethnal Green Schools and Workhouses, is as follows. Children examined, 1552, of whom 292, or under 19 per cent., had enlarged cervical glands, or other marks of being scrofulous. At Norwood and Marylebone, the number examined was 2650, of whom 596, or 22½ per cent., bore marks of Scrofula.

If the investigation be continued through the low and crowded situations along the banks of the Thames and in Shoreditch, we find that the proportion of Scrofula which prevails there, is scarcely more than among the population of the drier, more airy, and scattered districts of the north-west portion of the Metropolis.

By pursuing the inquiry through larger Rural and Town Districts, I have obtained the following results. Large Towns, not including London, number of children examined, 32,670, of whom 6069, or 18½ per cent., are *returned* scrofulous. Rural Districts, number examined, 20,540, of whom 6025, or 29 per cent., are *returned* scrofulous.

If we regard Scrofula in the widest signification of the term, so as to include all diseases in which a tubercle-like deposit seems to determine the loss of life; namely Phthisis, Scrofula, and Tabes Mesenterica, the result may be thus stated. The mortality from those diseases is larger in Towns than in Country Districts; but it is not found that the densest portion of a Town is that in which the mortality is the largest. Thus, in the four districts in London, in which the crowding is the greatest, the average deaths from those affections is under 0.46; whilst in four other districts, in which there is less crowding, the average deaths amount to 0.51, and in Bethnal Green, they are under 0.40.

If we now narrow the question to the influence of a residence in Towns, and bad air, in developing the mortality from Scrofula alone, the result may be thus stated. In the four years' mortality, included in the fifth Report of the Registrar-General, namely from 1838 to 1841; in a district comprising

Towns having a population of 3,759,186, the deaths from Scrofula, in those four years, amounted to 758 ; and in a district, having a Rural population of 3,440,501 souls, the deaths amounted to 1333. Or, to state the question more simply, the proportion of deaths from Scrofula to 1,000,000 living, was, in the Town Districts, 50 per annum, and in the Country districts, 97. And if with Scrofula, Tabes Mesenterica be included, the numbers would stand as 122 deaths in Towns, to 160 deaths in the Country.

Again, let us observe the South-eastern, the South Midland, and the South-western Districts; there the mortality from Scrofula amounts to about 1 in 12,000 ; whilst in the densely-packed Factory Districts of Yorkshire, Lancashire, and Cheshire, the mortality from Scrofula will be seen to be less than half the preceding mortality from the same cause, namely, about 1 in 25,000.

And supposing we go one step further, and compare one portion of the Metropolis with another, we find that the total deaths from Scrofula in the Metropolis, when compared with the population, are as 5.6 to 100,000 living. Whilst in the most densely crowded districts of that same Metropolis, comprising the East and West London Union, Strand, Holborn, St. Giles's, Whitechapel, and Bethnal Green, the proportion is as 5.1 to 100,000 ; Bethnal Green being represented by 4.8, and Whitechapel by 4.7 to 100,000 living. So, in the low, dense, and poor districts of Bethnal Green, Poplar, Stepney, Whitechapel, Shoreditch, Westminster, Bermondsey, Rotherhithe, Lambeth, with a total mortality amounting to 21,522, the deaths from Scrofula are 45, or 1 in 478; while in the district, embracing Kensington, St. George's, Hanover Square, and St. Marylebone, with a total mortality amounting to 14,734, the deaths from Scrofula are 30, or 1 in 490. Thus, the difference in these districts is scarcely appreciable; but if we compare the Western District of the Metropolis with those of Bethnal Green, Shoreditch, and Whitechapel, we find that the proportion of

deaths from Scrofula to the general mortality, in the former, is as 1 to 490, and in the latter, as 1 to 1000.

Again, if from considering the influence of localities, we turn to the comparative mortality of the sexes, it will be found that 20 per cent. more boys die of Scrofula than girls; and yet it must be admitted, that girls are more exposed than boys to the effects, whatever they may be, of crowded rooms and exclusion from out-door employments.

Coster, and others, have made experiments on brute animals, with a view to ascertain whether scrofulous or tubercular deposits can be determined by subjecting those animals to certain privations; amongst which are, a want of good and appropriate food, and of pure air; and I believe it is certain, that in numerous instances, such deposits have occurred under the circumstances of privation in which those animals have been placed; but the results were greatly wanting in uniformity; and it would be no easy matter to determine (and this experiment has certainly not yet afforded us the means of doing), how much of the effects may have been owing to either agent. And even if the influence of each agent could be shown, it would be hardly safe to assume that similar effects would result to human beings from similar agencies.

INFLUENCE OF CLIMATE IN THE PRODUCTION OF SCROFULA.

The belief that one climate is better adapted than another to extend life is so general, that it may be termed universal; but it is very difficult, if indeed it be possible, to estimate with any precision, the influence of any particular climate on the duration of life, or the development of Scrofula. The difference in the mean duration of life, or in the ratios of mortality between one country and another, will not measure the differences in its influence on life, of one climate over the other. Few persons will maintain, that the climate of England is more salubrious than that of any other European

country, and yet, if estimated by the greater value of life, in England the conclusion would be warranted.* If we take any particular disease, we may ascertain that it prevails more in one district than another, but we can rarely determine, in virtue of what condition of the place it does so, or what agencies are associated with the single element of locality in inducing the disease; and we can never estimate the comparative force with which each agent acts in producing or increasing disease.

For instance, if we take as our illustration, the mortality of the British soldier at Ceylon, we find, that for the whole of Ceylon, that mortality is 75 per 1000; whilst at one spot, the Point de Galle, it is only 23 per 1000; and no one can assign a satisfactory reason for so extraordinary a difference. The Mediterranean stations are sought for as particularly salubrious for our soldiers; and yet, one-fifth more are invalided there, than in British North America, notwithstanding the beautiful skies and moderate temperature of the one station, and the rigorous climate and great variations of the other. Rheumatism is believed to be excited by cold, damp, variable climates, and where can we find those qualities more remarkably developed than at Nova Scotia and New Brunswick? Yet, in that colony, the admissions into Hospital, for Rheumatism, are only 30 per 1000, annually; whilst at Malta and the Ionian Islands, they are 34; Gibraltar, 38; the West Indies, 49; the United Kingdom, 50; the Cape of Good Hope, 57.

* The mortality of England and Wales is 2.2
,, Sweden . . 2.39
,, France . . 2.4
,, Bavaria . . 2.8
,, Prussia . . 2.8
,, Hanover . . 2.9
,, Austria . . 2.91
,, Saxony . . 3.1
,, Wurtemberg . 3.4
,, Russia . . 3.7
,, Denmark . . 4.2

We cannot explain these circumstances, either by regarding them as the results of humidity, or of dryness, or of a high, or a low mean temperature, or of great alternations of heat and cold; but the fact remains, and so does the difficulty of assigning any explanation of the cause, if one, or the causes, if many, of these unlooked-for results.

The solution of the question—what influence does climate exercise on Scrofula? is surrounded with formidable difficulties. The general impression on this subject to be collected from the works of the best authors, is, that Scrofula is most prevalent where particular conditions of the atmosphere are realised, and this, whatever may be the food or occupation of the people, and whether their dwellings be confined or spacious, or the air they respire be bad or good. And the atmospheric conditions, which are said to occasion the prevalence of Scrofula, are cold and damp, with frequent alternations of temperature,—and these influences are said to become much more injurious, when they are in operation in a country, the surface of which is broken and rugged. Whilst a comparative immunity from the disease is supposed to be found in a dry and warm atmosphere, protected from sudden alternations and disturbances;—in a country, the surface of which is not visited by inclement winds and storms.

England is always pointed at as an illustration of the first condition, whilst the plains of India have been regarded as a good example of the second; it being assumed that there is much Scrofula in England and but little in India. England and India may really exemplify those opposite conditions of the atmosphere or climate; but it has been already shown, that the prevalence of Scrofula is greatest in India, where it has been assumed to be least, and least in England, where it has been assumed to be greatest.

The following quotations from medical authorities of reputation will manifest the opinions which have been commonly entertained on the influence exercised by climate in the development of Scrofula. Henning says, "Indeed, the

evidences in support of the opinion that climate is the *sole predisposing* cause of Scrofula are highly respectable." Wiseman says, "That those who live in an air, particularly thin and sharp, or very thick and foggy, are very subject to Scrofula." And Mr. Hunter, who speaks of it as a disease, which although not hereditary, yet running in families, imputes it to climates, in which cold damps, alternating with heat, prevail; and adds that the scrofulous find a ready cure for their complaints by removing to certain latitudes. Dr. Leake observed, that it was very probable that glandular swellings of the neck and face, owe their origin to cold moist air, as they occur chiefly in winter; and he remarks, that in the dry warm climates of Portugal and Italy, he had found them very rare."* Mr. Pearson, who superintended the establishment for the African boys, brought over to England, for education, by the Sierra Leone Company, states that they all died of Consumption. "It is remarkable," he says, "that boys brought from tropical climates, from the age of eight to twelve, almost uniformly become scrofulous. They bear the first winter tolerably well; but droop during the second, and the third generally proves fatal to them."† Carmichael says, "It is observed that Scrofula is not prevalent in either very hot, or very cold countries, if dry." Baumes believed, "that its ravages were greatest in cold and damp districts, places from which the sun's rays are excluded." Gregory thought this was made out, "by the fact that the disease prevailed to a greater extent in England than in Spain and Italy," a statement utterly unproved, or as I would now submit, disproved. Brown‡ says, "It is to be found in very hot, and very cold climates, I have myself seen it among the natives of Balambangan, an island inhabited by Malays, governed by a Dutch Commandant and lying almost on the line, in the Straits of Borneo. The

* Medical Instructions.

† Annual Medical Review, vol. II. p. 130—31.

‡ On Scrofulous Diseases, 1798.

Chinese are particularly subject to this disease, nor have they been able with all their subtlety and pretensions to physic, to discover as yet any remedy for it. Persons afflicted with scrofulous ulcers walk about the streets of Canton without any application to them, and with much seeming indifference. They are equally superstitious, and show the same marks of fatuity with the people of this country; they trust their cures to empirics and astrologers, with which that country is disgracefully overrun like our own." White broadly laid down the principle that in hot and cold climates, Scrofula is very rare; a notion which Baudelocque adopts, and he states, that in warm climates, this is owing to the inhabitants being much in the open air, day and night; and in cold countries, to the ventilation kept up by large fires. His own belief being that temperature exercises no influence in the production of Scrofula.

It is no doubt a fact that the disease prevails more in one climate than another; but that this is owing to any particular quality of the atmosphere of that climate is unproved.

In the inquiry how far the influence of the atmosphere favours, or opposes the development of Scrofula, we could almost wish to decompose it, and ascertain whether the predominance of either of its elements contributes to the one effect or the other. We shall particularly inquire whether either the want of light, the prevalence of humidity, the high, or low, or variable temperature of particular climates, has any appreciable influence in the production of the disease.

ELECTRICITY.

Humboldt thought he had ascertained, that a diminution in the quantity of the electric fluid, pervading the atmosphere in particular climates, had some influence in the development and progress of Scrofula; but for this opinion there is as yet no proof.

LIGHT.

The influence of light in inducing changes in the health of individuals, and even in determining Scrofula, is believed by some persons to be considerable; and this idea is supported by a supposed analogy between the effects produced in vegetable substances, by a privation of light and those which may be exercised on human beings by the same agency; but the analogy is one which, however it may adorn a fanciful theory, will not support a conclusion of science. By depriving vegetables of light, we deprive them of colour; and it is said that human beings confined in dark dungeons, become pale and feeble, that their flesh becomes flabby, the heart enfeebled, and the natural muscular power almost extinguished. But confinement in a dark dungeon implies the influence of other agents than the deprivation of light, and whatever may be its effects upon the frame, the description we possess of those effects, does not prove that it causes the development of Scrofula.

It is indeed hardly possible to determine, whether the want of light alone would have any influence in developing Scrofula, because want of light almost always implies the influence of much more important agencies of disease. If we found 1000 families, occupying dark cellars, amongst whom Scrofula was largely prevalent, want of light would almost certainly be associated with much more serious privations.

In Northern Europe, the influence of darkness is experienced by the whole population, for considerable periods of the year, and if this were an efficient cause of Scrofula, the disease ought to be more than ordinarily prevalent in those countries; but this was not observed by the Scientific Commissioners of the Northern Expedition, sent out by the French Government; and in Iceland, it would seem that the disease is less prevalent than in countries exempt from that influence.

HUMIDITY.

The influence of a damp atmosphere or climate, in the production of Scrofula, can be better estimated, than the effects of the deprivation of light; though the inquiry will even, on this point, leave much to be desired. It is not difficult to compare the physical conditions of two given districts, and it may not be difficult to determine the relative frequency of Scrofula in them; but it is rare to find no other physical difference between two districts, than a greater or less humidity.

Baudelocque found it impossible to arrive at any satisfactory conclusion on this subject, and he said, "That though it might be true generally, that Scrofula was very common in damp climates, it was no less true that it is sometimes very prevalent in very dry countries. He says there are many humid villages in the Department of the *Somme*, where Scrofula is rare, and he particularly points out Boves, which is built in the middle of an immense marsh, in an angle formed by the junction of two rivers, and where thick fogs are frequent, as an example of this kind. A portion of the inhabitants work all the year in these marshes, either preparing peat or bleaching cloths, and another portion are much of their time at the river, washing clothes; whilst very few scrofulous persons are seen, either there, or in other neighbouring villages similarly situated. At two or three leagues from thence is a vast plain, raised a hundred feet above the valley, there we find many villages scantily supplied with water; an adjoining marsh, often dry in summer, serves for the animals which graze there. Nothing," says Baudelocque, "is less humid than these villages, and yet Scrofula is very common there."

Lugol thinks that only those who fail in accurate observations, or who are strongly prejudiced, can regard humidity as the cause of Endemic Scrofula. "It is," says he, "endemic in

Spain, and particularly at Madrid, and yet the plains of Castile are very elevated, often wanting water." "It is very common in Sweden," so says Retzius. "Nice is protected from the North, and has a maritime atmosphere, but the people are very scrofulous." "At Utelle, near Nice," says Foderé, "Scrofula is very prevalent, although the village is elevated and open to the south; but then the people are miserably nourished. The town of Montpellier is high and dry, but there is much Scrofula."

I doubt whether Baudelocque, or Lugol, if appealed to, could give any definite or precise notion of the comparative prevalence of Scrofula, in the different localities to which they have referred.

M. Jolly was sent by the French Government to make a sanatory inquiry into the condition of the people inhabiting the district of the Landes, "which," says Jolly, "may be regarded as a vast marsh," though strictly it is a district of sand, pine forest and marsh; and he found scrofulous swellings to be remarkably frequent.

Rilliet and Barthez found, that of 314 tubercular children, 43 occupied damp localities, 107 dry; and in 164 instances, the information was incomplete. Of 211 non-tubercular, 21 came from damp situations, 65 from dry habitations, and in 125 the situations were unknown.

If we take the deaths from Scrofula for England and Wales, in 1841, amounting to 1193, and compare them with the population, which is something under 16,000,000 we find that the relation they bear to each other is as 1 to 13,400.

If we select five dry countries: say Hertfordshire, Northamptonshire, Wiltshire, Warwickshire, Nottinghamshire, and make a similar comparison, we find the proportion of deaths from Scrofula to the general population to be as 1 to 10,500.

If we take five counties reputed to be damp—Huntingdon, Bedford, Essex, Cambridge, and Lincoln, the proportion of deaths from Scrofula to the general population, is found to be as 1 to 10,300.

If we take the extended sweep of sea-side Towns contained in the Appendix, where we assume the atmosphere to be comparatively damp, we find the proportion of deaths from Scrofula to the population, to be 1 in 12,500; while in the inland Towns contained in the Appendix, presumed to possess a drier atmosphere, the proportion is found to be as 1 to 13.250.*

In our own Metropolis, the deaths from Scrofula are more numerous along the banks of the Thames, than at Shoreditch, Bethnal Green, Whitechapel, or Marylebone. The deaths from Scrofula in the latter districts, when compared to the total deaths, being as 1 to 762, and the former as 1 to 365.

Supposing no other cause capable of developing Scrofula to exist in the districts to which we have referred, and supposing the larger proportional mortality from the disease to be as constant in the more humid districts, as in those to which we have alluded, the presumption arises, that humidity exercises a small, though a certain influence in producing the disease. And whatever the evidence be worth, it tends to that result; although I by no means consider the data we possess on the subject conclusive. It has been usual to point to Holland and to England, as cold and damp countries, in which Scrofula is more than usually prevalent; and the prevalence being assumed, a cause was also assumed, and that cause was humidity. But although we may admit that those countries are comparatively cold and damp, we deny the unusual prevalence of Scrofula, at least in England, because it is now demonstrated, that in no European country do the people suffer less from Scrofula than in England.

* England and Wales, deaths from Scrofula to the population . . . . 1 to 13,400

Dry counties	,,	,,	1 to 10,500
Damp ,,	,,	,,	1 to 10,300
Sea-side Towns	,,	,,	1 to 12,500
Inland Towns	,,	,,	1 to 13,250

TEMPERATURE.

Supposing we divide England and Wales into two portions, one above, and the other below, the 53rd parallel of latitude, we obtain the following result. In the northern district are Cheshire, Lancashire, Notts, Lincoln, York, Westmoreland, Durham, Northumberland, Cumberland; which include the great Factory Towns. In the Southern Division are the remaining counties of England.

The total deaths in England and Wales, taking an average of five years, are 349,519; the average deaths from Scrofula during the same period, are 1214. The proportion they bear to each other is, therefore, nearly as 1 to 287. The proportion which the deaths from Scrofula bear to the gross population is in round numbers, 1 to 13,400.

The deaths from all causes in the Northern District, are 119,155, those from Scrofula, 285; the proportion being 1 to 418, and the proportion which the deaths from Scrofula bear to the gross population is as 1 to 15,790. The deaths in the Southern District from all causes, are 230,364; those from Scrofula, 1010, the proportion being 1 to 226 deaths, or 1 death from Scrofula to 11,331 of the population.

It thus appears that by contrasting the portions of England and Wales, south and north, of the 53rd parallel, that we attain the following results:

	South.	North.
General mortality per cent. of the population . .	1 in 49	1 in 37
Deaths from Scrofula . .	1 to 11331	1 to 15.790

But the mean temperature of the Southern District is superior to that of the Northern, and were there no other causes than difference of temperature for the decreased general mortality in the Southern, and the decreased mortality from Scrofula in the Northern District, we should attribute those opposite and somewhat contradictory results to the agency of

temperature. But there are various agencies acting in combination on one side of the Line, which either do not exist, or are modified on the other side, and we can assign to temperature no definite or proportional share of the results of such combined agencies. Yet we may repeat a conclusion to which we had already come, from another class of observed facts, that in the same island and amongst the same races, a large general mortality does co-exist with a small mortality from Scrofula.

Most persons are disposed to think that a Register of Deaths ought to represent the prevalence in particular places, of particular diseases, which tend to death. And yet it has been said, that a Register of Deaths will not show the actual prevalence of Scrofula, because, deaths from Scrofula are comparatively rare, and because, persons of a scrofulous constitution commonly die of some other disease. But if 100 deaths from Scrofula take place annually in one district, and 200 in another, and if, (which is the fact,) that relative proportion is preserved, with considerable uniformity, year by year, the inevitable conclusion will be, that the disease has prevailed more extensively in one district than in the other. Now the mortality from Scrofula, year by year, in England and Wales, bears too constant a relation to the population, to permit us to regard this relation as an accidental circumstance, and although the deaths from Scrofula in a given district, may not represent the absolute prevalence of the disease in that district, yet when compared with another district, the numbers may be assumed to indicate with reasonable accuracy the relative prevalence of the disease. For instance, let us assume that the prevalence of Scrofula in a particular locality is represented by 20, and that half of the 20, or 10 cases, end in Phthisis, and a tenth, or 2, die of Scrofula. If, then, we find that in another district the deaths from Scrofula in that district are 4, we may fairly assume that the total cases of Scrofula will exceed 20; and although they may not amount to 40, yet that the disease will be

more prevalent in the latter district than in the former, seems a sound conclusion. It may be said there are errors in registration, of which there can indeed be no doubt; but when, year by year, a certain relation of numbers is preserved in Returns, not made up by one man, but by hundreds, acting independently the one of the other, there must be a near approach to truth in the general results, and, therefore, in this inquiry I have largely availed myself of the evidence which those Registers furnish.

Whoever considers the question fairly, will be struck by one fact, which cannot be denied, that in European countries, at least, scrofulous diseases are evolved or aggravated during the cold of winter. But although the fact is certain, one man will explain it in one way, another in another. Baudelocque thinks it is not fair to accuse the cold of doing the mischief, which, he says, is caused by insufficient ventilation, by bad air; but Baudelocque must have often seen a child, suffering from scrofulous ulceration, taken from the streets in winter, carried into a ward, warmer, though with a less pure air, it may be, than the streets from which he came, and covered with warm clothing, and warm dressings applied to his wounds; he must, I repeat, have witnessed a great amelioration in the disease as a consequence of the change. I by no means maintain, that the change of temperature alone, has worked the change, but it has at least contributed to the altered condition of the patient.

We will now inquire, what influence extremes of temperature have in developing Scrofula in the British soldier, and the evidence on this subject, which I have collected from the War Office Returns of Colonel Tulloch, may be regarded as most important; and the special value of these Returns consists in this, that they are spread over many years, and include very large numbers; and as the British soldier is the same in the different climates to which he is exposed, is well, and we believe appropriately, fed and clothed, and subjected to like duties, it may be fairly assumed, that any considerable dif-

ference in his physical condition has resulted from the direct influence of climate.

Those Returns show, that the average amount of invaliding for Scrofula, is about 1 in 600,* the extremes, (excluding Barbadoes,) are 1 in 246, at St. Helena, with a temperature ranging between 68° and 83°; and 1 in 1172 at the Bermudas, where the range is greater—between 89° and 53°; whilst in Canada, with a range of 125°, and where a range of 52° has been experienced in twelve hours, the invaliding for Scrofula does not exceed the average, of 1 in 622; so that the variability of the climate does not seem to exercise over the disease any distinctly appreciable influence.

The highest mean temperature, we have included in our Table, is to be found at Jamaica and Sierra Leone; and in the former, the invaliding for Scrofula is 1 in 859; in the latter, 1 in 921. Among the lowest mean temperatures we find Nova Scotia and New Brunswick, where it is 1 in 928. In both extremes, it will be observed, that the invaliding for Scrofula is 59 per cent. under the average.

The cases where the range of temperature is smallest, are those of Sierra Leone, where the invaliding from Scrofula amounts to 1 in 921; Jamaica, where it is 1 in 859; Honduras, 1 in 320; St. Helena, 1 in 246. Here it will be observed that we have instances of invaliding for Scrofula—much above, and much below the average—whether the temperature be mild and equable, or oppressively hot. It does not appear, therefore, that either a high, or a low, an equable, or a variable temperature, exercises any uniform or evident influence over the occurrence of Scrofula in the British soldier.

In India, in China, in Russia, in Greece, hot, cold, and temperate countries, Scrofula is unusually prevalent. It is comparatively rare in Barbadoes with a warm climate, in New Brunswick with a cold, and in the Bermudas with a temperate climate.

Having thus inquired into the influence of various climates

* See Table in Appendix.

in inducing Scrofula in the British soldier, we will now inquire whether in the natives of other countries, the temperature of the climate they inhabit, appears to exercise any definite influence in producing Scrofula.

The effect of a very low temperature to influence the development of Scrofula, was considered by Dr. Robert, Member of the Scientific Commission sent by the French Government to Iceland, Greenland, and Spitzbergen, by whom a letter was addressed to M. Gérardin, in which he states, it would seem, that in Iceland and Lapland, glandular swellings are very unfrequent. He did not meet with a single case of Thyroid tumor in Iceland or Lapland, although in the South of Norway they are found not unfrequently. M. Gaimard transmitted a letter from Dr. Thorstenson, who had practised in Iceland seventeen years; from which it appears, that although Croup and Catarrh are very common—Phthisis is very uncommon in that country. Previously to the Report of Dr. Thorstenson, the information we possessed on the subject of Phthisis was contradictory. Mackenzie, it is true, affirmed that the disease was not common in Iceland; Olafsen and Troil denied its frequency; and there were not wanting persons to find a reason for the alleged rarity of Phthisis, in the prophylactic virtues of Lichen. On the subject of Rickets, the evidence is also very contradictory, but there is no contradiction with respect to the unfrequency of Scrofula; and this in a country, where in summer the thermometer reaches 20 degrees centigrade, and in winter, 20 degrees *minus*, where the climate is damp, where in winter the people are much confined to their narrow, smoky habitations, where the animal food used is principally dried fish, and where half the children die under ten years of age.

M. Rufz* shows that Phthisis is the most frequent chronic disease in Martinique, and yet he adds, "From 1834 to 1839, I have seen only one or two cases of White Swelling, no

* Etude de la Phthisie pulmonaire, à la Martinique.

case of Pott's Caries, and glandular enlargements are rare; although these affections are considered as being of the same nature with Phthisis."

The first return which I have obtained of the condition of the people of India, with reference to Scrofula, was furnished by Dr. Alexander Jackson, and is given at page 90. On the same subject Mr. Martin says: "Before speaking of the relative frequency of Scrofula, amongst European residents in India, as compared with that of their countrymen at home, I would mention, grounded on extensive observation during many years, on the health of the natives of Bengal, both civil and military, that Scrofula, as an idiopathic disease, is seldom seen amongst them. At the Native Hospital of Calcutta, of which I was Surgeon for ten years, I saw, however, many cases of scrofulous disease, amongst the poorer Bengalees, caused, as it appeared to me, by the abuse of the rude preparations of mercury and arsenic, so liberally administered by the native empirics. In all rheumatic cases, in eruptive diseases, as well as in every chronic ailment that puzzles the empiric, this horrible preparation is given in larger quantities, and often alternated with arsenic. Now as to European residents in India, the civil and military inhabitants of the better classes are almost exempt from Scrofula, and so are their children. The exemption is equally true in Bengal, of parents and their offspring, whose families in England are notorious sufferers. During an extensive observation of twenty years in the capital of British India, I do not remember three instances of scrofulous disease declaring itself, though numberless persons were known to me, in whom the disease remained latent, and, as it appeared to me, remained so solely through the influence of the climate."

We will now compare with this opinion of a man of great experience, the following returns kindly made me by Drs. Stewart and Spry, of the condition of the children in the Upper and Lower Orphan, and European Schools at Calcutta.

"The Upper Military Orphan School is a receptacle for the children of British officers, but they are all half-castes; the Lower School for the children of British soldiers; 139 are half-castes, 81 English; the European female children, 55 in number, are of pure English blood.

"Of the 55 European female orphans, and the 81 military English orphans, amounting together to 136, there is not one with glandular enlargements. If we compare those European orphans with the half-caste boys and girls, we find in the latter, that out of 75, 4 have scrofulous ulcers, and *all* have swelled cervical glands. In short, all half-castes in Bengal may be said to be scrofulous; though the disease does not develop itself so early in this climate as at home, *in the forms you describe.* What is very striking is, that 3 half-caste children will exhibit cutaneous sores, weak eyes, mesenteric and spleen diseases, for 1 English one, though all four be equally carefully brought up, clothed and tended.

"Having examined with my own hand a large school of mixed Hindoos, between five and twelve years of age, I am able to give you positive information with regard to them. Of the 504 children I examined, 300 were scrofulous, according to your definition.

"Thus it is evident that the scrofulous constitution is the prevailing one in Bengal, a fact well known to all Indian practitioners."

We are not warranted in assuming that in the children examined by Drs. Stewart and Spry, and whose health is carefully watched, the disease was induced by rude preparations of mercury and arsenic; and it would therefore seem that, under comparatively favourable circumstances, the disease prevails extensively in India, though not among Europeans.

Dr. Spry says further: "The climate seems to have a favourable effect in retarding, if not in even arresting entirely, the development of Scrofula in English children, while it has an exactly contrary effect on half-castes. I will not pretend to account for this, though it would be easy to

theorise, but I am sure that I have seen the lives of several English scrofulous looking children saved by keeping them in Bengal instead of sending them home, and I have known many scrofulous looking half caste children, who were sent to England very young, turn out stout fellows, and who, had they been kept in India, must have grown up to be consumptive striplings."

When considering the prevalence of the disease, it was shown, that we have no proof that climate, whether the temperature be high or low, variable or uniform—or the atmosphere be dry or humid—has any very obvious influence, of itself, in producing, or preventing Scrofula. At St. Petersburg with a mean temperature of 3.23, and a general mortality of 3.770; and Moscow, with a mean temperature of 3.6, and a general mortality of 4 010; and Iceland, where the centigrade thermometer in winter indicates 20 minus—there appears to be less Scrofula than at Lisbon, with its temperature of 71.2, or than at Amsterdam, Berlin, or Calcutta. So, at Madeira, with its high mean temperature and low range, there is as much Scrofula as among the juvenile convicts in Parkhurst Prison. Other causes than climate must then, in all these countries exercise a most important influence in producing the disease, and among the causes of Scrofula, we have seen that food holds the first place.

It has been said, that a person predisposed to Scrofula, if subjected to the influence of a cold and ungenial climate, will almost certainly suffer from it; and that such a person, exposed to the influence of a warm climate, will most likely escape the disease. On that point Dr. Rosas, of Lisbon, writes:—" I am led to suppose, that were scrofulous patients from the North to change their residence to this climate, they might derive great advantage, and perhaps lose in time the morbid disposition to this disease."

But the British soldier, when sent to climates much hotter than our own, is invalided for Scrofula to the extent of 1 in 643; and when sent to climates much colder than our own,

to the extent of 1 in 764 only. The climate of the Mauritius has a mean temperature considerably higher than our own, but the invaliding of White troops for Scrofula, is much greater in that island than that of the Blacks. The Black troops sent to the Mauritius, are exposed to a climate not unlike their own, and they are invalided for Scrofula, to the extent of 1 in 1395, while at the Cape they suffer to the extent of 1 in 413, and at Sierra Leone 1 in 583. In the Windward and Leeward Command of the West Indies the Whites suffer from Scrofula to a slightly greater extent than the Blacks, viz.: 1 to 1141 and 1 to 1137, the one being subjected to greater heat, and the other to greater cold than they experienced in their own country. The same result holds good at Jamaica; where the White troops are invalided in the proportion of 1 in 859; and the Black of 1 in 818; the Whites suffer in the Bahamas to the extent of 1 in 535; but the Blacks to 1 in 591 only; but in Honduras the Whites suffer to the extent of 1 in 320, while the Blacks suffer to the extent of only 1 in 544.

At Fort St. George of 177,037 European troops admitted into hospital, 171, or 1 in 1035 only suffered from Scrofula; whilst of 279,302 Native troops admitted, 746, or 1 in 374 suffered from Scrofula.

There is other evidence, of some value, bearing directly on this point, furnished by the Inspectors of Prisons in the United States, upon the condition of Black and White convicts. It would seem that the proportion of scrofulous cases among the two classes received in the Eastern Penitentiary in three years was 1.145 per cent. for the Whites, and 7.519 for the Blacks, but then it must be borne in mind, that the Black population were natives of the United States, as well as the Whites.

There is no proof, therefore, that a person predisposed to Scrofula, will be protected from the disease, by a removal to a country colder, or even warmer, than his own.

INFLUENCE OF OCCUAPTION.

The physical condition and general mortality of a people, are influenced in an important degree, by the occupations they pursue, sometimes as a direct result of a particular occupation, and sometimes as a necessary consequence of other agencies, to which those engaged in a particular occupation are forced to submit. And yet in estimating the salubrity of a particular locality, the influence of occupation has frequently been overlooked, and insalubrity has been assigned as the cause of the excessive mortality of a district, when such excessive mortality was really owing to some particular occupation, in which a large proportion of the inhabitants was employed.

For example, at the age of thirty, the expectation of life among agricultural labourers is 40.6 years, among the members of Friendly Societies, including all trades, it is 36.6, among professional men it is 33.9, among the gentry it is 31.2, whilst among the peerage it is only 30.9. The average for England and Wales being 34.1, Scotland 33.1, Ireland 31.7; but the expectation of life at thirty in the poor fork grinder of Sheffield is only seven years. Thus a town of fork grinders, however well it may be built and drained, and however well the people may be fed and lodged, if judged of by the mortality, would be pronounced a very unhealthy district. So those districts of our country in which the bulk of the population are miners, might in the same way be regarded as insalubrious, although the real cause of the excessive mortality was mining, which is unfavourable to longevity. Again: there are districts where the population is mainly composed of agricultural labourers, of all occupations the healthiest, and if we suppose two hamlets, in the same district, the one the abode of miners, the other of agricultural labourers, — although in all else than the occupation of the people, these hamlets are similar,

yet at the age of thirty, the expectation of life will differ to the extent of seven years, and this although the miner will be better fed and clothed, than the agricultural labourer.

An opinion prevails very generally, that employment in Factories, tends strongly to develop disease, especially Scrofula, and to shorten life; and it is therefore important that we should acquire accurate views on this subject, because if the evil really exist, some means may possibly be discovered to lessen its influence, whilst if it have no real existence, a good deal of mistaken sympathy, which has prevailed on the subject, may be directed to the removal of other evils, of whose reality there can be no doubt. The evidence which has hitherto been collected on the subject, consists for the most part of general statements, of the condition of the Factory population, and estimates of the general mortality of particular districts.

If we consult the mortality tables for Lancashire and the West Riding of York, for 1700, we find that the population of the former district, at that period, was 166,200, and that the mortality was 4,522, or 2.72 per cent; that the population of the latter district, was 236,700, and that the mortality was 6,342, or 2.68 per cent. In 1841, the population of Lancashire was 1,667,054, the mortality was 44,771, or 2.68 per cent.; that of the West Riding was 1,154,101, and the mortality was 24,512, or 2.12 per cent.; the one less than Cambridgeshire, the other less than Bedfordshire.

Mr. Thorpe's Return of the mortality of Leeds, shows that it has materially decreased since 1801, "notwithstanding there were hardly any Factories at that period." The population of the township in 1801, was 30,669, the average burials 941, or 1 in 32.5. In 1831, the population was 71,602, the average burials 1718, or 1 in 41.5.

In the Northern Factory Districts, including Lancashire and Cheshire, the mortality exceeds the average of England and Wales by 0.470 per cent; but in the Midland Factory District, the mortality is 0.036 per cent. under that average. Now in

Lancashire and Cheshire, the population is mainly collected into Factory Towns, in which many agencies of disease are found associated; and if we compare in the same district two towns of similar extent, one a Factory Town and the other not, it will be seen that other influences, equally injurious with Factory Labour, are in active operation. Let Manchester represent a Factory population, and Liverpool a population not employed in Factories, but equally crowded, the proportion of lives under five years being nearly the same in both, and we find the mortality for seven years in the latter 3.368, in the former 3.273 per cent.

Take again Bristol and Leeds, the one with a Factory population, and the other with a population not engaged in Factory Labour, and we find the mortality in the former 2.91, in the latter 2.59 per cent.; while at Bath, famed for its salubrity, with no Factory, and with a smaller juvenile population than Leeds, the mortality is 2.35 per cent. Still it is certain that the mortality of large Factory Towns is generally large; but it must be borne in mind, that it is not uniformly larger than that of similar Towns in which Factories do not exist. If we take an equal number of Factory and Non-factory Towns — each group including a population of upwards of two millions, we find that the relative mortality is as 2.5 to 2.4;* and this although the influence upon the general mortality of a rapidly increasing population is usually much greater in Factory Towns than in others, because the proportion of children to adults is greater in a rapidly increasing population, than in one where the population is stationary, or where its progress is less rapid.

The evidence furnished by Friendly Societies as to death and sickness among Factory operatives, confirms the conclusions which are found to arise from the comparative mortality. Before twenty, we cannot by means of the evidence from Friendly Societies, or, indeed, by any other means,

* See Appendix.

estimate the mortality and sickness of persons actually employed in Factories. But, at thirty, the general mortality in England and Wales is 1.0110 per cent. per annum; that of Factory Operatives .8247; and that of Friendly Societies is 0.7563. So, with sickness, the average proportion of sickness among the members of Friendly Societies, between twenty and thirty, is .8789 weeks, that of Factory Labourers .7089 weeks per annum.*

The truth seems to be, that the mortality among Factory Labourers, through the whole of life, is very little greater, than the average mortality of England and Wales, and when it is remembered how large a part of our Factory Labourers live in towns, it may fairly be doubted, whether in itself, Factory Labour be more insalubrious than the other manual occupations of our people. But with respect to Miners, after thirty the expectation of life is below the average of England and Wales, and when we recollect that they are not commonly congregated in Towns, the insalubrity of mining labour is evident.

It appears then, that taking 1700 as our comparison, the ratio of mortality in Lancashire and the West Riding, has absolutely diminished, notwithstanding the introduction of the Factory System; that within the county of Lancaster, we find the mortality in Liverpool is greater than that of Manchester; that in the Factory Towns included in a Table in the Appendix, comprising a population of upwards of two millions, the mortality is 2.556, while in Liverpool, a Non-factory Town, it is represented by 3.368, and London, with a smaller juvenile population, by 2.533; and that,

* MORTALITY.

	Factories.	Friendly Societies.	England & Wales.
20—30	.7420 per cent.	.7066 per cent.	.9480 per cent.
30—40	.9321 ,,	.8376 ,,	1.1040 ,,
40—50	.8555 ,,	1.1429 ,,	1.4305 ,,
50—60	2.4032 ,,	1.9531 ,,	2.2035 ,,
60—70	3.6816 ,,	3.7073 ,,	4.1450 ,,

taking the Towns to be found in the Table, and containing a population of nearly three millions, not engaged in Factories, the mortality is 2.439. Now, in almost every case, those Towns have a smaller juvenile population, and one, therefore, in which other things being equal, the ratio of mortality would be less than in a rapidly increasing Town.

If there be any thing peculiarly injurious to life in Factory Towns, or Factory Labour, it is not then made apparent by a register of deaths. The injurious effects of Factory Labour, when compared with other laborious occupations, are not apparent in our Mortality Tables, or in the Returns of Friendly Societies. And the mortality in Factory Towns appears to press just as heavily on masons, shoemakers, and tailors, in those towns as upon those, persons who are employed in Factories, and it would therefore seem improper to refer to manufactures an evil, which is not peculiar to them.

I will now proceed to consider occupation as an agent in inducing Scrofula. Baudelocque says, " that Scrofula is very common in Factory Districts, and if the work-rooms are small and ill-ventilated, it is still more prevalent; and by viciously disposing the places of labour, we can multiply the disease at will. Establish such a Factory in the healthiest district, where Scrofula is hardly known, it will not be long before it is observed to be very frequent; and yet you will have carried comfort (' aisance') into a district previously poor. The workman will earn good wages, he will be less exposed to the inclemencies of the weather, will be better fed and better clad. In all else than one circumstance, you will find amelioration; that circumstance is the condition of the atmosphere in which he is placed. The air is bad, and this circumstance is sufficiently powerful to destroy all the good which results from the improvement in other circumstances. Get rid of that, and instead of a wretched scrofulous population, your workmen will be exempt from Scrofula, and will be robust."

A different opinion is, however, expressed by another high authority, Lugol. With respect to this agent, Factory employment, he says: "We have seen at St. Louis many young people in whom Scrofula was manifested in the Workshop, or Factory; we have always questioned them with care, as to the number working together in the same room, and to the number who had become scrofulous. Usually, we have found, that the person we questioned was alone affected with the disease." Again, "I have often questioned patients, to ascertain whether a certain number of people, working together, become scrofulous by a common influence. No fact of the kind has come to my knowledge. Workmen, who are congregated in damp workshops, are exposed at the same time to fatigue, unsubstantial food and intemperance, which is the inevitable alternation of privation. But in the midst of this state of things, Scrofula is not common. In fact, in my own practice, I see most of it where the comforts of life are possessed."

The opinion of Villermé is not unlike that of Baudelocque, but the evidence upon which his views rest, is not given. He says, "But however numerous may be the victims of inflammation and pulmonary phthisis, their premature death does not seem to me more deplorable than the development of Scrofula in the mass of those employed in Factories. We know how common in particular places is this plague spot, which marks the infants and children with swelled joints and hideous deformities. Especially are its ravages felt in large Towns, where the people are crowded in miserable lodgings, in narrow streets. To those effects must be added, the short feeble figure of those so employed." The want of stature, he shows at Amiens, where among the Factory Labourers, 343 men were required to furnish a contingent of 100, while among the better classes, 193 are all that are required; but to make his case complete, he should have compared the poor of Amiens, not employed in Factories, with those who are so employed.

Among ourselves, opinions are as divided as elsewhere, as to the effects of Factory Labour in inducing Scrofula, and it would not be difficult to establish very opposite results, from the evidence taken before the different Factory Commissions. From their first Report, I extract the following opinions as to the effects of labour in Cotton Factories, and its influence in causing Scrofula.

Letter from Dr. E. Carbutt, Physician to the Royal Infirmary, Manchester, to the Factory Commissioners.

"Gentlemen,

"I have answered, to the best of my judgment, the several queries which you have done me the honour to submit to me; but I wish to be permitted to make a few observations upon matters not contained in those queries, more especially as to the gross exaggerations of medical witnesses, particularly those of London, on the subject of the diseases of the Cotton Factories. These gentlemen, hardly any of whom have had an opportunity of seeing persons employed in Cotton Factories, almost universally attribute to Factory Labour the production of scrofulous diseases. Now, the fact is, that Scrofula is almost unknown in Cotton Factories, although the climate of this town and neighbourhood is particularly cold and humid. In a very extensive examination, which I and some other medical men made a few years ago, we found, to our surprise, that the Cotton Factories, instead of producing Scrofula, are in some sort, a kind of means of cure. The late Mr. Gavin Hamilton, who was for thirty-six years Surgeon of our Infirmary, and who, previously to that, had been Surgeon in the Queen's Bays, said in my hearing, after examining the Cotton Factory, 'Gad we found the Cotton Factories to be a specific for Scrofula.' In one Factory, examined by Dr. Holme and Mr. Scott, Surgeon to the Carabineers; of 401 persons employed, 8 only were affected with Scrofula, with no case of distortion of the spine or limbs. I myself, accompanied by

respectable surgeons, examined several Factories. In one, employing 504 individuals, we found scrofulous affections (generally slight and constitutional), 6; weak limbs, 2; distorted spine, before working in a Factory, 1. In another mill, employing 234, we found scrofulous affections of the neck, eyes, &c., 5. In another, employing 337, we found 4 scrofulous. In another mill, which employed 199, we found 3 scrofulous.

401	8
504	6
234	5
337	4
199	3
1675	26

"This remarkable absence of Scrofula I presume, with perfect deference to the medical gentleman who is one of your number, to attribute to the dryness and warmth of the Cotton Factories, to the lightness of the work, and to the superior food and clothing which the superior wages of the work people enable them to obtain, &c.

"EDWARD CARBUTT, M.D."

But the evidence collected by the gentlemen who were employed on the "Children's Employment Commission," is less uniformly favourable; and although the preponderance is in favour of the better relative condition of Factory Operatives, when compared with other classes of the labouring poor, yet that evidence is of so contradictory a character, that it might be plausibly used in support of either view of the subject.

In Leeds, Dr. T. Smith very kindly examined at my request 1095 children, employed in different Factories, and he examined 548 children of the same class, not employed in Factories. The result is, that those not employed in Factories, exhibited marks of Scrofula in 8 per cent. more

instances, than those whose days are spent in such establishments. In Manchester and other great Manufacturing Towns, a similar result has been obtained by examinations made at my request, and on so large a scale, that there is every reason to feel confident in the opinion already expressed. Again, from his Dispensary practice, Dr. Smith has made me the following Report. "Of 916 persons, between seven and fourteen, the children of Factory operatives, but not themselves employed in Factories, 365, or 39 per cent., had enlarged glands, and 75, or 8 per cent., had scars resulting from scrofulous disease. Of 567 persons, all under twenty-one, and employed in Factories, 124, or 22 per cent., had scrofulous scars."

Mr. Poyser, the intelligent Surgeon of Winksworth, kindly examined for me the people employed in Mr. Arkwright's mills, and the following are the results which he communicated: "Persons examined, 798; total number having marks of Scrofula, 29."*

Seeing that the results were of so favourable a kind, I wished to be assured that the Return included all cases in which any enlargement existed, and the following is Mr. Poyser's explanation on that subject.

"I beg to inform you, that I included in my Return all cases in which the finger could detect any sensible enlargement of the cervical glands. I may also add, that I examined all with the finger, where I had the slightest doubt on my mind that any swelling existed. Indeed, I examined all under twenty, and the greater part of those above that age, with the finger."

I have obtained, through the kindness of Messrs. Horner and Saunders, the results of the examination of 6754 Factory Children, from which it appears, that marks of Scrofula were found in only 905 instances, or only 13½ per cent. The Returns of Mr. Fereday, Mr. Davis, and that of other friends

* See Appendix.

who have kindly made a comparative examination of a large number of children, exhibit similar results, and they leave no doubt on my mind, that children employed in Factories are more free from Scrofula, than the average of children in England and Wales.

Similar evidence is contained in the Report from Mayfield, by James Martin, M.D. "Mayfield Cotton Factory is situated in the parish of Clonegan, county of Waterford. The village is within a few hundred yards of the Factory. The population is 3075, of whom 1060 are employed at the works, which, as to temperature and crowding, are very carefully regulated. Numbers daily seek employment from distant parts of the country; they arrive in the worst state of destitution, but gradually improve in health and comfort. Of those employed in the Factory, 505 are under twenty-one, and 556 are above that age. The average absence from illness is 15 each day. In spring, the maximum has been 32; the minimum, 10; average, 22. In summer, the maximum, 12; the minimum, 4; the average, 7. In autumn, the maximum, 15; the minimum, 6; average, $9\frac{1}{2}$. In winter, the maximum, 28; the minimum, 14; average $21\frac{1}{4}$. In four years, the following are the numbers of diseases regarded as scrofulous, which have occurred.

	External population, 2015.	Factory Operatives, 1061.
Hip disease	6	2
Knee ,,	7	0
Elbow ,,	4	0
Wrist ,,	1	1
Ankle ,,	1	2
Ulcers (scrofulous)	15	2
Phthisis	10	8
Ophthalmia	7	4
	51	19

It will be observed, that the amount of Phthisis is largest among the Factory operatives; but this is accounted for by the fact, that nine-tenths of all between thirteen and twenty-

one, are employed at the Factory. In three years, the deaths in the village were as follow: Amongst the External Population; under thirteen, 27; between thirteen and twenty-one, 4; adults, 38; total 69, or 23 annually. But then, in the last of the three years, fever was epidemic; the previous two years did not average 17 per cent. annually. Amongst the Factory Operatives, between thirteen and twenty-one, 12; adults, 8; total, 20, or $6\frac{1}{3}$ annually.

Of the causes of death among the External Population, the diseases regarded as scrofulous, were as follow:

Hip disease, 2; Tabes Mesenterica, 2; Phthisis, 6; total, 10. Among the Factory Labourers, Phthisis, 5.

Again, if Factory Labour were so prejudicial as has been alleged, its effects should be equally apparent, whether the Factory were situated in or out of a Town. Now, Dr. Smith, who had made a very careful examination of Factory and Non-factory children in Leeds, has furnished me with the Returns of an examination of children employed in Factories situated in Rural Districts. The number examined was 263; the number having marks of Scrofula, 46, or 18 per cent.* Mr. Poyser's evidence is still stronger, and tends to remove the impression that the influence of Factory Labour is all evil.

There remains for us to consider the evidence of the amount of the influence of Factory Towns in the production of Scrofula furnished by the Registers of deaths. In England and Wales, the deaths from Scrofula, as compared with the total population, are as 7.6 to 100,000. In Rural Districts, the proportion is 9. In Town Districts, it is 5. In Factory Towns, having a population of 2,043,038, the proportion is 4. In Non-factory Towns, having a population of 2,870,416, the proportion is 5 per 100,000.†

The opinion of the insalubrity of the employment in the Woollen Factory Districts, as compared with the Linen and

* See Appendix. † Ibid.

Cotton, so decidedly maintained by several authors, has not been confirmed by the inquiries I have entered upon. In the Linen and Cotton Districts, included in a Table contained in the Appendix, and having a population of nearly 1,000,000, the gross mortality is 2.786; that from Consumption, .477, or 1 in 209; that from Scrofula .004, or 1 in 24,872. In the Woollen Districts, in the Table,* and comprising a population of nearly three quarters of a million, the gross mortality is 2.242; that from Consumption, .396, or 1 in 252; that from Scrofula, .005, or 1 in 17,877.

I cannot conclude my observations on Factory Labour better, than by using the words of Villermé. "Whenever large numbers of people are collected into narrow spaces, unless there be any counteracting influence in operation, their health suffers. If we would extend this assertion to the manufactories, the facts which have been made known are far from always confirming it. There is, perhaps, no disease which belongs to a particular Factory, but there are diseases which are more frequent, when the conditions of life of the labourer favour their development. But almost every disease will prevail in a crowded Non-factory Town, in an equal degree with a crowded Factory Town; and even in Factory Districts, it is upon those who are not employed in Factories, that the mortality falls with most severity. And this seeming incongruity is easily explained; those who are not employed in Factories, are equally exposed with those who are, to noxious local influences; but the earnings of the Factory Labourer are such, as to give him the means to overcome many of the influences of noxious agents, under which the idle, or the irregularly employed, or very poor, would sink."

And further, he says, in reference to the past and present condition of the Factory Labourer in France, and I conceive the observation equally applies to those in our own country: "There are many Factory Labourers whose gains are so small, that they

* See Appendix.

are scarcely sufficient to procure strict necessaries. Are they, however, more wretched and proportionally more numerous at present than formerly? There is no proof that they are. It is well that the labourer should know that his present condition is better than it has ever been. The documents from whence we may deduce a knowledge of his condition at different periods furnish the proof. I have been struck at different places, which I have visited before, to see the workman eating better bread, wearing stockings where formerly one only saw naked feet, shoes where there used to be sabots, cleaner, lighter, better furnished rooms. I found, in fact, in all these places, not what I could have wished, but much less that was bad, than twenty or thirty years ago."

"Many persons as well in England as in France, deny that any improvement in the condition of the working man has resulted from the growth of our Factory System. Touched by the misery to be found amidst Factories, they maintain that the condition of the working man has never been more wretched than in our own times; and yet we every day see that the agricultural labourer quits the pure air of the country for the Factory, and never voluntarily returns. Bread and clothing, the most important agents in supporting life and maintaining health, when contrasted with wages, have never been cheaper than during the last twenty years; and in the artisan, what was a luxury formerly, is a necessary now."

The evidence I have collected upon the question of the influence of Factory Labour upon human life, has produced on my own mind a strong conviction, that occupation in Factories, though in many respects less to be desired than occupation in the open air, is yet accompanied by so many counteracting circumstances, that the evils which may be inseparable from that occupation are mitigated if not counteracted by the increased means of procuring the necessaries of life which it affords. The evils of Factory Towns do not consist in Factory Employment, but in the agencies which are commonly found in action in such Towns.

INFLUENCE OF CLOSE CONFINEMENT—PRISONS.

There remains for us to consider the influence exercised upon living beings by the association of several of the causes which have been separately considered. We are thus enabled, to some extent, to apply the method of synthesis, as well as analysis, to the elucidation of our subject.

There is a class of people who are often exposed to the influence of insufficient food, and impure air, and little exercise, sometimes for a considerable time. I mean the inmates of prisons. It is true that they are exposed, at the same time, to other noxious influences, but we have repeated proofs, taken from the Reports of the Inspectors of Prisons, that when their health begins to suffer, their condition may be much ameliorated by an improved diet, all other influences remaining unchanged.

Our inquiry, however, has reference to the influence which such an association of agents has in exciting the development of Scrofula; and the evidence on this subject is not very extensive. Baudelocque says, "That the evidence as to the effect of prison discipline to induce Scrofula, is unsatisfactory; but that there can be no question that Scrofula is frequently developed in such places, as much more so as the crowding is considerable."

The latest, and as some persons think, the greatest authority on the subject of Scrofula, denies that confinement in prisons induces Scrofula. Lugol, says, "We know that houses of detention are generally very humid; that they unite, if not all, the greater number of the things which are regarded as occasional causes of Scrofula, misery in every form, privation of air, of light, of exercise, the influence of heat, cold, and of damp, of coarse food, and in too small quantity, dirty and insufficient clothing in winter, a bad bed to lie on, and the deepest demoralization. The union of these causes occasions many diseases in prisons; Scabies, Prurigo,

Dysentery, Chronic Enteritis, Putrid and Jail Fevers; but to this list we must not add Scrofula; for not only is it not endemic in prisons, but we scarcely see a case there, and it is equally rare in the dampest and most unhealthy workshops."

The only commentary I shall append to the foregoing statement, is a letter addressed to me by Dr. Baly, the able Medical Superintendent of the Millbank Penitentiary. The document is so important, and so decidedly bears out opinions I have expressed, that I have thought it right to give it entire, together with the evidence upon which it is supported.* In this place I shall merely say, that I conceive the evidence he affords constitutes an ample proof of the following facts: that the mortality of prisons greatly exceeds that of the general population, and that, up to a certain period, it increases with the length of the confinement—that Phthisis and Scrofula seem to be developed more largely in prisons than among those who are free—that the predominance of those diseases must be regarded as the effect of this mode of punishment—and that the injurious influences which appear to be most active in producing them in prisons, are poorness and insufficiency of food, defect of exercise, impurity of the air respired, want of external warmth, and depression of spirits.

SUMMARY OF CAUSES.

The probable influence of the many agents which are said to be efficient to induce Scrofula have now been considered separately, and here I had intended to close the inquiry in so far as concerns this part of the subject. But as no inconsiderable portion of several years of my life has been devoted to the investigation of the disease, the opinions which I have formed of the causes of Scrofula may be usefully expressed in this place, where they can be given with more precision and in closer juxta-position than was practicable whilst I

* See Appendix.

was engaged in the somewhat controversial task, of considering contradictory opinions, or estimating the relative value of opposing testimony.

The influence exercised by a scrofulous parent, whether father or mother, in transmitting to the child a predisposition to Scrofula, is real, but of very limited extent; and it is not apparent that the influence of a scrofulous parent is more efficient to induce Scrofula in the child, than the influence of equal constitutional debility in a parent, originating in other causes than Scrofula. In other words, an ailing parent is less likely than a healthy one to give birth to a vigorous child, and a weakly child is more susceptible than a vigorous one of Scrofula, as well as of other diseases. But in the sense of a direct specific tendency in a scrofulous parent to reproduce in the child the same disease from which the parent suffers, in virtue of an agency of a different nature to that which would be exercised by simple constitutional debility in the parent, it seems to me we have no satisfactory proof.

The influence of immaturity of years, or of great age in a parent, upon a child, may be stated in the same terms and with the same limitations, namely: that the child of such a parent is less likely to exhibit ordinary vigour, and is, therefore, more susceptible to the agencies of disease than the child of healthy or vigorous parents, but he has not from that cause alone, a tendency to any particular disease, whether scrofulous, or of some other kind.

There is no proof that any form of contact or inoculation exercises any influence in the production of Scrofula.

The development of Scrofula is not shown to be so influenced by climate, or temperature, as to bear any definite relation to the warmth or coldness of the country in which the disease is found.

Neither the general mortality, nor the deaths from scrofulous diseases, bear any definite relation to the closeness with which the population is crowded together, whether

the comparison is made between one Town or District and another, or between different portions of the same Town or District.

Particular occupations and social conditions exercise a greater influence on health and the duration of life than is produced by impure air, or insufficient ventilation, but they do not operate in the production of Scrofula in the sense of a specific agent, or of a direct cause.

The general mortality and the deaths from particular diseases, bear a close relation to the poverty of the population, and to the vicissitudes, or alternations of prosperity or adversity, to which they may be exposed; whilst wealth and station, which ensure to the more elevated classes of the community, abundant food, ample clothing, convenient and well ventilated dwellings, and pure air, are nevertheless unfavourable to longevity; and the industrious labourer, whose toil ensures steady remuneration, and whose temperate habits and provident character, ensure him the necessaries of life, good of their kind and ample in quantity, is in the condition the most favourable to long life and uninterrupted health.

In the last result, then, it is to diseased nutrition, however brought about, that we refer the production of Scrofula; an opinion in which there may be no novelty, inasmuch as many authors have assigned to perverted nutrition a powerful agency in developing the disease—especially Carmichael, in England, and Lepelletier and Baudelocque, in France; yet my controversy with Baudelocque consists in a denial of the exclusive agency which he assigns to impure air in deranging nutrition:—and my object has not been to advance a novel theory, but to obtain, and group, and classify, a collection of observed facts, so numerous as to enable us to distinguish between essential, and secondary or accidental causes, and to ascertain (if such an estimate should be found to be practicable) the separate or relative value of numerous agencies in developing Scrofula.

Diseased nutrition is then, I conceive, the cause of that condition of the system which we term scrofulous; but diseased nutrition originates, it will be said, in various agencies, either acting separately, or associated together. Thus, the inheritor of a feeble frame, may owe to that circumstance an impaired digestion, in spite of the solicitude, and it may have been great, with which he has been reared, and of the prudence with which his food may have been adapted to his condition; or his occupation may have been so long continued, or of such a character; or impure air may have been so constantly respired, as in either case to derange the digestive functions; or, if no one of those agencies shall in itself have been sufficiently active to induce the disease, they may have been associated together, and when thus associated, may so impair, otherwise, the functions of nutrition, as to induce Scrofula, even when the food has been abundant in quantity and judicious in kind.

But the cause of diseased nutrition, at that period of life when the seeds of Scrofula are sown, is, in the vast majority of cases, insufficient food, or improper feeding, and even if the less direct agencies, which we have been considering, occasioned Scrofula much more frequently than we believe they do, the distinction is of great practical importance, viz.: that they do not act in virtue of a specific influence suited of itself to produce Scrofula, but as general morbific agencies which impair digestion, and thus indirectly contribute to the production of the disease.

That food, insufficient in quantity, or innutritious in quality, stands in the relation of cause to the development of Scrofula, more directly than any other morbific agent, is shown by this circumstance, that wherever food is abundant in quantity and of a sufficiently generous character, Scrofula is kept under, that is to say, it is less frequently seen, although other noxious agents are, perhaps, rife, and the general mortality is great; and that in our Rural

Districts, where the air is probably pure and the occupation healthy, and where the general mortality is small, Scrofula is largely developed; because the food, even when abundant, does not contain sufficient stimulus to preserve the frame in healthy vigour.

Yet, although we may have no satisfactory proof that a contaminated atmosphere, or any one of the other indirect agencies to which we have referred, will operate so injuriously on the digestive functions, as of itself to induce Scrofula; I do not the less deplore the influence of those debilitating agencies, which impair the healthy activity, and lessen the proper vigour of large numbers of our countrymen.

That the advantages to the health of the community, which have been held forth as the result of improved drainage and ventilation, have been very mischievously exaggerated, I believe; but it is not the less true, that impure air and stagnant filth, are noxious agencies, and that the dwellers in our crowded thoroughfares, will be benefited by their removal.

But, above all, let not the owner and occupier of the soil point to the increased value of life amongst the agricultural labourers, as a proof that they are sufficiently cared for. The healthy nature of their occupation, the absence of those frequent alternations of prosperity and adversity, to which the artisan is exposed, and the pure air they respire, may, to some extent, counteract the influences exerted by food of inferior quality, and the other deprivations to which they are subjected; but the extent to which Scrofula prevails amongst this class of the community, marks the privations they sustain, and indicates with sufficient distinctness, that their food, if sufficient in quantity, is in quality, at least, insufficient to preserve the man, engaged in active labour, in healthy vigour.

And when the decreased duration of life in our Manufacturing, as compared with the Rural Districts is considered, it may be safely assumed, that the working man

was, perhaps, never subjected to the same evil agencies as now act upon health and life amidst our Manufactories. Great alternations of prosperity and adversity, sudden and extreme vicissitudes, large earnings to-day, succeeded by half or no work to-morrow, uncertainty of occupation, irregular habits, prosperity inducing intemperance and creating factitious wants, whilst unaccompanied by those habits of providence which would prepare for the evil day, not far off;—all these, and many other such influences, operate with far more intensity on the manufacturing labourers, than the atmosphere they breathe, or the courts and alleys they inhabit; and according to the intensity of those influences they increase the general mortality, instead of developing the slower and chronic derangement, which assumes the form of Scrofula, and which is rarely induced by active agencies, but is manifested when the whole economy has been gradually and slowly contaminated.

The frequency of Scrofula amongst the classes of society who live in wealth or comfort, has been supposed to militate against any view of the disease, which assigned to insufficient food or improper feeding, a large share in the production of the disease. But diseased nutrition may co-exist with sufficiency of food, and even with seemingly judicious feeding, and is, perhaps, as frequently found in the pampered child of luxury as in the cottage of the peasant.

CHAPTER X.

TREATMENT.—PREVENTIVE MANAGEMENT.

To prevent, or to cure Scrofula, is the practical object of all our investigations upon the subject of the disease; and as prevention is better than cure, we will first indicate those precautions which may often retard, and in some cases altogether prevent, the manifestation of Scrofula, and will next suggest those methods of curing the disease when it shall have been manifested, which experience has shown to be the most successful.

Among the means of rendering the occurrence of Scrofula less frequent, well assorted marriages hold a prominent place. By well assorted marriages, I mean those contracted by parties in health and vigour; their children are more likely to be vigorous, and therefore less likely to suffer from Scrofula than the offspring of diseased or debilitated parents.

Lugol says,* in speaking of persons unhappily afflicted with Scrofula, "That the legislation of ancient Sparta was not probably less tolerant than our own on the subject of marriage; but we must recollect, that it ordered the sacrifice of such children as were born too feeble to become useful in the defence of their country. This custom, which is revolting to us, at least spared the new-born child the infirmities attached to a suffering existence; and besides that, it had the advantage of preventing those individuals from re-producing children, whose fate would be still more unfortunate than their

* Page 168.

own; it was, in fact, a means of restraining marriages to such persons as possess good health." Lugol adds, that, "Instead of pitilessly sacrificing children, who at the time of birth do not appear to possess qualities likely to make them robust citizens, it is much more humane, and much more worthy of advanced civilization, to arrest the evil at its source, by interdicting marriage to sickly and infirm persons."

Lugol's proposal to establish legislative restraints upon marriage, and thus render health and vigour necessary qualifications for wedded life, may be less repulsive to the humane tendencies of modern civilization, than were the stoical principles of Spartan government; but his suggestions would be as little tolerated in the social condition of our times, as would the code of Spartan law, and we must look to other means than these, for preventing or arresting the development of Scrofula.

Every child should derive its first food from the breast of a healthy woman; but many children cannot obtain this supply. The mother may be weakly, but if she has milk, she often chooses to nurse her child; and if she flags, from the drain upon her, she fortifies herself to meet it, by the use of as large a quantity of stimulants as may be necessary to support her failing strength; but such feeding often deteriorates her milk and lessens its nutritive power, so that the child's nutrition suffers. Or, the mother's supply may be cut off, then, if the circumstances of the parent admit of it, a foster-mother may be obtained, and the evil be thus partly remedied. But a foster-mother may not be, indeed, by the many, is usually not, attainable, and artificial feeding must be substituted. We have already shown, that under even favourable circumstances, that is objectionable. But when driven to it, the object we must seek to attain is, to place the child, as nearly as may be, in the same conditions as it would be if suckled at the mother's breast.

The fluid which most resembles Woman's milk, is that of the ass; but the supply is so small, that, practically speak-

ing, it cannot enter into our consideration as a substitute for the milk of the mother. The ordinary substitute for the mother, is the cow; and we have already seen how greatly her milk differs from that of Woman. It may be diluted, but though richer than woman's milk, in certain materials, it is poorer in others; and if dilution reduces one element to its proper standard, it leaves another below it; and the milk of the cow, even then, continues to be very unlike the child's natural food. Further, it usually happens that many cows concur to furnish food for a single child; the milk of twenty, or even fifty cows, may be mixed together, and although the milk of one cow may not disagree with the child, the mixture of two or more may. Besides, before the child gets the milk, it has usually been drawn many hours, often long enough to undergo a complete separation into parts, and it is no longer a homogeneous fluid, like that which the child draws from the mother's breast. Before it is used, it is often subjected to a heat sufficient to coagulate the albumen, and is thus rendered more difficult of assimilation. Those evils might, to some extent, be remedied, though in practice they will usually continue. The milk may be obtained from a single cow, and may be properly diluted, may be given before any separation has taken place.

It is true, that by many, the precautions which are suggested will be found impracticable; and it is probable, that even when practicable, they will often be neglected. The evil against which they are to operate, is of slow growth, or the warning would meet with more attention.

But supposing the fluid itself to be unexceptionable, the mode of taking it is usually objectionable. The nearer the administration of the food can be assimilated to the act of sucking, the better; because, the act of drawing the food from the woman's breast causes a pressure upon, and an excitement of, the salivary glands of the child; saliva then flows into the mouth, and is mixed with the food, which is thereby rendered more fit for the process of digestion; and unless that effect

accompany artificial feeding, one of the essentials of proper nutrition is not accomplished. Supposing the food to be well chosen, the bottle with such a nipple as is prepared by Weiss, from very fine cork, may fairly represent the ordinary organ, and the mode of taking artificial food becomes in this way less objectionable. But the fluid taken from the mother's breast, undergoes change from month to month. And in one month after delivery, the milk is different from that which is furnished six months later. The casein increases, and the sugar diminishes; so that the admixture, which might be proper at the early period, would not be equally proper at the later one. Then, the natural food of the child is very quickly assimilated, and soon passes rapidly out of the stomach, so that frequent feeding is necessary; if this be neglected, the stomach gets irritated, and nutrition is deranged. After nine to twelve months, a more animalized food is required; and although beef and mutton may, undiluted cow's milk may not be an improper description of nourishment.

It may be objected to this view of the case, that the Irish child, when he ceases to take food from his mother's breast, which he frequently does not, before the second year, subsists on a less animalized and much grosser food than the milk with which she furnished him, and that other children are reared on similar food. But, unless counteracted by other agencies, and probably even then, I believe that children so fed are less robust, shorter lived, and die in larger proportion, than those who, when deprived of the mother's milk, are supplied with food of a more nutritious character.

Important as is a healthy nutrition to insure vigour and arrest the growth, or even destroy the germs of disease, it is impossible to frame a universal standard of food, inasmuch as what is best under one train of circumstances, may be far from best under another. Climate, and other agencies, in this, as in other respects, require judicious changes of diet, and render particular modifications proper. The Irish child commonly takes nourishment from

his mother's breast, through much of the second year; after which, potatoes, with or without a little milk, or buttermilk, are his ordinary food. And the value of life is less, and the chance of Scrofula greater in him than in the child of the English agricultural labourer, (whose food is a mixture of bread and potatoes); although in air and exercise, the Irish child is at least as well off as the English.

It has been maintained of late that animal food is injurious to man, and that vegetable matter is his proper food. Into this controversy I do not propose to enter, further than to remark that, whether he belong to races that consume little or no animal food, man's organization makes it evident that his economy is adapted for its assimilation. Although in the dental organization there are no doubt differences, owing perhaps to the varying habits of different people; yet we do not find in any race the want of incisors, or canine teeth; and between those races, who for centuries have consumed little or no animal food—the Hindoos—and those who for an equally long period of time have consumed much—the American Indians—there is in this respect little substantial difference. I therefore cling to the notion that the Hindoo, as well as the Irishman, would be better for a moderate admixture of animalized food.

To me it appears inconsistent to maintain the necessity for animalized food during the first year of life, when the calls upon the child's system are certainly not greater than they are in the subsequent three or four years of life, and to contend that in the succeeding period, rice, or potatoes, or bread, uncombined with animal substances, are his proper food.

Under arrangements supposed to be the most favourable as to feeding, it must be admitted that Scrofula may arise; but were they really the most favourable, there are still cases in which animal food daily may be prejudicial. I recollect asking M. Menière, who presided over the Sourds Muets, at Paris, whether they gave all the children animal food twice daily. His answer was, "No, if it were given to new comers who

had not been accustomed to it, it would, or might induce mesenteric disease." Even when a child has always been within the reach of plenty, circumstances may occur to make animal food, if given every day, injurious. Bad teething, or any debilitating disease may irritate or enfeeble the mucous surfaces, so as to unfit them to bear the daily stimulus of animal food, and nutrition thus may languish, and Scrofula may be thus produced in a child, who has been brought up in the midst of plenty, and who has come into the world healthy.

Good feeding is a term which will convey a different impression to different minds. By good feeding, I mean in our own climate, a due admixture of animal and vegetable food. What the admixture should be, must vary with the individual, and with surrounding circumstances; one will require more, another less. The healthiest collection of children I ever saw, had but little animal food, but they had it daily, and they presented a minimum of sickness, with a minimum of mortality. Food well chosen, and digestion well performed, will produce good chyle, and this will find its way into the circulating fluid, but the influence of good air is then necessary.

The stomach having been supplied with appropriate nourishment, the lungs should be furnished with good air, and of this they should have a sufficient supply, by day and by night. This being essential to the well being of the individual, it is not enough that he should live in a country, where the air is pure; but he must inhabit rooms, where a due supply of such air is found. Every facility must therefore be afforded for the respiration of pure air, and there are few places where this cannot be obtained. That it does vary in different places is true, but unless in very confined situations, those changes are scarcely appreciable, which are brought about in the proportion of the elements of which it is composed. At the same time, it is certain that emanations capable of exercising an injurious influence on human beings may

be diffused through it; may, though not always, be cognisable by the senses, and yet their existence may not be demonstrable by chemical analysis. But it is not always in virtue of its purity that air is salubrious. A person may flag in Devonshire; he may come up to London, and there quickly rally. Thus much is certain, that at every period of life, frequent change of air and of scene is desirable. It is with the lungs as with the stomach, a single article of food, uninterruptedly taken, however good, will tire the stomach and enfeeble digestion, and occasional change of place seems essential to vigorous health.

A friend recently mentioned to me a case of "Scrofulous Ophthalmia" extremely obstinate, frequently relapsing under every plan of treatment employed, in which the child was taken from London to a place on the southern coast. At the same time the medical man to whom the patient was consigned had a similar and equally obstinate case under his own charge, which he sent to the London Surgeon. Both cases got well rapidly, and this without any sensible change in the plan of treatment.

It is not, however, enough to provide the means for making the blood pure by the influence of good food and good air; but means must be taken to make it circulate through the body with the necessary vigour. This it is which gives a value to the games of children, whereby active exercise is provided. Three things are therefore necessary to produce perfect health in a child, even when born of the ordinary vigour: good food, good air, good exercise. Give the child these, and no matter what may be the ailments of its parents, or the climate in which he lives, you will do much to build up a vigorous and healthy man. In England it is among the Rural Population that the conditions to which I have alluded are most fully realised, in as far as concerns air and exercise; but after the child has been deprived of the mother's breast, its food is almost exclusively vegetable. Taken as a class, it is amongst this portion of our population that life

has the highest numerical value; but it is among them that scrofulous swellings are most commonly found.

The practical question with which we have now to deal, is not to contrast the good or the evil which surround those two great divisions of our labouring poor, namely, the dwellers in Rural Districts, and the children of Factory Labour, or to show that it would have been better for our social economy if the one, or the other occupation preponderated to a greater extent than it does; but to inquire how the evils may be mitigated, or the benefits increased of that particular stage of social progress in which our lot is cast. For whatever charms may be found in the primitive manners and habits of the patriarchal age, it is not the lot of the many in our own land to possess much acquaintance with those manners or habits.

The air we breathe may be contaminated, the exercise we take may be constrained, the food we consume may be inappropriate, and the value of life become less than it might be, and than we know it to have been, in the early history of our race, but is not much of our altered condition inevitable? It is true that by various modifications of the prime conditions of existence, the evil effects of a single agent may be lessened, though not perhaps completely neutralised. Good food may strengthen a child, so as to enable him to resist the combined influences of impure air and deficient exercise, for a much longer time than would be possible for a child less well fed, of which ample proof has been given; and the same remark applies, though not with equal force, to the agency of air and exercise. The food which is found sufficient to maintain in health the rustic's child will not enable the child placed in a Workhouse, or inhabiting a crowded Town, to struggle against the evil agents by which he is surrounded. The one will require the greater nutrition afforded by animal food, whilst the other may derive stimulus, sufficient to give him a greater duration of life, from other agencies, although nourished by food into which animal tissues do not enter. It is in proportion

to the completeness with which the conditions to which I have referred can be carried out in Towns, that the health of such communities can be improved.

In our own country, the tendency of our social condition, is to lessen the opportunity for exercise in the open air, and to collect children together for the purpose of education, or training, or occupation, and the results of these practices upon the physical character of the child, are, I think, unfavourable.

A great social experiment is now in progress, from which most important consequences must follow. The truth seems deeply fixed in the minds of thinking men, that the character of our people is to be determined by the education or mental training they receive in childhood; and as the conviction is strong that the work cannot be begun too early, children are collected into Infant Schools, almost as soon as they can walk. And as I have had large opportunities (by which I have endeavoured to profit) of estimating the effect of such training upon the bodily health of the child, I will now express the conviction at which I have arrived.

I believe, then, the effect is prejudicial. I know that the health of those infants, who are suffered to amuse themselves as they please, during the day, is better, *cæteris paribus*, than that of those children who have been for many months regular attendants at Infant Schools. And the reason of the difference I apprehend to be this, that in children, the blood is vigorously circulated through the entire frame, by means of the exertion of the muscular system, and this exertion of the muscular system can only be maintained, by providing such amusement as will keep the body in motion. The listless walk around the school-rooms, though repeated many times a day, will not quicken the heart's action, and will not warm the hands and feet. And so long as the hands and feet, and the surface of the body remain cold for many hours of every day, so long the child will have congestion of some internal organs; and a state of permanent disease is readily

induced; digestion is ill-performed, nutrition is defective; and if this state of things be long continued, Scrofula may be the consequence.

After the period of infant life has passed, the evils of the system pursued in Educational Institutions, whether for the rich or poor, of training the mind, without sufficiently exercising the body, is not lessened. Of the three conditions to which we have referred, even among those who are not poor, one only—feeding—is ordinarily realised. There is often too much crowding, both by day and by night, and too little exercise. The result is, the delicate complexion, the cold chilblained extremities, the languid circulation, which often accompany childhood, but which are so unnatural at that energetic period of life. The periodical and measured walk, whether taken daily or weekly, by no means imparts to the system the needful muscular energy. Exercise ought to be energetically and cheerfully taken, it is best in games, it should be unconstrained, and it should not wear the aspect of a daily task. Indeed, unless education is so managed, that complete exercise of the muscular system shall alternate with, and occupy as much time as the mental exercise, vigorous bodily health will rarely be attained.

Mr. Carmichael says: "From some observations I have made on other Institutions, for instance, St. Thomas's Parochial School, and the Bethesda School, to which I was medical attendant, I came to the conclusion that depriving children of that active exercise in the open air, which is so necessary to their health and development, is almost as injurious as improper nutriment. Let a healthy child have sufficient exercise, and his powers of digestion are so sharp, that he will perhaps assimilate the most inappropriate diet: otherwise the majority of the children of our poor would become scrofulous: deprive him of his liberty, and his nutriment will remain undigested, and occasion all the symptoms I have mentioned. The children of both schools were fed, clothed, and taken the best possible care of, with this excep-

tion, that from the want of play grounds, they were prevented from the enjoyment of active exercise; and although free from disease at the time of admission, near one third of their number was found exhibiting the symptoms of Scrofula. They were marched out, no doubt, when the weather permitted, once a day, in a sober, funeral-like procession; but let no person imagine that such dismal, boarding-school exhibitions, are sufficient for the health of children."

In the course of my investigations, I have had abundant opportunities of satisfying myself that the dull routine exercise which is provided for children, in certain establishments, does expose them to the risk of Scrofula. It is not convenient to point out the Institutions to which I refer, but it may be sufficient in this place to state that even where the children are fairly fed, and that the rooms they inhabit are spacious, but their exercise is not unconstrained, or suited to the character of children, there much Scrofula is found.

Mr. Turnbull, after examining the children of the Austrian Military School, at Wienerisch, Neustadt, says "the instruction is imparted on a system of fixed regularity, and with a special view to practical utility. All that may tend to excite the imagination being here, as elsewhere, as far as possible excluded. The day rooms are large and commodious; the dormitories are particularly good, being spacious halls, excellently clean and well ventilated, in each of which are beds for 30 to 40 pupils, all separate. The food is good. The sedentary studies are never continued for more than an hour, or an hour and a half, without an intermission of twenty or thirty minutes, and due exercise in the open air is regulated and enforced. Yet with all these regulations and advantages, the youths had not to my eye a fresh and robust look. They were said to be healthy, but they generally, and especially the elder ones, appeared puny and sickly. There seemed nothing in the air of Neustadt to render them so; and if the fact be as it appeared to us, I should rather ascribe it to that great

German sin of over regulation, which supervises not only all their studies, but likewise all their so-called regulations. Amid modern theories of education, and which prevail in other countries besides Germany, few perhaps are more particularly erroneous than the system which would always be teaching something; always in every form of play seeking to impart instruction. The gymnastics and equitation at Neustadt become thus as completely matters of study, and are probably performed with as much gravity of attention as the task of mathematics, or of history, because they are performed under the eye of the teacher. In the inaptitude of youth for any long continued application, nature herself points out the expediency of alternate repose to the mind, of entire vacancy of thought; but man too often endeavours to counteract this wise disposition by ever endeavouring to engage the attention by some new object of instruction. The animal spirits, those delightful harbingers of health and energy, mental and corporeal, are stunted in their very spring when the boy is debarred from those alternations of idle, thoughtless independence in his sports, which is not less essential to the formation of his future character than the practice of his severer studies. The mind is frittered away by the multitude of pursuits, and filled with a number of crude and confused ideas. It becomes paralysed by over work, or precociously and morbidly active by over excitement. A being of dull and orderly correctness may be produced by such discipline; or the memory may be overcharged, (to the probable ruin of the reflecting power), so as to delight unthinking relatives with the multitude of acquired ideas: but as the lad has wanted the freshness of youth, so he will probably in after years be without the vigour of manhood."

If the preventive measures which have been recommended were efficiently carried out, Scrofula would unquestionably be less frequent than is now the case, and when present, be less formidable. Unhappily, however, a large part of the population can only partially employ the preventive remedies so

desirable; and by many who might adopt them, the more important of those remedies will be disregarded. Scrofula will therefore continue to be developed, and when the disease is manifested, our efforts must be directed to the cure or relief of the patients.

CURATIVE TREATMENT.

To remove from the constitution the taint of Scrofula has ever been regarded as a great difficulty, by some persons even as an impossibility. Lominius, therefore, only expressed the opinion which prevailed in his time when he said, "Strumæ magno negotio tolluntur." Yet the hope of discovering a specific has always been cherished; and scarcely a quarter of a century passes without the introduction of some agent, whose power over the disease is said to be absolute. But we have arrived at the middle of the 19th century without the discovery of a single medical agent upon which we can rely for the cure of the disease.

The unsuccessful search for specifics—the failure of the viper's flesh, the scorpion, the lizard, the cauterization of the ear, the touch of the dead felon's hand, the drinking out of human skulls, and various pilgrimages—paved the way for one of the most singular superstitions which ever held in subjection the human mind, namely: "the Touch."

SUPERSTITIOUS PRACTICES FOR THE CURE OF SCROFULA.

The employment of superstitious practices as a means of healing, seems coeval with the earliest historic records, and their influence is intimately connected with the power exercised over the body by the imagination.

The people of Britain and Gaul sought from the Druids the cure of diseases, not alone because of their high esteem for the wisdom and learning of the priests, but from a belief that

an intimate connexion subsisted between the art of healing and the rites of religion. The 13th and 14th chapters of Leviticus contain laws for the treatment of lepers by the Jewish priests; and the Sacred Scriptures narrate cures effected by prophets and other holy men; whilst, even in our own times, in Mohammedan countries, the sick are taken to men of reputed sanctity, by whom they are touched, and certain verses of the Koran are repeated over them. The cures effected by our Lord and his disciples, resulted from the immediate exercise of miraculous powers, and are not to be confounded with effects originating in superstitious influences.

One of the most ordinary rites of healing, was touching the sick. Thus, Naaman expected the Prophet Elisha would strike his hand over the place, and recover the leper. Pliny says, that "Pyrrhus cured a diseased spleen by placing the great toe of his right foot upon the left hypochondrium of a patient, who lay down before him."* Tacitus and Suetonius say, that "Vespasian cured two persons at Alexandria, one blind and the other lame, by touching them." And the power of curing Scrofula by the touch, has been said to be a peculiar attribute of the Sovereigns of England and France; but the claim to a successful exercise of the touch has not been confined to those monarchs, and the following narrative describes a cure attributed to a Norwegian King, who reigned from about 1015 to 1030.

In the younger Edda, which, according to Snorro Sturleson, was published between 1178 and 1241, is the Heimskringla Norege Konunga sögor, or the History of the Norwegian Kings. In the 7th Book, Chap. 200, containing the life of King Olaf Haraldsson, (or as he was afterwards styled, Saint Olaf), we find the following narrative. "When the King was at Gadariki, a widow's son, with a swelling in his neck (kuerka sull), sick almost to death, was presented to him. The mother of the young man had been with the Queen

* Book VII. chap. 2.

Ingigerda and had taken her son with her. The Queen said to her, 'You have no physician. Go to King Olaf, say to him, he is here the best physician, and beg him to lay his hand upon the swelling, and he shall be well.' The woman did as the Queen desired her. When she came to the King, she told him that her son was sick to death with the swelling of the neck, and begged him to lay his hand upon the swelling. The King said to her, he was no physician, and that she should go and seek one. The woman, however, said that the Queen had sent her, and desired her to tell the King to use the remedy that he knew, and that he was here the best physician. Then the King laid his hand on the lad's neck, and held the swelling until he could move his jaw freely; then he called for bread, laid it crosswise in his hand, and put some into the lad's mouth. He swallowed it, and all the pain soon vanished from the tumor, and in a little while it was well, to the great joy of his friends and neighbours."

The compiler of the Heimskringla expresses his belief that the touch was not unfrequently practised in Scandinavia, and that it was derived from the mystical practices of the Druids in curing disease.

When the touch was first exercised by the Sovereigns of France, I cannot satisfactorily ascertain. Forcatulus attributes it to Clovis; and it is vouched by some French authors, that the power was conferred on Clovis by St. Rémi, Archbishop of Rheims, A.D. 496, after the Battle of Tolbiac. Barbier,* and Zentgraff,† and Hilscher,‡ attribute the practice to Clovis and the Merovingian Kings. Dupleix and Daniel,§ do not think it was possessed by any French King before Philippe I., who ascended the throne in 1060; and yet, Guibert, Abbé de Nogent,‖ says, "That for certain crimes,

* Les Miraculeux Effets de la Sacrée Main des Rois de France pour la guérison des Maladies, &c. Lyon, 1618.

† De Tactu Regis Franciæ, &c. Viteb., ed. 3, 1675.

‡ Progr. de Cura Strumarum Contactu Regio Facta. Jen. 1730).

§ Tome 1. p. 1032 et 1128.

‖ De Pignoribus Sanctorum.

the power was withdrawn from Philippe I., but that he often saw Louis le Gros successfully practice the touch with the sign of the Cross." Louis le Gros did not reign until 1108. William of Nangis says that St. Louis first used the sign of the Cross in touching diseased persons; but it appears, from the statement of Guibert, that St. Louis only restored the use of it. Pope Boniface VIII. in his Bull for the canonization of Louis, says, "Among other miracles, the King conferred the benefit of health upon those that were afflicted with King's Evil. It is said, that Philip of Valois cured 1400 scrofulous patients.* Francis I. touched for this distemper, at Bologna, in the presence of the Pope, in 1515, and also whilst a prisoner in Spain. Étienne de Conti, of Corbie,† who wrote in the fifteenth century, describes the ceremonies which Charles VI. observed in exercising the touch. "After he had heard mass, a large vase, full of water, was brought to him, and his Majesty, having prayed before the altar, and touched the sufferer with his right hand, washed it in the water, which the patients carried away, and applied upon the part, nine days, fasting." The continuator of Monstrellet, states, that he saw Charles VIII. during his visit to Rome, touch scrofulous patients, which were brought to him, cure them, and strike with wonder the astonished Italians. Francis I. touched for Scrofula, at Bologna, in 1515, in the presence of the Pope; and during his captivity in Spain, the Spaniards flocked to him to be healed, the touch not being exercised by the Spanish monarchs. The following lines allude to the subject.

> Hispanos inter, sanat rex chæradas, est que
> Captivus superis gratus ut anté fuit
> Indicio tali, regum sanctissime, qui te
> Arcent, invisos suspicor esse deo.

Jacques Moyen, a Spaniard, who had established himself

* Butler's Lives of the Saints, (St. Edward).

† History of France.

in Paris, as a needle-maker, requested permission of Henry III., in 1576, to build, in one of the faubourgs of the town, a hospital for the reception of those multitudes of scrofulous persons, who, for the purpose of receiving the royal touch, came to Paris, where no asylum was provided for them; but the civil wars put an end to this benevolent project. Dionis says, that King Henry III., touched for Scrofula four times a year, and that 700 or 800 patients were presented on each occasion, many of whom were cured. The practice was continued, on the occasion of solemn ceremonials, up to the reign of Louis XV.; and Gemelli states, that on Easter Sunday, A.D. 1686, 1600 persons were touched by Louis XIV, and that the words used by the King were, "Le Roy te touche, Dieu te guérisse." The practice, which fell into disuse in the reign of Louis XV. was revived by Charles X., who touched at his coronation; upon which, Alibert remarked, "There was in this a great advantage, as stimulating the liberality of the King."

The greater number of French authors incline to the opinion, that the English Monarchs healed Scrofula by the touch, at an earlier period than the Frankish Kings, and general opinion ascribes the origin of the practice, among ourselves, to Edward the Confessor, who ascended the throne in 1041. William of Malmesbury* relates, that, "While Edward resided in a palace, near the Church of St. Peter, Westminster, he cured an Irishman, named Gillemichel, who was a cripple, and covered with running sores." He also mentions the case of a young woman, "who got an ill state of health, by an overflowing of humors in her neck, which broke out in great nobbs; that she was commanded, in a dream, to apply to the King to wash it. To Court she goes, and the King being at his devotions, all alone, dipped his fingers in water, and dabbled the woman's neck; and he had no sooner taken away his hand, but she found herself better; the loathesome scab dissolved, so that worms and purulent

* De Regibus Angliæ.

matter bursting out together, all the noxious humor disappeared; but the lips of the ulcers remaining wide and offensive, she continued at Court till she was well, which was in less than a week's time, the ulcers being so well closed, and the skin so fair, that nothing of her former disease could be discerned." William of Malmesbury adds, that, "It was the constant report of such as knew the life of Edward, that he had healed many of the same disease while he lived in Normandy." These statements are repeated by Ailred, Abbot of Rievaulx, (in his work* written about the middle of the twelfth century,) by Capgrave, Hovedine, Matthew of Westminster, Brompton, Tagaultius, Polydore Virgil, and others.

To what extent the touch was practised by the immediate successors of Edward, history, so far as I know, is silent, or allusion is only incidentally made to it; but, in the Computus Hospitii of Edward I., preserved among the Records in the Tower, the practice is mentioned, together with the sum of money which the King gave his patients at their departure. In the accounts of the Household of Edward I.,† it is said, that he had cured 182 persons. Archbishop Bradwardine, who died in 1348, and who appeals to the world for the cures performed by the royal touch in the time of King Edward III., uses very strong expressions concerning the antiquity of the practice.‡

Sir John Fortescue,§ who wrote just after Henry IV's accession to the crown, represents the gift of healing as a privilege which had, from time immemorial, belonged to the Kings of England; and he is so particular, as to attribute this power to the anointing of their hands, which is used at the coronation; and therefore says, that Queens can have no such gift, because in their case, that part of the ceremony is left out. "However, we know," says Freind, "that Queen Elizabeth thought her-

* De Vita et Miraculis Edwardi Regis et Confessoris.

† Nicholls.

‡ In Libro de Causa Dei, l. 1. cap. 1. corol. pars. xxxii. p. 39.

§ Defence of the Title of Lancaster, in the Cotton Library.

self so much a King, that among other royal functions, she frequently exercised this." Laneham, in speaking of Elizabeth's proceedings at Kenilworth, says, "And also by her Highness' accustomed mercy and charitee, here cured of the peynful and dangerous diseaz, called the King's Evil, for that Kings and Queens of this realm, without other medsin, only do cure it." Shakspeare has described this belief, in the virtue of the touch, current in his time.* According to Fabian Phillips,† in the time of Elizabeth, the practice cost £3000 a year. From the time of Queen Elizabeth, the number of persons presented to the Sovereign increased so rapidly, that the bulk and value of the coin used was lessened.

In 1616, James issued a proclamation, forbidding those afflicted with the Evil from approaching him during the summer months; and in 1626, he issued a second proclamation, ordering that no one should apply to be touched who could not bring a proper certificate, that he had never been touched before.‡

In the reign of Charles I., a strong impression of the efficacy of the practice pervaded the public mind. Applications for admission to the King became very numerous, and the following Proclamation was issued in consequence.

"*A Proclamation for the better ordering of those who repair to the Court for the cure of the disease called the King's Evil.*

"Whereas, by the grace and blessing of God, the Kings and Queens of this realm, for many ages past, have had the happiness, by their sacred touch, and invocation of the name of God, to cure those that are afflicted with the disease called the King's Evil; and his now Most Excellent Majesty, in no less measure than any of his royal predecessors, hath had good

* Macbeth, Act IV., Sc. 3.

† Treatise on Purveyance, p. 277.

‡ Nichol's Lit. Anec. vol. II., p. 499.

success herein; and in his most gracious and pious disposition, is as ready and willing as any King or Queen of this realm ever was, in anything to relieve the distresses and necessities of his good subjects; yet, in his princely wisdom, foreseeing that in this, as in all other things, order is to be observed, and fit times are necessary to be appointed for the performing this great work of charity. His Most Excellent Majesty doth hereby publish and declare his royal will and pleasure to be, that whereas, heretofore the usual times of presenting such persons to his Majesty for this purpose, were Easter and Whitsuntide, that from henceforth the times shall be Easter and Michaelmas, as times more convenient, both for the temperature of the season, and in respect of any contagion which may happen in this near access to his Majesty's sacred person; and his Majesty doth accordingly will and command, that from the time of publishing this Proclamation, none presume to repair to his Majesty's Royal Court, to be healed of that disease, before the Feast of St. Michael, now next coming."

"April 6, 1630."

Cromwell, it is said by Brown, tried in vain to exercise this royal prerogative, "He having no more right to the healing power than he had to the royal jurisdiction." The belief in the efficacy of the royal touch seems to have been greatest in the reign of Charles II. After the Restoration, the numbers flocking to Whitehall and Windsor were immense. And at that time, it was stated that none ever failed of receiving benefit, "unless their little faith and incredulity starved their merits." Some are said to have been cured immediately on the very touch; others did not get rid of their swellings until they were touched a second time. In winter, the ceremony was always held at Whitehall; in summer, at Whitehall and Windsor. An exact register was kept of those who were admitted; and in twelve years, the almost incredible number of 92,107 persons were touched; and on one day, in June, 1660, 600 persons.

In Camden's Britannia, a proclamation is mentioned, appointing two periods for coming to James II., to be touched; one from Michaelmas to Christmas, and the other, from Christmas to Lady-day. On the 9th of January, 1683, a proclamation was issued, to be read in all parish churches, directing that Churchwardens should keep a register of all certificates granted; and for many years, such a register was preserved in the vestry of the Church of St. Martin's, Leicester. In the Register of the parish church of Wadhurst, Sussex, there is, or was, the following entry.

"We, the Minister and Churchwardens of Wadhurst, in the county of Sussex, do hereby certify, that Mr. Richard Barham, of this parish, aged about twenty-four years, is afflicted, as we are credibly informed, with the disease commonly called the King's Evil, and (to the best of our knowledge) hath not heretofore been touched by his Majesty for the said disease. In testimony whereof, we have hereunto set our hands and seals, this 23rd day of March, 1684.

JOHN SMITH, *Vicar.*
ROBERT LONGLEY,
THOMAS YONGE, } *Churchwardens.*"

The following memoranda are copied from the Register of the Parish of Stanton, St. John, near Oxford.

"An Account of Certificates given of persons having not before been touched for the King's Evil."

"Feb. 25, 1683—4. A certificate given concerning Thomas and Amy Grant, 1686, Sept. 5. I gave a certificate for Mr. Mason's daughters, Alice and Avice, who were touched by the King, Sept. 19, as Mr. Mason told me, 1705. Nov. 25, I gave a certificate concerning Ralph Gilbert's son, Ralph, not being formerly touched for the King's Evil."

From the Report of the proceedings for high treason, taken in the reign of James II., in Scotland, on account of the Duke of Monmouth's rebellion, it appears, that the Duke

was charged with having touched children for the King's Evil, and exercised the other functions of royal dignity.

The son of James II., a wanderer and a fugitive, "Long exercised in the Hospitals of Paris the only power which no one cared to dispute with him, that of healing the sick; whilst his brother-in-law, who had driven him into exile and deprived him of a Crown, was so persuaded," says Rapin, "he should do no injury to persons afflicted with this distemper by not touching them, that he refrained from it all his reign."

Mr. Barrington relates the case of an old man, who had by his evidence fixed the time of a fact, by Queen Anne's having been at Oxford, and touched him while a child for the Evil. Barrington adds, "When he had finished his evidence, I had an opportunity of asking him whether he was really cured. Upon which he answered, with a significant smile, that he believed himself never to have had a complaint that deserved to be considered as the Evil, but that his parents were poor, and had no objection to the bit of gold. It seems to me," Barrington further observes, "that the piece of gold which was given to those who were touched, accounts for the great resort on this occasion, and the supposed afterwards miraculous cures."*

It is recorded in the newspapers that at the suggestion of Sir John Floyer, a physician of eminence, then residing at Lichfield, Dr. Samuel Johnson's mother brought him to London to be touched by Queen Anne, but it was without effect. This was on the 30th of March, 1714, when 200 persons were touched, and this seems to have been the last occasion on which the touch was publicly practised in England, as Queen Anne died on the 1st of August, 1714, and from the accession of the House of Brunswick, the ceremony was discontinued.

In the Appendix will be found the form of the ceremonial of touching, as practised in the reign of King Henry VII., "who," says Lord Bacon, "was a great observer of religious

* Letters from the Bodleian Library, vol. II. p. 251.

forms," and seems to have been the first of our Kings that established the particular ceremonial which was afterwards used. In succeeding reigns these ceremonies were somewhat changed, as will be seen by a reference to the forms of Charles I. and II. In the reign of Queen Anne, the ceremony underwent further alteration, and the service, at that time used, may be found in the Book of Common Prayer printed at Oxford in 1719.

The pieces of gold first used, were not coined for the purpose, as those in later times were, but were the current coin known as an Angel Noble; on one side of which, an Angel is impressed. The inscription on its reverse, was originally, "Jesus autem transiens, per medium eorum ibat:" but in the reign of Elizabeth, it was superseded by the following: "A Domino factum est istud et est mirabile in oculis nostris," for which were substituted in the reign of Charles II. the words, "Soli Deo Gloria."

It was supposed that the gift could only be exercised by one who was a King by divine right; and Carte brought discredit upon his history by giving an account of Christopher Lovell's recovery from a grievous attack of King's Evil at Avignon, after the exercise of the touch by the Pretender, in August, 1716. In the succeeding January, he was quite well. Carte, it is true, was puzzled about the cure, because it was performed by a person who was not an anointed King, but when Prince Charles Edward was at Holyrood, in October, 1745, although he only claimed to be Regent and Prince of Wales, he touched a female child for the Evil, who it is said was well in twenty-one days.*

Valentine Greatrakes, born in 1628, acted as Clerk of the Peace for the County of Cork. He wrote an account of himself in 1666, in which he says, "About four years since, I had an impulse, which frequently suggested to me that there was bestowed on me the gift of curing the King's Evil, which for the extraordinariness thereof, I thought fit to conceal for

* Constable's Miscellany, History of the Rebellion.

some time, but at length I told my wife; for whether sleeping or waking, I had this impulse; but her reply was, that it was an idle imagination. But to prove the contrary, one William Maher brought his son to my wife, who used to distribute medicines in charity to the neighbours; and my wife now came and told me that I had now an opportunity of trying my impulse, for there was one at hand that had the Evil grievously in the eyes, throat, and cheek; whereupon I laid my hands on the places affected, and prayed to God for Jesus' sake to heal him. In a few days afterwards, the father brought the son with the eye so changed that it was almost quite whole; and to be brief, (to God's glory I speak it), within a month he was perfectly healed, and so continues."

His fame soon spread. The clergy of the diocese became alarmed, and he was cited by the Dean of Lismore before the Bishop's Court, by which he was forbidden to exercise his gift for the future. This he disregarded, and his fame having reached England, Flamstead, the astronomer, went over to Ireland to be touched by him, but was not cured. He was sent for to cure the Viscountess Conway of an inveterate head-ache, in which he also failed. The King invited him to London, and the Royal Society expressed the opinion that his success depended on a sanative contagion in Mr. Greatrakes' body. After his return to Ireland his reputation was not sustained. Greatrakes concludes his own narrative by saying, "Whether I have done my duty as a Christian in employing that talent which God had entrusted me withal, to the good of people distressed and afflicted, or no, judge you and every good man. Thus far I appeal to the world whether I have taken rewards, deluded or deceived any man."

Greatrakes was a man of unquestioned probity, and always refused to accept any reward for his gifts, and a person so scrutinising as the Honourable Mr. Boyle, has vouched for the great number of cures which he performed.

A belief long prevailed that a seventh son of a seventh

son, and a ninth son of a ninth son, with no intervening daughter, could cure the Evil by touching the patient, and it appears from a work* which was published at Aix in 1643, that the practice of touching by the seventh son of a seventh son was then frequent, and the belief in its power general.

There still is, or lately was, in Devonshire, a farmer who is a ninth son of a ninth son, and supposed in consequence of his birthright to be endowed with extraordinary powers of healing; he *strikes for the Evil* one day every week. And an intelligent surgeon informs me that some of his cures in scrofulous cases "are really astonishing." His fame is high in his district, and he takes care to preserve his credit by not undertaking the cure of all cases.

Such is a succinct account of the practice of the Touch for the cure of Scrofula, and very remarkable it is. And no less remarkable is the decisive testimony in its favour of men of unquestioned probity and high attainments.

In Dr. Thomas Allen, of Caius College, Cambridge, Physician in Ordinary to Charles II., who published a Treatise, which he entitled, "The Excellency, or Handywork of the Royal Hand," in Richard Wiseman, Sergeant-Surgeon after the Restoration, one of whose chirurgical treatises is entirely devoted to the King's Evil, and in John Brown, who was Surgeon in Ordinary to Charles II., and whose curious book is said to be "to the King's great liking and satisfaction," we have writers who narrate contemporary events, and who from their position were peculiarly qualified to describe the effects which resulted from the touch in their time.

Wiseman and Brown speak to numerous cures of which they were eye-witnesses; and Wiseman, whose name as an accurate observer and skiful surgeon, deservedly ranks amongst those who have raised the character of surgery in this country, and whose Treatise on Scrofula shows that he fully understood the disease, says: "His Majesty cureth more

* Traité de la Guérison des Ecrouelles, par l'Attouchement des Septénaires.

in any one year than all the chirurgeons of London have done in an age;" and in another part of his work; "I myself have been a frequent eyewitness of many hundreds of cures performed by his Majesty's touch alone, without any assistance of chirurgery, and those many of them such as had tired out the endeavours of able chirurgeons before they came thither. It were endless to recite what I myself have seen, and what I receive acknowledgments of by letter, not only from the several parts of this nation, but also from Ireland, Scotland, Jersey, and Guernsey."

And the statements of Wiseman with respect to the great number of strumous persons that flocked to Whitehall, are confirmed by actual Returns. These statements serve to show the prevalence of the belief, its influence upon the population, and its encouragement by men of professional eminence; and whatever exaggeration there may have been in the narration of the cures effected, it would be unphilosophical to deny altogether the alleged results, simply because we may be unable to offer a satisfactory solution of any agency by which those results can have been produced.

It might harmonize with that sceptical temper which will admit nothing that it cannot explain, to treat a belief in the cures attributed to the royal touch as altogether the offspring of credulity, nourished by accident or contrivance, and fostered by adulation and party zeal. But however much any of those influences may have contributed to originate and propagate a belief in the virtue of the touch, the conclusion must be conceded, that cures frequently followed the practice, although they may not have resulted from the imposition of the King's hand.

The long continuance of the practice of touching scrofulous patients, the numbers that were touched, and the prevalent belief in the efficacy of the practice, are phenomena which, it seemed to me, I could not disregard in a Treatise on Scrofula.

It belongs to the divine, rather than the physician, to dwell upon the religious character of the ceremony, except in so far as the religious ritual may have operated upon the imagination of the patient, and by increasing his confidence in the means employed, multiplied the chances of his recovery.

Galen says that confidence and hope do more good than physic, and he cures most, who best acquires and retains the patient's steadfast confidence. And Bacon, in the advancement of learning, whilst treating of the reciprocal action of body and mind, says: "All wise physicians, in their prescriptions of their regimens to their patients, do ever consider *accidentia animi* as of great force to further, or hinder remedies or recoveries; and more especially it is an inquiry of great depth and worth concerning imagination, how and how far it altereth the body proper of the imaginant."

I have a perfect reliance on the probity of Wiseman, who was a witness to facts which he had himself observed; and I have a full belief in the substantial accuracy of his statements; but I do not, therefore, concede that the cures which followed the royal touch were the result of any virtue inherent in the Sovereign; nor was the larger proportion of those cures altogether the effect of the confidence of the patient in the remedy, operating on the bodily frame through the influence of the imagination: although it is possible that some cures may have been thus wrought, and that more may have been thus accelerated. But I believe that, in the great majority of instances, the cures which followed the royal touch, resulted from agencies, which operate in the present day with the same power they did in former times.

The truth is, that of the scrofulous patients who suffer from enlarged glands in the neck, nine out of ten do get well under almost any rational plan of treatment. The tendency to improvement is most remarkable in spring and summer months, those being the seasons of the year at which a large portion of the persons touched by Charles II.

were presented to his most gracious Majesty, and who, whether touched or not, might be reasonably expected to be much better by the end of summer. Ignorant as even many professional persons were at that time of the natural history of the disease, it was not surprising that they should attribute the cures which followed the touch to the ceremony itself. But with increased knowledge, we may form other judgments, and can, without presumption, refer those cures to other causes than the imposition of the King's hand.

CURATIVE TREATMENT BY ORDINARY MEANS.

It is not my purpose to enter into any formal estimate of the virtues of each of the many agents which have been employed in the treatment of Scrofula, because to do so would be an unprofitable use of time. Many of them may have suited the peculiar circumstances of particular cases, but few of them afford any experience or even promise of usefulness, as general remedies. To give the catalogue of those treated of by Hufeland, will be to demonstrate the correctness of that opinion, because if any of them possessed the remedial powers ascribed to them, the very lengthened catalogue of remedies to which I shall refer, would be unnecessary. It includes Food, Air, Exercise, Frictions, Cleanliness, Tepid-bathing. Emetics, Purgatives, Antimony, Mercury, Baryta, Muriate of Lime, Bark, Iron, Aromatic and stimulating Tonics, Hemlock, Opium, Henbane, Belladonna, Dulcamara, Digitalis, Assafœtida, Burnt Sponge, Alkalies, Absorbents, Guaiacum, Coltsfoot, Bitter Extracts, Mineral Water, Sea Water, Enemata, Issues, Baths.

Although it is unnecessary to consider how well each remedy I have enumerated deserves the commendation which has been lavished on it, because upon the worthlessness of many of them, all are agreed, yet as there are some of those remedies which have been, and indeed still are, so

generally employed in the treatment of Scrofula, and as by some persons, they are still conceived to possess specific virtues, it is our duty to offer some remarks upon the claims they possess to our favourable opinion.

As might be expected, in the absence of any medicine possessing an undoubted specific influence over the disease, an eager desire has always been manifested to discover some remedy upon which general reliance might be placed, even though its power to control the disease should not be absolute. I shall first proceed to show that we know no such general remedy, still less any specific in Scrofula; although even a specific virtue has been claimed for many agents.

The agents which I propose to consider, are Mercury, Iodine, the Muriates of Baryta and Lime, Burnt Sponge, Alkalies, Cod Liver Oil, Sea-side influences and Season, and, incidentally, those which are associated with general plans of treatment, such as Emetics, Purgatives, Alteratives.

MERCURY.

There is probably no medicine, not even Iodine, which has enjoyed a larger amount of public favour than Mercury in the treatment of Scrofula. It was the sheet anchor of Akenside, of Bordeu, of Portal, of Hufeland. And, for a time, almost every form of this medicine has enjoyed public confidence; but Calomel, Corrosive sublimate, and the Black sulphuret, or Ethiop's mineral, have been the most extensively employed.

The principle upon which the curative power of Mercury is conceived to rest, has been as varying as the remedy which has been used. Hufeland thought the forms of Mercury exercised a specific irritation upon the lymphatic system, that they neutralised the scrofulous irritation in virtue of a general law of the economy, " that different modes of irritation mutually destroy each other," that they increased the absorbent and secreting power of glands, " as is proved by

the resolution of scrofulous tumors," and that they corrected the acrimony of the lymph by a semi-chemical action. He thought there was no medicine which could be put in comparison with Mercury, for the promptitude with which it dissipates scrofulous symptoms, and particularly tumid glands.

Hufeland thought Mercury should not be carried far enough to induce salivation, because whatever enfeebles is injurious; but he admitted that this rule was not without exceptions. Thus he says, "The reare cases, namely, where the engorgements are very rebellious, where the best practitioners concur in the opinion that it is useful to carry the use of Mercury even to salivation, for the purpose of ascertaining with certainty that the lymph is sufficiently impregnated with mercurial particles, and that a sufficient revolution has been produced in the system."

Girtanner was opposed to the use of Mercury, on the grounds, that irritants of the lymphatic system could not be properly administered in an affection where that system was already greatly irritated; and that, therefore, they ought to be altogether rejected in the treatment of Scrofula.

Into the theories of the *modus operandi* of Mercury in Scrofula, I have no wish to inquire, because I am sure the inquiry would lead to no satisfactory results. I do not know the *modus operandi* of Jalap or Ipecacuanha; but this fact I know, that given in sufficient doses, the one is usually a purgative, the other an emetic. The opinion that an irritation of the lymphatic system may be appropriately treated by means of stimulants of this same system, is said to be inconsistent with sound principles of medical science, but we do not know that in Scrofula there is irritation of the lymphatics; we do not know that Mercury excites such irritation; we do not know, either, that Mercury cures Scrofula; and even if it did, there is no agreement as to the plan upon which it should be administered.

I will not occupy time by considering the theories which

have been invented to explain the action of Mercury, as the best of the remedies employed for the cure of Scrofula; but I will simply deny that it is an agent upon which we can rely for the cure of Scrofula. In the sense of a remedial agent, capable alone, and under ordinary circumstances, of removing Scrofula from the constitution, Mercury is not, I believe, entitled to any confidence; but in the sense of an agent to be variously associated with other medicines, according to the symptoms of the disease, there is no doubt but that it will be found useful in many cases of Scrofula. In some instances, in virtue of a purgative, in others of a general alterative influence. But I am satisfied that when so administered as to lower the general powers, whether by profuse purgation, or by salivation, its influence is usually, if not always, injurious.

Although the Ethiop's mineral has enjoyed most reputation abroad, I believe that the form of Mercury which answers best in the treatment of Scrofula, is the Bichloride; and I am fully convinced, that in very minute doses, a twentieth of a grain twice a-day, for instance, combined with the Syrup of Sarsaparilla, it does not yield in efficacy to Iodine, Baryta, or other medicines, which at present enjoy a more extensive reputation.

IODINE.

A very few years ago, (after the publication of the third Memoir of Coindet,)* it was almost a heresy to express any doubt of the absolute power of Iodine over Scrofula; and even at this moment, there are many persons who regard it as little less than a specific in this disease.

Indeed, in 1829, Lugol says "that the experiments he had made on Iodine are so satisfactory, that the remedy against Scrofula appears to him to be found, and that very soon we shall cure Scrofula with Iodine, as we cure Ague with Bark, or Syphilis with Mercury." And yet, at that

* Bibl. Univ. des Sciences, t. xvi., p. 140, (1821.)

time, his conviction was founded apparently, on the exhibition of that medicine in 109 cases, of which only 35 were "discharged cured." Now it must be observed, that those cases were admitted into a Hospital, and that all appropriate hygienic means were associated with the Iodine, and yet less than a third of the cases so treated were discharged cured; and it is upon such a result, that the claim is made by Lugol, for a specific virtue in Iodine over Scrofula. We make bold to say, that of 109 average cases admitted under treatment, no other means than good food, good air, good clothing, and good exercise, being employed, and the season being favourable, as many as 35 would be discharged cured.

But, food, air, clothing, and exercise, which are very rarely neglected, seem to be regarded by the advocates of specific virtues in particular medicines, as mere make-weights, to be used always, but never to enjoy any credit. Thus Guersant and Blache say, "Employed discreetly, modified according to circumstances, aided especially by proper regimen, by exercise in the open air, baths, &c., the preparations of Iodine appear to us one of the most powerful means we possess against Scrofula."

Baudelocque's experience of the curative powers of Iodine over Scrofula, when properly administered, was expressed as follows: In 1831, "67 scrofulous girls, between four and fifteen, were treated for a sufficient length of time to enable me to appreciate the influence of the medicine; of those, 15 were entirely cured of the apparent symptoms of the disease; 14 were much relieved; in 13, the amelioration was trifling; the other 25 were little, if at all, relieved. Of the 67 cases, 17 had only enlarged glands; of these, in 4 cases only were the swellings almost or altogether dissipated, although subjected to the external and internal administration of the medicine. In 16 cases, there was abscess; of these, 8 were cured; in the other cases, scarcely any improvement was observed, although under treatment for many months. The cases of

Caries, which he published, amounted to "more than 30," but he possessed only a small number of examples of cure—4 cases. In 12 more, there was much improvement; and in most of them, the treatment had been continued for at least six months. In 1832, he treated a considerable number of boys, and the result was even less satisfactory.* In 1833, the results of his experience of Iodine were similar to the foregoing.

This is the experience of an enlightened practitioner, thoroughly desirous of fairly testing the remedy; and he concludes with the opinion, that he knew no substance which, in the space of six months, would have produced an equal number of cures. At the same time, he admits, that the foregoing facts demonstrate, that we are not so near as has been imagined to the moment when we shall cure Scrofula by Iodine, as we do Ague with Bark, or Syphilis with Mercury.

In my own practice, I have exhibited every form of Iodine extensively in cases of Scrofula, and supposing the patient to remain exposed to the influence of the same conditions in which the disease was at first manifested, and the period of the year to be that which has not been found favourable for the cure of the disease under other modes of treatment, I cannot say that I have had reason to estimate the curative powers of Iodine so highly as many others have done. I know that among the out-patients of hospitals, whose circumstances remain unchanged, and who apply at the latter end of autumn, or the beginning of winter, we may often exhibit Iodine in every form for weeks or months, without producing any sensible amelioration in the patient's condition. I know also that at the beginning of summer, a patient similarly affected and similarly treated, will, often in a few weeks, exhibit a marked improvement—but how much of this should be referred to Iodine? How much to Season?

I by no means wish to express the opinion that Iodine

* Page 283.

has no curative influence in Scrofula; and although I believe that it is not, ordinarily, strong enough to make head against the disease in an unfavourable season of the year, yet I think I have known some cases in which decided benefit has seemed to result from its use, even when the season and other circumstances have not been favourable, and when no change in those circumstances has occurred, beyond the exhibition of Iodine; and yet, even then, I refer the good to a general alterative action upon the economy, and not to any specific action; the general health has improved under the employment of the medicine, and the local disease has abated. Such cases have, however, formed a small minority of those in which Iodine has been administered by me, and I have endeavoured, though not satisfactorily, to account for these exceptional cases, by some change, some effort made by the system itself.

What the exact influence of Iodine is in Scrofula, it is difficult to determine—I mean when not administered in combination with other substances than Potass. I am satisfied, however, that in many cases under the influence of Iodine, the tongue will become much cleaner, the appetite will improve, and the secretions will acquire a healthier character. And the impression left on my mind is, that the good which may be experienced from the use of this medicine, is not owing to any specific influence which it exerts over Scrofula, but to its occasional power of modifying the mucous surfaces, so as to enable them to assist in producing healthy nutrition.

Whatever good may be derived from Iodine when uncombined, I think that when associated with particular substances, with Iron, for instance, its power over the disease may be increased; but it would be difficult to prove that there are not other forms of Iron which act as favourably as the Iodide in cases of Scrofula. If that impression be correct, as much, if not more, of the benefit may be owing to the Iron as to the Iodine. However this may be, I have found the Iodide of Iron an useful tonic in such cases; and I

always give it in the form of Syrup, never exceeding four grains of the medicine in twenty-four hours. Whatever form of the medicine may be used, I doubt the prudence of exhibiting it beyond a fortnight or three weeks at a time; at the end of that time, the preparation should be set aside, aperient medicines should be employed, and its use should be resumed with the same precautions. In this way, any virtues which the medicine possesses are more surely brought out, and the inconveniences sometimes experienced from its administration will be, as nearly as possible, avoided.

Iodine, like Mercury, may be introduced into the system by external applications, by means of lotions, ointments, or baths, and thus employed, the medicine may be detected in the urine;—a proof that it can, in this way, be introduced into the system; but unless there be anything to contra-indicate the internal employment of the medicine, I think the effects we desire to produce, are more unequivocally induced by internal exhibition. The simple tincture I never use internally, it is so quickly decomposed when poured into water, (the metal being thus reduced,) that it is less easily borne by the stomach than other forms. The compound tincture mixes readily with water, and is therefore a more convenient form of employing the medicine; but this form is not so easily tolerated as the Iodide of Potash, which, from its solubility, and from its being better borne by the stomach, is the most extensively used of all the preparations of Iodine. But in many cases, where the debility and irritability are great, it may be more prudent to give the medicine associated with Iron, rather than with Potash.

I know that opinions are divided as to the general effects of Iodine; that competent authorities regard it as a general stimulant, but, my own experience has induced me to hesitate in the administration of uncombined Iodine, or even the Iodide of Potass, in cases where a general irritability of the system has resulted from debility. In such cases, the sedative effects of the Iodide of Iron, by improving the tone

of the system, are often very decided. But any specific powers which it has been assumed that Iodine, or its compounds possess over Scrofula, are certainly not proved.

The truth is, that in estimating the virtue of Iodine, as well as that of many other medicines, in curing disease, much that is important is lost sight of. Many diseases tend to get well in a given time, many are influenced by season, many by place. No regard has usually been had to these circumstances; it is sufficient that a disease existed, that a medicine was administered, and that the disease got well; from thenceforward, that medicine has been considered as a specific, all associated agents being disregarded: this remark, however, does not apply to the cases of Baudelocque. Many people regard ink, or lunar caustic, as the natural remedy for Herpes Circinnatus; it is true, this disease does get well under either, but usually, it would get well sooner without them. Shingles, Syphilis, and many other diseases, have a tolerably well-defined course; and whatever the means employed, unless it be something clearly contra-indicated, they will often get well in a moderate time. The cure of Scrofula is, no doubt, different; it does not get well in a few months; it is greatly affected by season; winter and spring exercise upon all scrofulous affections a very injurious influence; and the plan of treatment under which a case of Scrofula undergoes much amelioration in summer, will be utterly powerless over the disease in winter.

Although we now see with tolerable distinctness, what is the tendency in cases of Scrofula, although we can form an estimate of the value of food, of air, of exercise, and of season, as curative agents, it is still obvious, that in the attempt to determine the exact influence of a particular medicine, we are still surrounded with many difficulties.

These observations apply very strictly to the case of Iodine in Scrofula. A child, suffering from Scrofula, is taken to a hospital; and three things are accomplished by this step, the air is changed, the food may be improved, the exercise

may be appropriate, and you give Iodine; the child gets better, and the credit of the improvement is referred to the Iodine, the other circumstances being lost sight of. Or he is sent down to the sea-side, under similar circumstances, and Iodine, or Cod-liver Oil, is administered; an improvement takes place, and the Cod-liver Oil, or the Iodine, or the sea gets the credit; but who can assign to each its proper influence, or determine what has been the effect of Season?

BARIUM.

In 1789, Dr. Adair Crawford published a Treatise on "The Medicinal Properties of the Muriated Baryta," having for its object, to make known the anti-scrofulous virtues of this medicine. Hufeland followed very soon in the train of Dr. Crawford, and the "Vollständige Darstellung der Kräfte und Anwendung des Salzsauren Schwererde in Krankheiten," contains an exposition of his views on the subject. He conceived that the use of Barium was specially indicated in cases of swelled glands; "in such cases the virtues of this medicine does not yield either to Mercury or Antimony; it is less debilitating to the digestive organs, and it can therefore be used for a longer time;" but he did not think that this medicine entirely destroyed the scrofulous disposition, unless it was associated with Bitters.

Hufeland's form of administration was a solution of half a dram of the medicine to an ounce of distilled water; of this he gave from ten to fifty drops, according to the age.

In England, the medicine was much extolled by Pearson, in Germany by many eminent men, including Bucholtz, Westrumb, Hufeland; in France by Verdié, Poutington, Pinel, and Mollet. But the subsequently recorded experience of Chapman, Portal, Jadelot, and Guersant, has not sustained the reputation which the medicine had previously acquired. And whatever may be its power, we are told that its use is not free from inconvenience; and that the

disturbance of the digestive mucous surface which it excited, was occasionally so great as to cause it to be laid aside for many years. In 1834, Pirondi revived the employment of Barium, and he was accustomed to give it in larger doses than any of his predecessors. He began with six grains, and increased the dose up to two drachms, in four ounces of water, and his success was said to be great. Of this plan of treatment we cannot properly judge, unless the remedy be employed in the mode of Pirondi. Of a solution of six grains of the medicine to four ounces of water, he gave a tablespoonful every hour, except one hour before, and two hours after each meal. The patient was required to abstain from wine and meat; he subsisted on water and vegetable diet. Unless anything occurs to prevent it, the dose is daily increased by six grains; and Pirondi says, although it might be expected that under this regimen, the patients would lose flesh, experience has demonstrated the contrary, for they frequently gain flesh. He admits that it sometimes occasions pain in the stomach at first, but he says, that the pain does not continue. If vomiting comes on, the medicine must be laid aside for a time.

In my own experience no such doses could be tolerated as those administered by Pirondi; but it is said by him that a much larger dose was borne in Italy and at Marseilles than at Paris. Whether or not our climate is opposed to such doses, it is certain that our people are.

Crawford thought its use contra-indicated when the arterial action was excited. Hufeland thought it was less advantageous where there was great debility, than where there was much power in the patient. Baumes, who tried Barium largely, thought it did not succeed well where there was much irritability. But both views are reconcilable. Baumes and Hufeland referred to cases where the irritability was the result of debility, and in such cases Crawford would not have scrupled to recommend the medicine; he only interdicted its use where vascular action was unduly powerful.

Baudelocque tried the medicine fairly at the Hôpital des Enfans, and did not experience the inconveniences which had been felt by others. He did not give it in larger quantity than three grains in the twenty-four hours. And he entertains a very favourable opinion of its efficacy. Some persons having maintained that its action was sedative, others that it was an energetic irritant, he expected to observe conclusive effects in support of one view of the case. He did not, however, experience from its use either heart-burn or nausea, nasal hemorrhage, or deafness, which were charged against it by Hébreard;—superpurgation, intestinal pain, rigors, shiverings, cold sweats, or pain in the chest, imputed to it by Lepelletier; indeed, all the inconvenience he observed, was a slight diarrhœa in a few cases.

It would seem that the anti-scrofulous powers of this medicine were assumed at a time when it was conceived that great virtues belonged to Bitters; and the more intense they were, the more were they to be desired. But the virtues claimed for the medicine, are not conceded to it by many persons in the present day. I am of opinion, however, that it has a better claim to maintain a place in the Materia Medica than many medicines which have a firmer hold. And in my own experience the injurious effects have not been observed, to which some authors have referred.

I do not mean to say that my experience of its power over Scrofula is such as to bear out the opinions of its efficacy so confidently expressed by Dr. Adair Crawford. But sure I am, that its power as a discutient, over scrofulous glandular tumors, and over the scrofulous constitution, are little, if at all, inferior to those of Iodine. Its field of usefulness is, however, more limited than that of Iodine; because we have the advantage of a choice of many different combinations of that medicine. Barium yields only one preparation which has been much employed as a medicine; the meconnate and nitrate are very rarely used. Barium, however, seems to be a more certain stimulant than Iodine, or rather, we might say, irritant;

and, in my judgment, its use is clearly contra-indicated where there is much free inflammatory excitability of the system; but in those cases where the tallow-like complexion, the pale tongue, and the languid circulation, accompanied by irritability of the mucous surfaces, are present, the virtues of the Barium are often very remarkably demonstrated. I usually give it in solution, a grain to an ounce of distilled water, with ten drops of Compound Tincture of Gentian. Of this solution, I commence with half an ounce twice a day, and on no occasion have I exceeded three grains in the day, and up to this moment I have not experienced any check in the administration of the medicine.

Of the external employment of the medicine I think less favourably. My experience of its efficacy when mixed with lard and used as an ointment, has been less satisfactory than that of Baudelocque. He believed that it favoured the resolution of glandular tumors without occasioning redness, heat, or pain, when used in the proportion of a drachm to an ounce. I concur with him, as to the absence of any annoyance from its use when so employed; but I am not satisfied that it possesses any energetic discutient power, when applied to the surface.

HYDROCHLORATE OF LIME.

Hufeland conceded to the Muriate of Lime similar properties, in relation to Scrofula, with those possessed by the Chloride of Barium, "Except that it was more irritating, and therefore required to be used with more precaution." Fourcroy* and the Dutch physicians had much confidence in its power over Scrofula. Biett for many years, made much use of this medicine in the treatment of the numerous scrofulous patients at Saint Louis, without observing those inconveniences which are frequently attendant upon the use of Baryta in full doses. It is the base of the anti-scrofulous nostrum of Niemann.

* Histoire de la Société de Médecine de Paris, p. 268—274.

I have frequently used it in the following form ; a drachm to twenty drachms of distilled water, of which a teaspoonful was taken in milk two or three times a day. I have carried the dose up to two teaspoonsful, but I have not exceeded that dose.

I am not satisfied that it has any very evident action upon scrofulous glands. I cannot say that I have ever seen a case in which, in the absence of other influences, the discutient power of this medicine has been clearly manifested. But I am convinced that when given in moderate doses, it is more generally tolerated than the Chloride of Barium, and I therefore conclude that the inconveniences to which Hufeland was exposed, resulted from the mode in which he administered this medicine.

ALKALIES.

The treatment by Alkalies has very long enjoyed considerable popularity in scrofulous diseases. Indeed the anti-scrofulous elixir of Peyrilhé, containing seven grains of Carbonate of Potash to the ounce, was for half a century regarded as a cure for many, if not most, of the diseases in which a deposit of an abnormal product in any of the tissues of the body was a marked characteristic. It was believed by Abildgaar, Wetz, Farnesi, and others, that the action of Potash was to dissolve the morbid product, which was then brought under the dominion of the absorbents, and removed. Although we have no proof that Potash exercises any such action upon scrofulous matter, it is still much used in the treatment of Scrofula, and there are few medical men who will not admit that they have found it useful in glandular complaints.

For a time, indeed, and even during the present century, Potash recovered in this country more than its former credit; but it has since been eclipsed by the alleged superior efficacy of Iodine. In 1811, Brandish made known his opinions of the virtues of Caustic Potash in Scrofula, and his pre-

paration soon became the popular remedy for the disease. He says, "Many ingenious theories have been started, and many details of practise have been published by those who have attempted its cure. But no satisfactory method has hitherto, I believe, been pointed out."

The dose of the medicine ordered by Brandish was large; to children from four to six years old, a drachm by measure; from six to eight, 1½ drachms; from eight to fifteen, 2 drachms; from fifteen to eighteen, 2½ drachms; to grown up people, 3, or even 4 drachms were given, twice a day, in small beer, barley water, or gruel. The dose was to be taken between breakfast and dinner, and at night on going to bed. The treatment was usually continued from April to October, or longer if the weather continued tolerably warm, and the plan was followed often for three or four years. Associated with it, however, was the following regimen, "which is necessary to be observed by persons afflicted with Scrofula." "At breakfast, coffee or tea, with a sparing use of butter; at dinner, plain roast or boiled meat, with some good fresh porter or ale, or according to a person's custom, a little wine at or after dinner; for supper, a little cold meat, or bread and cheese, with some fresh porter or ale.

"Here it may not be improper to observe, that several patients who have been for a length of time under my care, and have gone directly from me to a boarding-school, have broke out again; and this I have no doubt was entirely owing to their having changed their regimen for one less good."*

No one has made a larger trial of the Alkali than Brandish, and I think his statements with reference to it bear upon their face the marks of truth; and what is the result? That Caustic Potash in large doses, continued for many months of several years, and associated with good food, good air, and proper exercise, has seemed to cure many bad cases of Scrofula. Would they not have got well, and probably as soon,

* Brandish, Observations on the Use of the Caustic Alkali, p. 37.

without the Alkali? I believe in many instances they would.

I have tried the medicine extensively, but not in such large doses as Brandish used, and I have found the bitter ale a very convenient vehicle for its administration, and my experience is very similar to his. My conclusions drawn from that experience are, however, unlike those of Brandish. I have known many cases in which under this treatment the glandular tumors seemed to subside rather sooner than they would probably have done without it; but I have known many more in which it did not exercise any sensible effect. I am satisfied, however, that in many instances, it did exercise a salutary influence, and those were mostly cases in which much acidity pervaded the secretions, and acted upon the general economy. How then are we to explain the difference between Brandish and myself? Simply by referring to the influence of general treatment, what he refers exclusively to the Potash; and I think that is the reasonable explanation of the difference between us.

BURNT SPONGE.

The virtues of Burnt Sponge have been too strongly expressed to justify us in passing them by without a passing observation; though it must be admitted, that the remedy has somewhat outlived the reputation which it acquired in the hands of Arnault de Villeneuve. In Germany, the commendations of Hufeland caused it to be much employed for some years; but even there, its reputation has ceased. He conceived that it exercised a special action on the lymphatic system, but whether in virtue of its alkaline or empyreumatic qualities, he could not determine. After the discovery of Iodine, those who maintained that the Sponge had anti-scrofulous powers, conceived that it was owing to the presence of that substance in it; but when it was ascertained, that in some specimens of Burnt Sponge scarcely a trace of Iodine

could be detected, and that in all, the proportion was very minute, a new view of the case was obtained, and Weisse and others maintained that its power over Scrofula was owing, not to Iodine, but to Animal Charcoal.

It is not necessary to inquire to which of the two substances its pretended virtues are owing, because we have never discovered that it really had any virtues; and in all the cases, and they are many, in which I have had an opportunity of observing the effects of the medicine, I have never seen anything to satisfy me that it possesses any power over scrofulous swellings, or the scrofulous constitution.

COD-LIVER OIL.

One of the newest remedies for Scrofula is Cod-liver Oil (*Oleum Jecoris Aselli*), that is to say, its virtues have only been widely spread within a few years. Indeed, until the observations of Brefeld, in 1835, and those of Taufflied were published in 1837, its use in Western Europe was restrained to a very few localities; and even when employed, its virtues were conceived to be rather anti-rheumatic than anti-scrofulous. But on the shores of the Baltic, from time out of mind, it appears to have been employed in various diseases, and particularly in Scrofula.

The proper Oil, as it is conceived to be, is, or ought to be, obtained from the Gadus Morrhua, and it used to be largely extracted at Berg, in Norway; but there is every reason to think that many other varieties of fish are used; some in which the Liver took little part, and yet its virtues seem little lessened by that circumstance. Certainly, in this country, within my own recollection, common Train Oil was employed, but oftener in the treatment of Rheumatism than of Scrofula, and a most filthy medicine it was, but it was said to be efficacious, and was swallowed by some people by the tumblerful. Quite as good a case is made out for the efficacy of Cod-liver Oil as was made for Iodine

by Lugol. Thus, Schmidt says,* two-thirds of the cases he had treated were either cured or in full convalescence, at the time he wrote, and the remainder much improved. Brefeld, in 1835, had given it in more than 1000 cases, but I do not regard the details he published of the cases treated, as making out so strong a case for the efficacy of the remedy as is made out by many others.

Among ourselves, I know no one who has given the medicine a more ample, or a fairer trial than Mr. Chalk. The cases he published were not pure cases of Scrofula, and the impression they leave on my mind, is one of considerable doubt, whether any sensible curative agency were exercised at all by the medicine; and if there were, whether it might not fairly be referred to improved nutrition and change of air.

In the course of the last six years, I have employed it pretty extensively myself, and my estimate of its virtues, as a remedial agent in Scrofula, is much less favorable than that of many others who have given it a trial. There is, however, scarcely any form of Scrofula which I have not seen to improve under it; enlarged glands, sinuses, ulcers, lupus-like Scrofula of the face, Caries, all these I have known to get better under its employment; but generally, one of two things happened, either the stomach or the patience failed before the remedy had been carried far enough to produce any considerable amelioration. Indeed, either my own patience or that of my patients, has usually given way long before they have consumed 100 lbs. or even 36 lbs. of the remedy; or have continued to take it for six months, or as many years, as some patients seem to have done.

The virtues of this medicine, it was conceived, could not reside in a simple oily principle, and a search was made for some more potent agent; and after many analyses, some traces of Iodine and Bromine were discovered. Now the fact, that in some specimens, indications of their presence were discovered, was enough to stamp upon Iodine any value which

* Rust's Journal.

might be attributed to Cod-liver Oil; and if that be really so, why continue to give Iodine associated with such a disagreeable menstruum. But the truth is, that where Iodine exists at all in the Oil, the quantity is so small, according to Falker, $\frac{1}{40,000}$th part, according to Wackenroder, 0.162 per cent., and the specimens are so many in which no traces of the existence of Iodine can be demonstrated, that I am forced to the conclusion, that whatever virtues it possesses, they are independent of Iodine and Bromine. The conviction on my mind is, that when good is derived from it, it is to be referred to the effect of the Animal Oil in improving digestion and nutrition, rather than to the presence of Iodine; and if Popkins' impression be correct, that he has observed quite as much good to follow the daily use of fried bacon in such cases, and if it be further true, which I by no means admit, that butchers, oil-men, tallow-chandlers, tanners, and other persons who are continually coming in contact with fatty matter, are particularly robust and well nourished, and are known to be remarkably free from Scrofula, then the case in favour of the oily principle is so much the stronger. If the impression be correct, that cases are occasionally presented in which the good effects of Cod-liver Oil are remarkably apparent, and if the amelioration seem to concur with a much improved condition as to nutrition, I conceive myself justified in assuming that the one is the consequence of the other, without being required to frame a theory why Animal Oil improves nutrition.

SEA-WATER.

The internal use of Sea-water in the treatment of Scrofula, advocated by Pliny,* Celsus,† Oribasius, and others, among the older authorities, much employed by Russell and Speed in England, by Doberan and Vogel in Germany, by Lepecq de la Cloture and others in France, has, so far as I know, never

* Lib. II. et XXXI. † Lib. III.

been tried on so large a scale, as to enable us to come to any definite conclusion as to its alleged virtues. It has unquestionably been frequently employed, but almost always in conjunction with other most important agents, so that I think it probable, that under the circumstances in which it has been commonly administered, the amelioration would have been equally striking, even if the ingestion of Sea-water had not taken place at all.

The unaided effect of Sea-water taken internally, it is difficult to estimate; even Russell associated with this remedy so many other things, that people have hesitated to admit, that to Sea-water alone should be referred the credit of the effects he described. Russell's plan was to administer it, in the first place, internally, and its action as a purgative was frequently very efficacious; but at present, it is rarely employed in this way; and it has given place to the waters of Pullna, Marienbad, and others.

I have had opportunities of observing the internal employment of Sea-water, but not on a large scale, nor unassociated with residence on the coast. I have known it to be taken to the extent of a pint before breakfast, and to be attended with discomfort to the patient, from the profuseness of its purgative action; and when its daily use has been persisted in, the depressing effects which have resulted, have been injurious. But used daily, to the extent of a small tumbler, with an equal quantity of milk, and taken at bed-time, the patient submitted to this treatment has improved in health, in so far as the condition of the intestinal secretions can be taken to be a proof of the fact; but I am by no means satisfied that the time and the place have not had quite as decided an influence upon the patient's condition as the Sea-water introduced into the stomach.

In order to drink Sea-water, persons have usually been taken to the sea-coast, and this at a favourable season of the year, and to those two circumstances, any good which has resulted from the practice may be attributed, I think, with

more fairness, than to the daily ingestion of half a pint, or a pint of salt-water. It is only to a very limited extent that the drinking of salt-water has prevailed during the present century, and we have no exact observations of the results, except in a number of instances so small as to be insufficient to justify us in expressing any decided opinion of its value.

There is no doubt that the effect of sea-bathing is to exercise upon the surface of the body a powerful tonic influence; to improve digestion and respiration, to give more vigour to the circulation, and in this way to improve nutrition;—to give a predominance to the arterial over the venous and lymphatic systems, and thus to give to the body generally, a power to resist successfully the inroads of many chronic diseases. And this action is especially necessary in lax lymphatic habits, whether Scrofula be actually present or not; but though I admit that such effects do frequently result from sea-bathing, I doubt whether the effect has been produced in virtue of any specific agency not possessed equally by simple cold bathing.

My opportunities of observing the immediate effects of sea-bathing upon scrofulous cases have been very scanty, but I have had ample means of observing the effects, upon such cases, of sea-side residence, with its accessory advantages, and my mind is very strongly impressed with the conviction, that the benefits derived from it are not greater than might be obtained from a change to a pure air and the use of the simple cold bath in an inland situation. We will therefore consider the question of sea-side residence, with all its accessories, whether bathing, water-drinking, or otherwise.

Enlarged glands may disappear, sinuses may dry up, and ulcers may heal during a sea-side residence; but with the weather of the months of May, June, July, and August to act upon them, this result might be expected from any change in the fine season. But that is not the season when we most want help in Scrofula; it is that of December, January, February, and March that exercises so injurious an influence on scro-

fulous cases; and those are not the months when invalids usually visit the sea-coast.

Mr. Hamilton, no mean authority, says, "Sea-water, taken internally, and sea-bathing, have long been in use for Scrofula as well as for other diseases; and on account of its supposed efficacy, several towns, situated on the sea-shore, have for many years been the fashionable places of resort in the summer months. Together with the drinking of the water and bathing, the mucilage contained in the pods of the Sea Wrack (*Quercus Marinus*), for external friction on the glands, and the black ashes of this plant, have been strongly recommended by Dr. Russell, under the name of *Æthiops Vegetabilis*, in this disease; and other marine substances, as cuttle-fish-bone, coralline, marine shells, burnt to lime, and other things of doubtful properties; whilst the breathing of sea air has been supposed to promote the efficacy of those remedies.

"I must confess, that I have my doubts as to the Sea-water's possessing powers in a superior degree to any other medicines in Scrofula; nor do I think that it merits the virtues given it by Russell and Speed. My reasons are the following, however heterodox they may appear; but truth is my guide.

"I have long lived in a sea-port town, of great trade, and the haven, from the town to the opposite side, is at least half a mile wide. A large body of Sea-water flows up the haven twice in twenty-four hours, and with the tide, we may suppose a very large share of sea air; and during the summer months, sea-bathing is constantly used, when the time of high water will admit of it, by men of all descriptions; and many of the boys are seldom out of the water in the daytime, except at school hours, all summer. Yet it is no less strange than true, that there are nowhere more distressed victims to Scrofula to be met with than at Lynn; and in no inland town, within my knowledge, which extends at least thirty miles, did I ever see so bad cases of this disease as in this town, in a course of more than forty years' practice."

I am by no means convinced that the sea-side is more desirable for the residence of persons suffering from Scrofula, than healthy inland situations. I have been accustomed to send scrofulous patients to the sea-side, because it is usually a thorough change of air, and on their return home, I have commonly found a certain improvement in their general health; but the glandular tumors, though reduced, were usually still present. I do not mean to say that in a majority of the patients sent, the tumors still remained, but this has certainly been the case in a large minority; and even in those patients where the cure has been apparently the most complete, the tumors have frequently re-appeared during the following winter or spring.

If a child be sent from a home where every care is lavished upon him, the good effects of change are often not very decided. I have known a three months' residence at the sea-side, leave such a child very much where it found him. But if a child be sent from the wards of a Hospital, or a Poor House, where he has been languishing for six or nine months, the amount of good derived from a commodious sea-side residence is sometimes very considerable. And yet, even under these circumstances, care must be taken in selecting the objects for this treatment, or disappointment may be experienced. Some years ago, the Directors of the St. Marylebone Infirmary desired to be informed, whether the Medical Officers considered that the amount of good to be derived from a residence at the Margate Sea Bathing Infirmary, was sufficient to justify them in annually incurring a considerable expense, for the purpose of procuring for scrofulous patients the necessary number of beds in that establishment. We had an impression, that the sea-side, with its accessory advantages, was of great service in such cases, but that opinion did not rest upon any well ascertained facts. I therefore determined to avail myself of the first opportunity which might be afforded me for making a more precise observation, and soon afterwards, 9 cases were selected for the trial. The condition of the patients

was carefully noted; 4 presented long-standing glandular swellings, which had resisted ordinary treatment; 2 had old fistulous communications, opening upon broken-down scrofulous glands; these sinuses had been open for many months, and no doubt the degenerate glandular structures had been more or less completely broken down and evacuated; 3 cases presented scrofulous disease of joints; in one, the elbow, and the last joint of the left indicator finger, were the seats of the disease; in another, the elbow only; in the third, the hip was affected. The patients remained at Margate several months; on their return, their condition was carefully ascertained. The glandular tumors had very nearly, but not completely, subsided; of the sinuses, 1 was dried up, the other nearly so; in the former 2 cases of joint affection, no amelioration was experienced in the local disease, but the general health was improved; the third patient after remaining at Margate some weeks, came home to die.

The 8 surviving children had returned home at the close of the Margate season. In the succeeding November, 3 of them were again under treatment; 1 with glandular tumor, which had re-appeared, 1 with a re-opened ulcer, the other with a single sinus, still discharging. Those results are, I conceive, in perfect accordance with the experience of careful observers, and certainly they do not tend to support the prejudice which exists in favour of the superior efficacy of sea-side residence in cases of Scrofula. That those ganglia in which scrofulous matter had been deposited, should continue foci of irritation is natural, because I know no satisfactory evidence that scrofulous deposits are ever absorbed. They therefore continue to exist, and like any other foreign body, may excite new irritation, from very slight causes. That a sinus should heal when properly treated, provided all the scrofulous deposit be removed, is to be expected; but whether the sea-side did much to determine the subsidence of irritation around the gland in one set of the cases above noticed, or to heal the fistula in the other, is with me a matter of doubt.

We have no proof that people habitually residing at the sea-

side are more free from Scrofula than those who live inland; and it is matter of observation, that when affected with Scrofula, they derive as much benefit from inland change, as is experienced by inland patients from a change to the sea-side.

If we refer to the Mortality Tables,* we find that in the Towns of the coast, the disease prevails to the destruction of life, to a greater extent than in many inland districts. I do not, therefore, regard the sea as exercising a special curative influence over Scrofula; I do not assert that a change to the sea-coast is without beneficial influence, but I conceive that such change exercises no greater influence over the disease than would be afforded by a change to any inland situation, where the air is pure and dry.

As to simple *cold bathing*, there is nothing better established, than that long-continued cold is one of the most debilitating agents in nature; and that cold, prudently applied, for a short time, is one of the most tonic agents that can be employed. It is in the latter form that it is used in Scrofula. The temperature of the water, and the time of immersion, should be so graduated, as to be followed by decided re-action. When so employed, there is scarcely any person, however debilitated he may be, who may not use the cold bath with advantage; but it must be borne in mind, that in scrofulous patients, the desired re-action is less certain than in healthy persons; and if this be not certainly obtained, the bathing should be discontinued.

Biett had much confidence in *vapour baths* in scrofulous cases; and the results, under his management, were certainly very encouraging. He had a room fitted up, in which 50 persons could be arranged at the same time. The heat was gradually raised until it arrived at 100 Fahrenheit, when the body soon became covered with perspiration. The heat may be carried to 115, or even 130, but many persons cannot bear with comfort a higher temperature than 115.

* See Appendix.

I have never employed vapour baths upon this system in the treatment of Scrofula, and I am not therefore in a position to speak with any authority on the subject.

MINERAL WATERS.

Certain Mineral Waters are regarded as possessing anti-scrofulous virtues; there are many such in Great Britain; and there are few countries in which wells of great repute, for the cure of Scrofula are not found. This is shown in Carrère's work; for in his time, (1785), 1150 works had been published on the virtues of Mineral Waters.

In cases of Scrofula, the object of all treatment is to cause a predominance of the sanguineous over the lymphatic system, and by many persons it is conceived that sulphureous and ferruginous waters, by reason of their tonic and stimulating properties, very completely accomplish this object. The opinion that improvement in the condition of such patients does very commonly follow the use of such waters is by no means ill-founded. The complexion improves, the strength is increased, the digestion is better performed, the tumid belly is flattened, ulcers and sinuses dry up. But years may pass before the disease is eradicated, and that circumstance justifies the remark of Bordeu, that although he had known great improvements to result from a sojourn at a Mineral spring, "by some fatality it has rarely happened to me to see glandular tumors completely resolved by the waters of the Pyrenees."

Still he attributed to such waters a powerful curative agency in the treatment of Scrofula. In speaking of them, he says, "Every thing contributes to produce good effects—the journey, the sanguine hope of relief, the varied nourishment, the air which is respired and which penetrates the body, the change in habitual sensations, the making new acquaintances, the little excitement occasioned by it, the liberty enjoyed, completely changes the habits and thoughts of a town life. Yet,

although I do not deny the powerful influence of such things, I believe they are only auxiliaries. It is certain, however, that in a majority of cases, the good derived from the waters results from their medicinal action, since many of them, when carried to great distances, produce such advantageous changes in the system, that they cure obstinate affections, which had resisted the most rational treatment."

Many persons have maintained that the change of place, the change of air, and of climate were the sole modifying agents. Others have maintained that the good, which they could not deny, is the result of the system of taking a certain quantity of water, no matter what may be its composition. No one can deny but that pure water is a powerful solvent, that it acts upon the circulating fluids, and facilitates the secretions. And it is very true that in many cases the temperature and chemical composition of mineral springs do not seem to account for their apparently very energetic curative powers. But we know that taken at certain periods, at the same temperature and in the same dose, the mineral water is lighter, more penetrating, and infinitely more easily digested than common water. Pertinent facts are, it is now said, so numerous, and so carefully observed, that the greater number of medical men concede to mineral waters a curative power independent of accessory circumstances; and also admit that particular virtues attach to particular springs, though the curative element may be unknown, and inferible and appreciable only by its effects.

It is also now generally conceded, that Mineral Waters, according to their composition, impress upon particular parts of the system peculiar actions; thus, the sulphureous waters, Harrowgate, for instance, act particularly upon the lymphatic and tegumentary system. The saline, of which Cheltenham is an example, are more or less laxative, and affect the digestive tube. While the alkaline and feruginous, act particularly upon the fluids of the body. There are, however, still some people who ask: "Although it is proved that

sulphur, carbonic acid, iron, neutral salts, and alkalies enter into the composition of Mineral Waters, how can the waters possess virtues which those substances do not?" Our answer is, that waters holding a certain quantity of bicarbonate of soda in solution, those of Vichy, for instance, are infinitely better digested and more salutary than a similar quantity of the same salt artificially dissolved in pure water. Ferruginous springs, also which hold in solution but a very minute quantity of iron, will cure diseases which have resisted all sorts of preparations of iron when otherwise administered; so true is it that the substances taken from nature's laboratory, possess an energy that those of art never attain.

In the sitting of the Academy of Medicine of Paris, held November 22, 1842, a Report was made by M. Patissier upon the employment of the waters of *Forges-sur-Briis* in scrofulous diseases. The Minister of Commerce, who called for the Report, very shrewdly remarked: "It appears to me very remarkable that waters in which chemical analysis has not detected the existence of any active principle, should have produced cures, the reality of which is attested by enlightened and trustworthy medical men."

The first part of the foregoing paper describes the topography of the place, the second the physical characters of the waters, the third their chemical analysis, the fourth their medical properties; the fifth contains particular cures, ranged under the following categories: cases which have been cured during the use of the baths; cases in which there has been amelioration; cases in which the baths have cured the strumous affection, but not prevented its return; cases in which no influence, either good or bad, has been exercised upon the disease.

The whole of the cases brought under the notice of the Commissioners to substantiate the pretensions of the *Forges* doctors did not exceed 18; of which eleven were females and seven males. All had suffered long from scrofulous affections. Of these 18 cases, 6 were entirely cured;

6 others were much improved; 3 more were cured, but the disease soon reappeared; in three others no benefit was experienced, and the patients died.

Now with reference to these cases, upon which M. Piton has so far relied, as to conceive that they justified an application to the Government for its sanction of the Establishment, it must be remarked, in the first place, that but little time had been allowed for the occurrence of relapses, and that if the patients returned to their former way of life, relapse, in more or fewer instances, was not unlikely to happen. And further, it may be asked, did the benefits occurring during the residence at *Forges*, result from the intrinsic medical action of the water, or from the salubrity of the air, and the regimen employed in the establishments.

If bad air be, as some have supposed, a fertile cause of Scrofula, we can have no doubt that its influence might be materially neutralized by the pure air and unobstructed light enjoyed at such places as *Forges*. And whether bad air have any direct influence over Scrofula or not, there can be no doubt that a change to a purer air tends to improve the general health. But if we take the results, as communicated by M. Piton, to represent the average or ordinary curative influence of the waters of *Forges*, it is certain that equally favourable results may be obtained when no use is made of Mineral Water. And as the waters of *Forges* have not, upon analysis, exhibited any active principle, it may be questionable whether they act in any other way than as pure water, which since the time of Floyer and Hoffman has been regarded as a universal remedy; and which Priessnitz and his followers, hold forth as possessing almost specific virtues in Scrofula. But M. Blich, of Christiana,* who so largely tested the virtues of water, says, "In Scrofula, I promised myself much from the Priessnitzian method, and the more so, because baths were long considered a principal remedy in its cure. There was no disease, however, in which the

* Schmidt's Jahrbucher.

results were so unfavourable; for of six patients, 3 died, 2 were relieved, and only 1 cured; and even in this instance, it is not known whether the disease has returned.

I think, therefore, that it is to the concurrence of the air, the baths, the food, and the exercise enjoyed by those who were treated at *Forges*, rather than to the water alone, that the good effects claimed for it should be referred.

Whether or not any specific virtue over scrofulous glands be conceded to the use of Mineral Waters, it is certain that their value in cases of articular Scrofula is highly estimated; but to complete the resolution of articular swellings, several seasons are believed to be necessary. M. Pagès, in speaking of the waters of *Barèges*, says: "I possess a certain number of observations of white swellings, which medical men would regard as cases for amputation, and for which indeed the operation had been recommended, which have got well under the use of these waters."

Lemolt, in speaking of the waters of *Bourbonne* and *Balaruc*, says, "After twenty years of observation, I can affirm that the *Bourbonne* Waters, if used for a sufficient length of time, will cure most diseases of the lymphatic system."

The following table exhibits the only correct numerical results we possess on the influence of Mineral Waters in the cure of Scrofula; the facts are derived from the Reports of the Inspectors of Mineral Waters in France.

SCROFULOUS ENLARGEMENTS

	Cases observed.	Cures.	Ameliorations.	No benefit.	Deaths.
Bourbonne . . .	29	2	16	11	0
Balaruc	46	14	16	14	2
,, . . , .	13	0	5	8	0
Mont d'Or . . .	19	3	5	11	0
Néris	4	0	2	2	0
Bagnoles (Lozère) . .	78	17	38	23	0
Bagnères de Luchon .	41	14	10	17	0
	230	50	92	86	2

ABSCESSES, ULCERS, FISTULÆ.

	Cases observed.	Cures.	Ameliorations.	No benefit.	Deaths.
Bourbonne . . .	132	57	62	13	0
Bourbon l'Archambaut .	43	18	15	10	0
	175	75	77	23	0

The above Table implies, I believe, as favourable an estimate as can properly be made of the influence of Mineral Waters in the cure of Scrofula, and certainly the result does not show that they exercise any very decided curative influence over the disease.

That they have been more indebted for the credit they possess to the enthusiasm of friends than to the faithful register of the cures, which it is alleged have resulted from their employment, is I think true. And no doubt M. Patissier was near the truth when he said, "Les eaux minérales naturelles guerissent quelquefois, soulagent et consolent toujours."

The impression I derive from what has been stated is, that however strongly public opinion favours the opinion that Sea-air, Sea-water, Sea-bathing, and Mineral Waters, exercise a direct curative influence over Scrofula, no proof of this direct influence has ever been furnished. I do not deny but that scrofulous patients subjected to their influence have, during the treatment, undergone a marked improvement in the general and local symptoms of the disease; but it is probable that persons so suffering would have derived equal advantage from a judicious treatment not including either of those agents.

SEASON.

There remains for our consideration one element, whose influence is always felt, but never fully admitted in the treatment of Scrofula, namely, Season. I am convinced

that beyond every other agent, except food, it is the one whose influence is greatest in the excitement or the cure of Scrofula.

I have fully satisfied myself that scrofulous cases are most numerous and most aggravated in spring and the beginning of summer; that they are least frequent and most ameliorated at the commencement or the middle of autumn; and that at the one period, they have been aggravated by the cold of winter, at the other they have been ameliorated by the warmth of summer; and this has happened when all other influences have been apparently unchanged.

When do we send patients to the sea-side? Precisely at that season when they would improve any where. When do we find any remedies best succeed? Precisely when the season is becoming favourable. When do we find all medicinal agents comparatively powerless? Precisely when we get no help from the season. True it is we may take a poor child from the streets in the depth of winter, and give him good food and lodging, and his disease will be improved, and this without reference to the season; but then we have improved nutrition. But let a poor child remain at home, and we shall usually find every specific fail to improve his condition until favoured by season; and let almost any one of the unsuccessful remedies be used when the end of spring comes, and its apparent good effects will soon be obvious enough. Now if that position be correct, it must be evident how defective the estimate of every plan of treatment is, which does not include the influence of season.

GENERAL SUGGESTIONS.

Having considered separately the agents employed in the treatment of Scrofula, we will now bring them together for the purpose of showing what general plan of treatment should be followed in this disease.

Let us suppose that we have to do with a child of ten, presenting the scrofulous constitution, marked by general debility and by the presence of glandular tumors in the neck;—that we cannot tell whether scrofulous matter has been deposited in those glands, but we have reason to hope not. If the season and the circumstances of the party permit of it, immediate removal from the place where the disease was developed, is the first great point to be attended to; the place of removal is less important. A dry warm locality, favourably situated for exercise, is, I think, best: but if no difficulties are presented, a change every month or two is still better than a lengthened sojourn in one place. The food should be plain, good, and sufficiently nutritious; animal food may be taken in small quantity a second time in the day, if it be well borne; sloppy food should be particularly avoided—the clammy tongue of Scrofula can frequently be changed by food alone. As much active exercise should be taken as can be borne without fatigue; and to ensure this, varied amusement must be provided. There is nothing which imparts so much vigour to the circulation as healthful exercise—there is nothing which tends more to extinguish Scrofula than a vigorous circulation. The sleeping-room should be airy, and the surface of the body should be well rubbed with warm flannel before the child is dressed. If these measures can be carried out, a case of Scrofula in which the deposit is not made, will usually yield.

But it may happen that the appetite is bad, the tongue furred, and the stomach unfit to discharge properly its allotted duties; in some cases an emetic, occasionally administered, will clean the tongue, and the appetite will quickly improve, and we are then warned that the stomach is better prepared to do what is required of it; but still the remaining portion of the digestive surface may be in a disordered state. The bowels may be constipated, because they have lost tone, or they may be relaxed, because they have acquired a morbid irritability. The evacuations may be clay-coloured for want of

bile, or they may present a redundancy of that fluid. Under those circumstances, or any of them, medicines may afford us the means of correcting the evil. Thus, supposing the stools to be wanting in a proper admixture of bile, mild mercurials, calomel or grey powder, with rhubarb, will stimulate the liver to perform its appropriate functions; supposing there is much intestinal sluggishness associated with that of the liver, warm purgatives will be found useful; supposing all the secretions to be preternaturally acid, alkalies with bitters may be indicated.

Or, it may be, that the digestive mucous surface is too much wanting in tone to profit by what we have done for it, and may require Wine, Bitter Ale, Bark, Iron, Iodine, Barium, or Mercury, assisted or not by Alkalies, to enable it to digest properly the food which is brought into contact with that surface, and to derive a proper nutrition from such food. The choice of the particular agent is a matter for the discretion of the medical adviser in the particular case; what is best in one instance will not be so in another.

In a case where the general health has not greatly suffered, Mercury, Iodine, or Barium, as alteratives, may do well; in a case where the pale surface, the flabby textures, the languid circulation are prominent signs, some tonic, such as Iron or Bark will be more clearly indicated; in some instances, the Cod-liver Oil will exercise a favourable influence on nutrition. To do more with respect to the selection of a particular medical agent than afford these general indications is hardly desirable.

If a deposit of scrofulous matter have taken place in one or more glands—it will not completely subside—it cannot, I believe, be absorbed; either it may become quiet, and cease to irritate, assuming a calcareous character, and remaining dormant for years, or it may excite inflammatory action around, suppuration may take place, and a way may be made for its evacuation externally. The latter is not, however, the usual termination of a tumid gland in a scrofulous constitution—of twenty cases of glandular enlargement, scarcely

one will go on to suppuration—but we cannot tell in how many of the cases of chronic enlargement the scrofulous deposit may have taken place.

When suppuration has taken place, and even when fluctuation is apparent, it is extremely difficult to point out an unvarying line of practice. The rule I conceive is clear enough, that unless ulceration be inevitable, the surgeon should not interfere, either with the caustic or the cutting instrument; but in individual cases, the embarrassing point is the solution of the question whether ulceration be inevitable. Every surgeon has seen collections of fluid where the integuments were thinned and purpled, suddenly shrivel up and be absorbed, but no one can say what may happen in any particular case. It is true, that the cases in which fluctuation is apparent, and in which the absorption of the fluid is observed, are a small minority; and the safer rule is to conclude, and act upon the conclusion, that the integument will give way.

As much destruction of integument, and much subsequent deformity may result from the gradual thinning, preparatory to the fluid making a way for itself, it is best to anticipate that result. If this be done at a comparatively early period, the cutting instrument is the appropriate agent for the purpose; if it be done tardily, when the integument is thinned and of a violet colour, the caustic so applied as to destroy the thinned integument, will occasion less deformity.

I am by no means disposed to underrate the value of the commoner local agents in the treatment of strumous glands; though such glands are the indication of a general evil, they constitute in themselves a local one also; and as general remedies are often powerless to arrest the progress of the disease, it is important to ascertain what may be reasonably expected from direct treatment. Upon the constitution itself, it is of course not pretended that we can act by the means I shall now indicate. I think that when the signs of inflammatory action are unequivocally manifested, by pain, heat, and redness, such inflammation may frequently be

treated with advantage, like common phlegmon—by leeching and cold. The common notion is adverse to this treatment, because "scrofulous patients should not be lowered," but such patients bear small local bleedings much better than is usually supposed. Where the tumor is more chronic, frictions with Mercurial or Iodine ointment are sometimes found useful.

If change of air, good food, and exercise, cannot be procured, the difficulty of treatment is in a ten-fold measure enhanced, and the chances of cure infinitely lessened. For good food, pure air, and proper exercise, the vaunted anti-scrofulous specifics are a poor compensation; we may try one after another, and often find all fail. All that is left to us in such cases, and unhappily they are many, is to endeavour to improve the mucous surfaces and the blood by alteratives, and tonics. In this way, we can do some good; but it can avail but little to labour by medicine to make the stomach fitter to digest good food, when the patient cannot procure such food.

CHAPTER XI.

CONCLUSION.

THIS Work has been written at intervals spared from professional duty, and amidst those distractions of thought which frequent interruptions occasion, and has been composed at distant intervals, during which my own opinions have undergone modification ; so that it is probable there will be found some positions wanting in precise accuracy, or stated without the qualifications by which they ought to be accompanied. For defects of such a character I do not fear a harsh judgment, when the labour of collecting and classifying my materials is considered, exceeding as those materials do, any collection which I believe has ever before been made for a Treatise on a single disease.

And now that the task I have undertaken has been brought to a conclusion, I would shortly allude to a question which has forced itself upon my attention, from the beginning to the end of the inquiries in which I have been engaged, namely: What is the influence of civilization upon the physical vigour of a people? There can be no question, I apprehend, that it tends to the preservation of weak and ailing members of the community, who would not be reared under less favoured circumstances, but who are thus made the parent stock from which families take root.

Although the materials which we possess, do not enable me to offer any positive evidence on that question; and although

some of the results which have been indicated, in the preceding pages, would seem, at first sight, to favour an opposite conclusion, I entertain a strong belief that the races which now occupy the more enlightened countries of Europe, have physically degenerated, and that civilization, including, as one of its agents, improved medical science, has contributed to that result. Under a less advanced civilization, the weaker and least vigorous members of a community die off, in early life, and the more robust and healthy members alone are reared. In more advanced stages of social progress, however, the case is very different. In those states many weakly subjects are brought to maturity by intelligent care. And yet science, which has contributed to preserve the lives of the weak and ailing, can rarely give them vigorous health. When reared, they contribute to the spread of population, and not unfrequently give birth to children equally weak and ailing with themselves, if indeed their progeny do not evince even greater tendencies, to particular diseases, than the sickly parent.

Injurious influences such as these, it is true, are modified by various compensating agencies, such as intermarriage with persons of a robust and hardy frame, or other causes, and therefore operate slowly and imperceptibly, and can only be estimated by comparing the physical qualities of the same races at different and distant periods of their history. The rise and fall of nations testifies, however, as distinctly to physical decline as to moral and intellectual degeneracy, and however greatly the progress of science and the spread of knowledge may increase the resources of society and the power of communities, they will not always secure to the individual man a physical vigour like that which in the early history of nations, elevated so many men above the general level. And if it be said, that such a conclusion is humiliating to the pride of science, when engaged in the noblest of all her missions, as the handmaid of suffering humanity, the reflexion will not be without a wholesome influence, since it tends to humble our pride and impress us with the salutary

truth, that man's power to remove suffering, or to mitigate evil, is confined within very narrow limits.

The suggestion may occur, that when the physical degeneracy of the civilized nations of the world shall have again arrived, their vigour may be recruited, as in former ages, by the energy of barbarian tribes; but it was beautifully said by the late Dr. Arnold, that there are now no new continents peopled by youthful races, the destined restorers of our worn-out generations, that we have the full amount of earth's resources before us, and they seem inadequate to supply life for a third period of human history. And the stirring application he makes of these truths is this, that if existing nations are the last reserve of the world, God's work on earth will be left undone, unless they do it.

APPENDIX.

APPENDIX.

It has seemed to me desirable to give several important documents upon which I have relied, as nearly as may be entire, because when so published they may be found more useful to others.

Professor Albers' communications are translations.

I have given the *Amsterdam* Report in the language in which the Return was made.

The *Portuguese* Report is given exactly as it was received.

The *Munich* Return is contained in Lord Erskine's Letter to Lord Canning.

The *Prussian* Report was sent in German cypher; it was translated into English by a German Teacher; it is accurate rather than elegant, but will be more intelligible to many in its present dress than in the original Report.

The *Vienna* Report arrived in its present form, but Dr. Kriesche's Letter which accompanies it is a translation.

The *Saint Petersburg* Report is given unchanged.

The *Moscow* Report I give as it was received.

Dr. Stewart's letter I give without alteration, as well as his Returns. For the other Indian Reports I am indebted to Mr. Martin and Dr. Alexander Jackson, but I am not aware by whom the latter was made.

The *American* Returns are by Dr. Parkman, of Boston, and Dr. Samuel Jackson, of Philadelphia.

Those from the *Mediterranean* are made by Mr. Kaye.

Those from *Madeira* are made by Dr. Renton.

PROFESSOR ALBERS' LETTER, REFERRED TO AT PAGE 40.

"Sir,

"I see, with much pleasure, from your letter of the 17th June last, that you are occupied with a promising work on Scrofula. I hope and

wish that you will essentially contribute to bring the many doubtful points in the doctrine of this affliction near to a final solution. Dr. Hodgkin has communicated to you, that I have been engaged with the question of the identity or non-identity of Scrofula and Consumption. I was occupied with this matter at the time I had the pleasure of seeing Dr. Hodgkin here. I also drew public attention to the matter in my 'Observations on Pathology and Pathological Anatomy,' and in the 'Atlas of Pathological Anatomy.'* I consider, however, my researches but as just commenced; other affairs have for two years withdrawn my attention from them.

The most essential results of my investigation are these—that Scrofula and Tubercles exhibit, in their physiological as well as their anatomical properties, several differences, so that their identity, so absolutely adopted in modern writings, is not to be justified. As you merely desire to know the anatomical differences, I pass over the physiological ones.

"1. Scrofulous swellings, particularly those occurring in the mesentery and the diaphragm, are so closely connected with the lymphatic vessels, that quicksilver may be driven through them and the lymphatic vessels. Real tubercles, even when they are softened, never permit the passage of the quicksilver.

"2. Scrofulous swellings have always around them, as well as in their parenchyma, blood-vessels, which pass from the cellular texture, directly into them. The tubercle very frequently forms around itself a caul of vessels, often in a fibrinous layer, which separates it from the lung-parenchyma. Blood-vessels pass but rarely into a tubercle.

"3. The tubercle presents under the microscope, separate minute tubes, which, under a linear power of 550 times, prove to be cells. This is not the case in the scrofulous matter.

"These anatomical results only, I commit to your judgment. I would be glad to find them confirmed by you. Everything else you will find in the above-mentioned 'Observations.'

"If, in the course of time, I should publish my Observations, you will permit me to communicate them to you.

"Yours, &c.

"J. F. H. Albers.

"Bonn, July, 1842."

* Part III, p. 279. and Table XXVII.

ON THE DIFFERENCE BETWEEN SCROFULA AND TUBERCLES, AS STATED BY ALBERS.

In the recent anatomico pathological works of Andral, Cruveilhier, Carswell, Hope, and others, Scrofula and Tubercles are placed so near together, so frequently confounded with each other, that one must think these writers consider both diseases as identical. The opinion of the identity of these diseases does in fact prevail largely among the Medical Public, as one may see from several articles published in different periodicals. It is really frequently difficult to determine by the state of the dissected body whether there be Scrofula or Tubercles. This is particularly the case in the period of life from fifteen to thirty, in which the tuberculous infiltration of the lungs occurs so frequently. This difficulty is still increased when these diseases occur in organs like the kidneys, the ovaries, or the pituitary membranes, where Scrofula and Tubercles generally have the same form of disease. These are the cases where a transition between Scrofula and Tubercles takes place. These are the very cases which have caused both diseases to be considered as identical. This opinion was still strengthened by the chemical analysis, in which no essential difference in the elements of the degeneration of both diseases could be shown. The elder physicians upheld the difference between Scrofula and Tubercles; and according to my observations they did so justly, both diseases showing on a closer examination several differences most important in practice. It is here our purpose to direct attention to some of them. The differences are the following:

1. Scrofula generally attacks the age before puberty, Tubercles the age of adolescence and manhood.

2. Scrofula is presented in the form of swellings of single glands, the body being still well nourished, the surface often presenting a good colour. The nutrition languishes by degrees, and so slowly, that for a long time no decrease in the bulk of the body, no tendency to colliquation is observable. Colliquative secretions, either by sputa or by sweats, are rare in Scrofula. Almost the contrary of all this takes place in the Tubercle disease. Scrofula is more frequently accompanied by Dropsy than the Tubercle disease.

3. The inclination to fever is very small in Scrofula. The Atrophia Scrofulosa is a state which from beginning to end passes over without fever. The small excitement accompanying the development of Scrofula in the commencement, mostly ceases when the disease is

developed. In the Tubercle disease the excitement of the circulating system is, almost from the beginning, very considerable. With lung-tubercles, as well as those of the kidneys, the liver, and the serous membranes, there is (even in their commencement and early progress) a frequent pulse. If the Tubercle disease has gained a certain height, if the emaciation has already begun, the deadly issue never takes place unless hectic fever, with a frequent hard pulse, has been present for some time. With Scrofula the character of torpidity, with Tubercles, the character of excitement prevails.

4. Scrofula appears in all organs, as in the lungs, the liver, the brain, &c.; its principal degeneration, however, is not in those parts, but in the glands of the lymphatic system of the breast, the abdomen, and the limbs, and in those of the pituitary membranes, particularly in those of the intestines. Where the Tubercle disease appears, the prevailing degeneration is observed in the diseased organ, and there is less affection of the lymphatic glands.

5. Scrofula matter can be injected; tubercles only imperfectly so. Sömmering has, as it is known, by a note to Baillie's Morbid Anatomy, directed attention to the fact that in scrofulous children the lymphatic vessels of the mesentery are very easily injected, the quicksilver passing without difficulty, and even easily, through the lymphatic ganglia. Carmichael* has lately drawn attention to this subject. That tubercles cannot be injected, is testified by Sebastian, "De origine tuberculorum, &c." by Carmichael, in several places,† and by many other writers. Macartney, in Carmichael,‡ affirms that he had succeeded in injecting the tubercle. This fact stands, however, single, against many which prove the contrary. In an injection which had well succeeded, in a lung-tubercle, I saw a small vessel penetrate, a little beyond the brim of the tubercle, but it remained still very distant from the middle of the knot.

6. An important difference between Scrofula and Tubercles is presented with respect to treatment. Scrofula proves curable in all forms, Tubercles almost in none; Scrofula lasts a long time, Tubercles hasten much quicker to an issue. Scrofulous swellings decrease considerably after cure, and often disappear seemingly; Tubercles, when stopped in their development, do decrease and ossify, but the decrease of volume is never so considerable as with Scrofula.

7. Scrofula favours greatly the development of other degenera-

* An Essay on the Origin and Nature of Tuberculous and Cancerous Diseases, 1836, p. 14.
† Carmichael, Lib. c.
‡ Ibid, p. 52.

tions and dyscracic diseases; Carcinoma is frequently developed in such conditions, the marrow-fungus not less so. So also with the Tubercle disease. Where in childhood scrofulous swellings in different parts of the body and swollen glands on the neck appear, there in youth and manhood Tubercles and Phthisis connected with them are apt to be formed. However, what produces a peculiar tendency to disorganizations is not yet a disorganization itself. We might as well assert the identity of Tubercles and Scrofula, as the identity of Scrofula and Carcinoma, and for the same reasons.

There are still other distinctive marks of these two affections, so different in their nature, to which we shall return at another occasion. These slight suggestions may contribute for the present to the consolidation of the notion so long ago maintained by the most celebrated physicians, and so founded in nature, that the diseases are different.

RETURN, REFERRED TO AT PAGE 80.

The following is a list of the places which have been included in the investigations made in this country, and nearly in the order they were received. In all those places, an examination of the living has been made. The number included in the Returns is 133,721; the number returned, scrofulous, is 32,771.

The Metropolis, various parts.	Boston.	Hereford.
	Newport.	Liverpool.
Woodbridge.	Hailsham.	Guernsey.
Pontypool.	North Aylesford.	Limerick.
Worcester.	Eastry.	Leeds.
Wells.	Sevenoaks.	Dudley.
Manchester.	Isle of Thanet.	Abergavenny.
Swansea.	Tunbridge.	Llanarth.
Barking.	Uckfield.	Cardiff.
York.	North Dublin.	Warwick.
Gainsborough.	South Dublin.	Highworth.
Wickham Market.	Machen.	Swindon.
Ashbourne.	Sirhowy.	Dovor.
Hull.	Tredegar.	Leek.
Mayo.	Risca.	Abingdon.
Glasgow.	Birmingham.	Northampton.
Henley.	Nottingham.	Preston.

Melksham.
Plomesgate.
Wincanton.
Maldon.
Bridgewater.
Belper.
Newmarket.
Newcastle-on-Tyne.
Ipswich.
Wisbeach.
Stroud.
Newton Abbot.
Stockport.
Sculcoates.
Carmarthen.
Taunton.
Frome.
Hungerford.
Axbridge.
Axminster.
Tendring.
Redruth.
Macclesfield.
Ellesmere.
Andover.
Basford.
Epsom.
Kendal.
Portsea.
Louth.
Bradford.
Totness.
Forehoe.
Glandford Brigg.
Sudbury.
Bideford.
Bishop's Stortford.
Chepstow.
Dursley.
Poole.
Ashby de la Zouch.
Ampthill.
Fareham.
Ledbury.
Eccleshall Bierlow.
Mutford and Launditch.
Bradfield.
Shardlow.
Wrexham.
Halifax.
Eton.
King's Lynn.
Ludlow.
Burnley.
Ashton.
Bury.
Clitheroe.
Lancaster.
Dewsbury.
Wirksworth.
Oldham.
Rochdale.
Sheffield.
Castlebar.
Cork.
Chippenham.

RETURNS, REFERRED TO AT PAGE 82.

The Hospitals, Dispensaries, and Infirmaries included in my Returns are:

King's College Hospital.
Birmingham General Hospital.
Carey Street Dispensary.
Exeter ,,
Liverpool ,,
Bolton ,,
Nottingham ,,
Glasgow Infirmary.
Children's ,, Broad Street.
Leeds Dispensary.
Norwich ,,
Clifton ,,
Worcester. ,,
Swansea ,,

IRISH.

Limerick Dispensary.
West Cove ,,
Roscrea ,,
Bagnal's Town ,,
Newry Dispensary.
Clare ,,
Mayo ,,
Drumlish ,,

Hollywood Dispensary	Markethill Dispensary.
Glasslough ,,	New Town ,,
Doonas ,,	

The number of patients included, is 255,297 ; the number registered Scrofula, is 3187.

EXTRACT FROM DR. GRIFFIN'S LETTER, PAGE 86.

"I thought I might as well send you the result of my observations respecting Scrofula, made according to your desire. Those I send now are the City cases only, as I have not yet completed those of the Country. The children were all (as you wished), between four and fifteen years of age, and were examined with great care by myself.

"Of 548 children of the City of Limerick then, the numbers stand as follows :

Children healthy	250
,, with scars or cicatrices	21
,, with open sores, (scrofulous)	4
,, with glands visibly enlarged	112
,, with enlarged glands perceptible to the touch	154
,, with scrofulous bones	3
,, with scrofulous joints	4
Total	548

332 of the above were found in the schools of the Limerick Union Workhouse; the remaining 216 in the schools of the Christian Brothers, a religious society devoted to the instruction of youth. I thought that taking a certain portion of the children examined from the Workhouse would be a tolerable set off against the probably too healthy character of those found at the Christian Schools, since the more serious scrofulous cases would be likely to remain at home. The particulars are as follows :

LIMERICK WORKHOUSE.

Healthy	147
Scars	18
Open sores	4
Glands visibly enlarged	55
,, perceptible to the touch	102
Scrofulous bones	3
Scrofulous joints	3
Total	332

CHRISTIAN SCHOOLS.

Healthy	103
Scars	3
Open sores	0
Glands visibly enlarged	57
,, perceptible to the touch	52
Scrofulous bones	0
,, joints	1
Total	216

"Thus, the difference is pretty decided; the real type of the City would probably be a mean between both. But with regard to enlarged glands, whether visible or perceptible to the touch, I doubt their being decided indications of a scrofulous tendency; eruptions on the skin, and especially on the head, will produce them, and such affections are extremely common in Ireland. Most of the enlargements included in the above Tables were of a very trifling nature; indeed the vast majority of them were so, (about 80 per cent. or thereabouts). But I made it a rule (as you seemed to require a test), to include all such cases as were distinctly though very slightly visible, as well as all such as were distinctly, though often but slightly, perceptible to the touch. I will send you the country observations as soon as possible, but I could get them much more quickly, only I wish to make them myself.

"Dear Sir,

"Ever yours,

"D. Griffin, M.D."

The whole account for the Country Districts would stand thus:

Healthy	305
Scars	33
Open sores	2
Enlarged glands, (visible)	115
,, ,, perceptible to the touch	126
Scrofulous bones	3
,, joints	0
Total	584

DR. ROZAS' REPORT.

RAPPORT SUR L'ÉTAT DES ENFANTS, ENTRE 4 ET 16 ANS, DANS LE COLLÈGE DE ST. ANTOINE, ET DE ST. PIERRE LISBONNE, À L'ÉGARD DES SCROFULES.

TEMPÉRATURE MOYENNE DE LA VILLE, 16° 4′ CENTIGRADE.

1. Nombre total soumis à l'examen.	2. Nombre qui présentent cheveux blonds ou rouges, avec les yeux bleus, clairs ou gris, et peau fine et blanche.	3. Nombre qui présentent tuméfaction scrofuleuse des glandes cervicales, reconnaissable par l'attouchement; ulcères ou sinus leurs résultats; mal scrofuleux des os ou des articulations.	4. Nombre présentant quelqu'un des caractères décrits à la colonne troisième et la physionomie de la colonne seconde.
	GARCONS.		
500 en totalité.		250	Il n'y a d'autre exception que celle décrite parmi les filles 12, le reste tant garçons comme filles ont les cheveux ou yeux noir ou presque noir et la peau brune sale comme ceux d'un tempérament bilieux, d'ailleurs les autres caractères scrofuleux sont très remarquables tels que le nez, les glandes cervicales, &c.
	FILLES.		
300	12	29	
	LA DIETE. Restorante. Bains de mer. Aucune hors de la diète regulière sauf ceux qui sont en traitement qui est débutante au commencement et restorante après.		

Tous les enfans font usage des bains de mers à la saison propre comme moyen prophilactique.

MEMORANDUM.

Having been informed that the Colleges of St. Peter and St. Anthony were, from late Regulations, incorporated in the Casa Pia, (Asylum for Children of Indigent Parents), under the name of College of St. Isabel, I repaired to that establishment in order to obtain the required information respecting scrofulous cases, as well

as on the circumstances connected with the accommodation of the patients, the locality of the establishment, the character of the disease, the number of boys and girls affected; and finally, the treatment and diet put in practice by the medical men attending the said Establishment.

Senor Henrique Xavier de Sacramento, (the surgeon in attendance), introduced me into the Establishment, and ordered all the boys and girls to be mustered separately in their respective wards, and assisted me in examining them. I have also inspected two or three rooms which serve as hospitals for the boys under Treatment, and after a fair examination I am able to make the following Report.

There are about 500 boys and 300 girls in the Asylum, from seven to eighteen years of age. Out of the 500 boys, 250 are decidedly scrofulous. They have all tumours, more or less developed, in the neck, and under the chin, although none of them seem to be in an advanced state. The scrofulous physiognomy is perfectly discernible in the nose, lips, and neck, but their skin and hair exhibit in very few of them the characteristic fairness and softness observed in colder climates. The skin in this country is generally sallow, and of a bilious tint, the eyes black, or hazel; but in every other respect the lymphatic temperament is to be clearly remarked. It seems that owing to the admixture of some bilious principle in the lymph, this becomes in some manner neutralized, as it either makes no progress at all towards suppuration, or, if the tumor suppurates, it heals with facility, and nothing but a slight scar or cicatrix remains.

This induration of the cervical glands, known here by the name of *Alporcas*, is quite a common disease in Lisbon; but of no other consequence than that which I have stated above. Out of the 250 boys thus described the following cases are now in the Hospital.

8 Scrofulous Ophthalmia.
2 Tabes mesenterica.
1 Hydarthrus, or rather (Gona Trocacia) by infiltration.
1 Rachitis.
6 Cervical glands in suppurating process, and in a fair way of being speedily cured.
5 Fistulous sores.

23

1 Exostoses.
1 Otites.
4 more ophthalmic, nearly well.

29

The remaining 221 are stationary. The Ophthalmia Scrofulosa is endemic at the *Caza Pia*, owing to the locality, situated on a large beach, on the sand of which the hot rays of the sun cause saline evaporations, which constantly affect the eyes of the boys. It is also contagious from the beds being too close to each other, both in the dormitories and hospitals, and scantily ventilated from the north; the said hospitals or wards either having small and high windows to the north, or a full southern aspect on the beach, augmenting the disease. Even with all these inconveniences, the climate is so favourable, the mean temperature of the Establishment being 71° or 72°, as to cause these Ophthalmies to yield with the greatest facility to topical bleeding and the Antiphlogistic Treatment, with a low diet; and seldom, or ever, have cases been witnessed of a serious or fatal termination. Ophthalmia, according to the information given to me by Señor Xavier, constantly precedes the development of such tumors as come to the process of suppuration.

I have already remarked that suppurating tumors are easily treated in general. The treatment always begins by the application of leeches, and emollient cataplasm, and once the suppuration is well established, local stimulants, blisters, and even the Moxa are applied near the tumor as means of revulsion. A generous diet then accompanies the following tonic treatment. Infusion of Hops in a decoction of Sarsaparilla, with some few drops of Tincture of Iodine, and some aromatic plants also infused, constitutes the medicine taken inwardly.

The same treatment is put in practice in all cases of Fistula, Ulcers, Hydarthrus, &c. The latter generally terminates after some time by Ankylosis, and only leaves a slight lameness. Free air, large and well ventilated rooms, moderate exercise and sea-bathing in the season, complete the cure.

Upon the whole, this afflictive malady, so fatal to many families in northern climates, is by no means so in Portugal, and the form in which it occurs is very favourable indeed in large Establishments. I am convinced were this Asylum more amply provided with nutritious food, salt fish being rather too often administered to the children, together with beans, their health would improve, and the scrofulous disposition would either vanish or be conquered by the children's constitution in growing.

The Establishment, however, as far as the locality admits, is in every other respect, conducted with great zeal and attention.

The general cause to which Scrofula may be attributed in

this country is, want of cleanliness, bad food, loose education, and extreme poverty.

The few cases of Tabes Mesenterica, (which are very rare), are treated by stimulants and a generous diet. They are almost always attended with complete Marasmus, and consequently hopeless. One case exhibited, post mortem, the whole system of glands indurated.

Out of 300 girls I have examined, 29 only exhibited symptoms of Scrofula, except in Ophthalmia. Amongst these girls, I have met with 10 or 12 with fair hair, fair skin, and blueish eyes; they were descended from foreign parents. The said 10 or 12 girls are perfectly exempt from any visible sign of Scrofula, which circumstance makes me suppose that were scrofulous patients from the North to change their residence to this climate, they might derive great advantage, and perhaps lose in time the morbid disposition to the disease.

The 29 girls suffering from Scrofula exhibit the following cases:

5 Induration of mesenteric glands.
2 Cervical and mammary tumors.
22 Ophthalmia.

They are doing very well, and as they occupy the upper part of the Establishment, which enjoys freer ventilation, and a full northern aspect, and gardens at the back, they are comparatively in better health than the boys, who occupy the lower part of it.

I have condensed these facts in the printed paper which accompanies the present memorandum.

Sebastian Charles Rozas.

Lisbon, April 8, 1842.

AMSTERDAM.

RAPPORT SUR L'ÉTAT DES ENFANTS ENTRE 4 ET 16 ANS, DANS LA MAISON DES ORPHELINS A L'ÉGARD DES SCROFULES.

MEAN TEMPERATURE, 10° CENT. (50° FAHR.)

GARCONS.

Nombre total soumis à l'examen.	Nombre qui présentent cheveux blonds ou rouges, avec les yeux bleus, clairs ou gris, et peau fine et blanche	Nombre qui présentent tuméfactions scrofuleuses des glandes cervicales, reconnaissable par l'attouchement; ulcères ou sinus, leurs résultats; mal scrofuleux des os ou des articulations.	Nombre présentant quelqu'un des caractères décrits à la colonne troisième et la physionomie à la colonne seconde.
495.	347.	91.	
242 garçons.	Il n'y a que 16 enfans à yeux et cheveux noir dans toute la Maison, et 31 à cheveux noirs et yeux bleus ou clair.	*a.* Tuméfaction scrofuleuse des glandes cervicales . . . 47 *b.* Ulcères ou sinus, leurs résultats . 16 *c.* Mal scrofuleux des os ou des articulations . . 28	*a.* Tuméfaction des glands cervicales avec des cheveux blonds, des yeux bleus et la peau fine, Garçons 20 Filles 38 Cheveux noirs, yeux bleus, peau fine, Garçons 0 Filles 2 *b.* Ulcères ou sinus à cheveux rouges et yeux gris, Garçons 3 Filles 2 *c.* Mal scrofuleux des os à cheveux blonds ou rouges avec les yeux bleus ou gris, Garçons 28 Filles 19
La Maison (à ce tems ci) renferme 630 enfans entre 3 et 20 ans.			

FILLES.

		Total 118	
253 filles.		*a.* . . . . . 83 *b.* . . . . . 16 *c.* 19	

"The above has been kindly furnished by the Medical Directors of the Orphan House, after the examination which took place for the express purpose on the 20th instant.

"JAMES ANNESLEY,

"Consul.

"Amsterdam, March 20, 1842."

"Amsterdam, March 22, 1842.

"SIR,

"In reply to your Despatch No. 2, of the 11th instant, enclosing certain queries as to the state of Scrofula at the Orphan Asylum of this city, I have the honour to state that, through the assistance of my friend, M. Van Oudermeulen, one of the Chief Magistrates of Amsterdam, I have been enabled to procure from the Medical Directors of the Orphan Asylum, (who kindly held a strict examination for the purpose on the 20th instant), distinct answers, which may be relied on, to the several queries as required; the printed form of which I have now the honour to enclose, filled up as I suppose it was intended it should be by the Medical Profession in England. And I respectfully beg leave to remark, that from all I have been able to ascertain, it appears to be a melancholy fact that this dreadful malady is decidedly on the increase in North Holland, as well as elsewhere.

"I have, &c.

(Signed) "JAMES ANNESLEY."

MUNICH REPORT.

"Munich, Feb. 23, 1842.

"My Lord,

"In compliance with the Instructions transmitted to me by your Lordship in your Letter of the 10th instant, by the direction of the Earl of Aberdeen, I endeavoured immediately to procure the information therein required respecting the Orphan Asylum at Munich.

"I learned through the Directors and principal Physicians of that Establishment, that scrofulous disorders are very prevalent among the children, particularly the girls; and in both sexes mostly confined to the fair complexioned children. However, the exact proportions not having been taken at the Institution, cannot be given.

"The origin of Scrofula amongst these children, of whom two-thirds had that disease, showing itself principally in glandulous tumors, and inflammation in the eyes has been attributed more to dirt and want of attention, (previous to admittance into the Institution), than to hereditary causes, although the latter certainly exist.

"The best diet for scrofulous patients has been found to be milk and meal, and not flesh; as to the medical treatment, Iodine is thought to be of little efficacy; the means resorted to being regular exercise, tisanes, (as for instance, Sarsaparilla continued for a length of time), and boarding in the country is now most extensively adopted.

"Owing to the number of children who died before reaching ten years of age, which is stated to have amounted to three fourths of the whole, the Establishment was long in bad repute, but at present the proportionate number of deaths is considerably diminished, and the Institution appears to be established in the best manner.

"The whole number of children in the Establishment is 300; of which 216 are boarded out, which is always found to have the best effects.

"I herein enclose, my Lord, a statement in German, with a translation which was furnished to me, of the daily course of diet given to the children during the week, as much importance is attached to that regular regimen.

"I have, &c.

(Signed.) "ERSKINE,

"The Viscount Canning."

REPORT ON THE STATE OF CHILDREN BETWEEN FOUR AND SIXTEEN YEARS OF AGE IN THE IMPERIAL ORPHAN ASYLUM AT VIENNA, AS REGARDS SCROFULA.

AVERAGE TEMPERATURE OF THE CITY, 10° 1′ CENT. (50° FAHR.).

1.	2.	3.	4.	5.	6.
Total number of those who have undergone the treatment.	Number, setting forth those with fair or red hair, with dark or light blue eyes, with a white and delicate skin.	Number, setting forth the scrofulous tumors in the glands of the neck which are discernible to the touch; ulcers or protuberances caused by them, scrofulous diseases in the bones and the joints.	Number, setting forth some of the characteristics, which are described in the 3rd column, and the features described in the 2nd column.	BOYS. Diet and manner of living.	GIRLS. Diet and manner of living.
In the year 1841, 412 children were treated in the Imperial Orphan Asylum, at Vienna; 45 of them were admitted to the Hospital, afflicted by scrofulous diseases, most of them in the second stage of the disease.	The majority of those had light hair, a thin skin, and were of a delicate constitution; few of them dark hair or a dark skin.	The cases that here occur are chiefly such as belong to the second stage of the disease.	The characteristics of this disease are, scrofulous tumors, cutaneous eruptions of different sorts, such as: ring-worm, inflammation of glandular parts, scrofulous ophthalmia, accumulation of mucus, a hard swelled belly, scrofulous and lymphatic tumors. The third stage of the disease: scrofulous tumors of the mesenteric glands, white swelling of the joints, scrofulous inflammation of the hip joint, scrofulous dropsy, scrofulous consumption, destruction of the bones (by ulcers), abdominal wasting, rickets, scrofulous nervous diseases. In the first stage, it is very difficult to describe the disease of Scrofula with certainty; during its progress it is to be distinguished. The neck is short and thick, the jaw rather larger and more distended, the head proportionally big, particularly the occiput, the face puffed up, the skin thin and tender (*mit untermischter Löthe*), the hair fair, usually blue eyes, and the eyeball enlarged, the upper lip thick and swollen, the nose likewise frequently swollen; the body apparently in good condition, but the muscles soft and rather flabby; the lower part of the abdomen more or less hard.	The regimen is: early rising, as much exercise in the open air as possible, cleanliness, simple but good food, water. It has been proved by experience, that under this regimen, Scrofula has developed itself in the children in only a few cases, and then the cure was more speedily effected. Many may, from the hour of their birth have been predisposed to the disease of Scrofula, but their habits of life, before their entrance into the Institution, were chiefly such as are favourable to this malady. (Signed) ADALBERT KRIESCHE, Doctor of Medicine, Member of the Medical Faculty, and Head Physician of the Imperial Orphan Asylum in Vienna.	

"Sir,

"According to your desire, I send you the following statements on the two points in question.

"The total number of the children of both sexes boarded in the Imperial Royal Orphan Asylum, was in the last year, 412, viz. :

Boys . . .	308
Girls . . .	104

"They are aged between six and sixteen years; and it is to be remarked that the attainment of the sixth year is requisite for their reception into the Imperial Royal Orphan Asylum itself.

"Of these 412 children, 348 have, during the last year, been admitted into the Hospital with external or internal diseases; and among these 348 patients, 45 were scrofulous, viz. :

Boys . . .	18
Girls . . .	27

"Divided according to the degree of the disease, of these 45 patients there belonged to the

1st. degree . . .	25
2nd. degree . . .	18
3rd. degree . . .	2

which latter died of Scrofulous Pulmonary Consumption.

"Every child is examined by me at the reception. In some the scrofulous knots are apparent, in others they are not; and besides the general characteristics, as fine, delicate skin, fair hair, soft appearance, &c., no other symptoms exist; they are developed only in the course of time.

"Since the introduction of the present diet, as well of the healthy as the sick, which is very well prepared, and owes its introduction to the present deserving Director of the Imperial Royal Orphan Asylum, the number of scrofulous children is not only much diminished, but their cure is also much more certain and quicker, and I can well recommend this mode of living.* My experience as Physician to the Establishment during more than forty years, enables me to say that I have obtained from it the most favourable results.

* The Diet will be given hereafter.

"I shall be ready and pleased to respond in future to your wishes, and am, &c.

(Signed) "Adalbert Kriesche,

"Doctor of Medicine,

"Member of the Faculty of Medicine, Senior of, and Physician to the Orphan Asylum.

"August 10, 1842."

BERLIN REPORT.

"Agreeably to the order of the Royal Ministry for Ecclesiastical, Educational, and Medical Affairs, of the 10th of last month, the most respectfully subscribed Police President has caused the desired information on Scrofula in the Frederic-Orphan Asylum of this place to be collected, and drawn up conformably to the scheme given, and he has now the honour to return thereon the following Report:

"The children brought up in the great Frederic-Orphan Asylum of this place, live, partly within the house itself, partly outside the same, with nurses, resident either in the town, or its precincts, or in different small towns in the country. The number of children outside the house amounts at present to 815; (355 boys, and 462 girls), whereas there are within the House, 230 boys, and 123 girls; together, therefore, 353 children. Only the latter class could be subjected to an investigation as to the prevalence of Scrofula among them, the result of which is given in the accompanying Table.

"The greater part of the children received in the Asylum, are already, (at the time of their reception), more or less affected by Scrofula. This Scrofula, or Tubercle disease, results from the deposit of scrofulous or tuberculous matter, the result of abnormal nutrition, in the various organs of the body, where it may undergo further metamorphosis, and cause diseases of the most varied character, unless it be previously expelled through the skin, by means of various erup-

tions. It appears, according to the experience of this and other Establishments, to originate principally in the following causes.

"1. The transmission of fluids (blood)? saturated with Tuberculous matter from the parents, particularly from the mother to the child, which happens as much more frequently as by a corresponding mode of life, the nutrition of the body is similarly directed.

"2. The use of food particularly adapted for the formation of scrofulous matter; among which all vegetables containing starch appear to take the first place.

"3. The use of substances by which the organs of digestion are interrupted in their normal action, and prevented from preparing the food they receive in a manner proper for regular chylification. In this respect the long-continued use of spirits, by which in latter years the tubercular disease may sometimes be developed, is particularly to be considered.

"4. The suppression of the natural secretions and excretions of the body, and the retention of excrementitial matters within the body, also the neglect of cleaning the skin, and the interruption of perspiration by continued exposure to wet and cold air, thereby occasioning uncleanliness of every kind, have proved very injurious in this respect.

"5. The continued breathing of an impure air; and with respect to this it is doubtful whether the evil influence is caused more by the introduction into the system of injurious matter, or by the prevented rejection of useless matter from the body. It is scarcely necessary to mention, that such an impure condition of the air as is referred to, is produced particularly by the living together of many persons in narrow and closed up places. It is also evident that if sufficient bodily exercise be not taken, the injurious effect of the causes mentioned will be more intense.

To these influences, prevailing as they do particularly among the lower classes, are to be ascribed the fact, that most of the children are already affected by Scrofula, at the time of their reception into the Establishment. Although all possible care has been taken that the agencies mentioned do not extend further, we cannot affirm that they have as yet been entirely overcome. The annexed Table shows, however, that Scrofula has, at least with respect to intensity, been much mitigated; its influence being mostly confined to the lymphatic system and the lymphatic glands, consequently to that system of the body in which the tuberculous matter makes its first appearance.

"Very small, on the other hand, is the number of the children

in whom the tuberculous matter is already deposited, either in the solid parts of the bones, or in the soft parts of the parenchymatous organs, and has consequently produced disease of the bones, or tuberculous Phthisis. It cannot, however, be denied that the general scrofulous diathesis prevails more or less through all the diseases by which the children may be attacked, and impresses on them a peculiar character. Thus, a short time ago a considerable number of the orphans were attacked by a peculiar inflammation of the eyes, which although originally catarrhous, took nevertheless a peculiar character on account of the scrofulous condition of the persons attacked. A further extension of the disease by infection could not be denied, although Scrofula itself has not been proved to be infectious; but we cannot deny the infectious character of Scrofulous Consumption.

"The Police Presidency,

(Signed) "Von Puttkammer.

"Berlin, April 14, 1842.

"To the Royal Ministry for
Ecclesiastical, Educational,
and Medical Affairs here."

TABULAR VIEW

OF THOSE CHILDREN OF THE GREAT FREDERIC-ORPHAN ASYLUM, IN BERLIN, WHO WERE, DURING THE TIME FROM THE 9TH TO THE 12TH OF APRIL, 1842, RESIDENT WITHIN THE ESTABLISHMENT, WITH RESPECT TO THE CONDITION OF THEIR HEALTH, WITH REGARD TO SCROFULA, SHOWING THE CONDITION OF THEIR HAIR, EYES, AND SKIN.

MEAN TEMPERATURE OF BERLIN, 8° 6′ CENT. (48° FAHR.)

Condition of the hair, eyes, and skin.	Sum total of the children.			Number with perceptible swellings of the cervical glands.			Number having scrofulous ulcers.			Number having eruptions on the scalp.			Number having diseased bones or joints.			Number having scrofulous consumption in consequence of the formation of tubercles in internal organs.			In perfect health the numbers are.			Remarks.
	Boys.	Girls.	Total.	Boys.	Girls.	Total.	Boys.	Girls.	Total.	Boys.	Girls.	Total.	Boys.	Girls.	Total.	Boys.	Girls.	Total.	Boys.	Girls.	Total.	
I. Light-coloured hair, blue eyes, white delicate skin	138	81	219	74	36	110	4	3	7	4	..	4	..	1	1	3	2	5	53	39	92	Among the children living at present within the Establishment, 67 are affected by a catarrho-scrofulous inflammation of the eyes. Itch does not at present exist in the Establishment.
II. Light-coloured hair, grey eyes, fine white skin	23	2	25	10	1	11	..	..	..	..	..	..	..	..	..	..	..	..	13	1	14	
III. Red hair, blue eyes, white delicate skin	8	..	8	7	..	7	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	
IV. Brown hair, blue eyes	18	17	35	7	7	14	..	..	..	..	1	1	..	..	..	1	..	1	11	8	19	
V. Brown hair, grey eyes	34	22	56	22	6	28	..	1	1	..	..	..	..	1	1	..	..	..	12	14	26	
VI. Dark brown hair, hazel eyes	9	1	10	5	..	5	..	..	..	..	..	..	..	..	..	..	..	..	4	1	5	
Sum Total	230	123	353	125	50	175	4	4	8	5	1	6	..	2	2	4	2	6	93	63	156	Berlin, April 13th, 1842.

ST. PETERSBURG RETURN.

RAPPORT SUR L'ÉTAT DES ENFANS ENTRE 4 ET 17 ANS DANS L'HOSPICE IMPÉRIAL DES ENFANS TROUVÉS A ST. PETERSBOURG, A L'ÉGARD DES SCROFULES.

MEAN TEMPERATURE, 3° 5′ CENT. (38° FAHR.)

Caractère extérieur des élèves soumis à l'examen.	Nombre total soumis à l'examen.	DIVERSES FORMES DE LA MALADIE SCROFULEUSE.											Remarque.
		Tuméfaction des glandes cervicales.	Ulcères et sinus.	Ophthalmies.	Carie.	Dartres.	Erysipèle chronique du visage et principalement du nez.	Teigne.	Otorrhée.	Goître.	Tumeur des articulations.	Scoliose.	
Les yeux bleus ou gris, cheveux blonds, peau fine et blanche	381	31	10	24	4	11	20	3	4	2	1	2	Cet établissement ne contient que des élèves du sèxe féminin de l'âge mentionné; ceux du sèxe masculin se trouvant à Gatchina. La diète est plutôt végétale; cinq fois par semaine on donne aux élèves du bœuf et du bouillon.
Les yeux bleus, cheveux foncés, peau fine et blanche	108	20	8	5	1	1	5	1	1	1	2	2	
Les yeux bleus, cheveux rouges, peau fine et blanche	5	..	..	..	..	..	..	..	..	..	..	..	
Les yeux bruns, cheveux foncés, peau moins fine et moins blanche .	253	32	5	12	6	5	5	3	1	..	..	2	
Les yeux bruns, cheveux blonds, peau fine et blanche	53	3	1	1	..	..	2	..	..	..	..	..	
Les yeux bruns, cheveux rouges, peau fine et blanche	6	1	..	1	..	..	..	..	..	..	..	..	
Les yeux noirs, cheveux noirs, peau assez fine et assez brune . . .	34	3	2	1	1	1	1	..	.	..	1	..	Le Dr. Ph. Doepp, Conseiller d'Etat, et Médecin en Chef de l'Etablissement.
	840	90	26	44	12	18	33	7	6	3	4	6	

MOSCOW RETURN.

RAPPORT SUR L'ÉTAT DES ENFANS, ENTRE 4 ET 16 ANS, DANS LA MAISON IMPÉRIALE DES ENFANS TROUVÉS A MOSCOU, A L'ÉGARD DES SCROFULES.

TEMPERATURE MOYENNE DE LA VILLE, 3° 6′ R. (38° FAHR.)

1. Nombre total soumis à l'examen.		2. Nombre qui présente cheveux blonds ou rouges avec les yeux bleus, clairs ou gris, et peau fine et blanche.		3. Nombre qui présente tuméfaction scrofuleuse des glandes cervicales, reconnaissable par l'attouchement; ulcères ou sinus, leurs résultats; mal scrofuleux des os ou des articulations.						4. Nombre présentant quelqu'un des caractères décrits à la colonne troisième et la physionomie de la colonne seconde.					
Garçons.	Filles.	Garçons.	Filles.	Tuméfaction scrofuleuse des glandes.		Ulcères et sinus.		Mal scrofuleux des os ou des articulations.		Tuméfaction scrofuleuse des glandes.		Ulcères et sinus.		Mal scrofuleux des os ou des articulations.	
				Garçons.	Filles.	Garçons.	Filles.	Garçons.	Filles.	Garçons.	Filles.	Garçons.	Filles.	Garçons.	Filles.
6621	8894	244	246	262	321	338	241	71	61	130	111	88	112	26	23
15,515		490		1294 Nombre total des individus, atteints des scrofules.						490.					

REMARQUE.— La diète en général est plutôt végétale, qu'animale.

A. ALPHONSAY,
Docteur en Chef de l'Etablissement.

The next Returns were obtained by the kindness of Dr. Parkman, of Boston, and Dr. Samuel Jackson, of Philadelphia.

ASYLUM FOR CHILDREN AT THE HOUSE OF INDUSTRY, BOSTON, MASSACHUSETTS.

MEAN TEMPERATURE, 9° 3′ CENT. (49° FAHR.)

	1. Gross number of children examined.	2. Number presenting fair hair and eyes, which are likely to continue so, and soft fair skin.	3. Whole number exhibiting enlarged cervical glands, ulcers, or cicatrices in the same region, scrofulous bones or joints.	4. Number of scrofulous cases among the children described in column 2.
Boys . . .	98	51	76	51
Girls . . .	48	23	30	21

SCHOOLS OF PHILADELPHIA.

	1. Number of children examined between 6 and 16 years.	2. Number of such children who have decidedly fair hair and light blue or light grey eyes, and a fair soft skin.	3. Number of children exhibiting any of the following marks of Scrofula: enlarged cervical glands, discoverable by the touch; sinuses or ulcers succeeding to such glands. Scrofulous bones or joints, or the consequences of them.	4. Number exhibiting the evidences of Scrofula, described in the third column, and possessing the characters described in the second column.
BOYS.				
1. Moyamensing Secondary School	175	70	2 glands slightly enlarged.	1
2. Locust Street School .	276	63	1	0
3. South-east Secondary School	89	15	0	0
4. Spring Garden . . .	176	17	0	0
5. Model School . . .	271	37	0	0
6. School, (Blacks) . .	197	0	3 submental glands enlarged	0
7. Schuylkill Public School .	342	27	0	0
8. Alms House, Asylum for Children	56	0	4 { 1 ophthalmia, 2 sore ears, 1 cicatrix.	4 { one dark hair and light eyes.
9. Roman Catholic Asylum .	59	2	1	1
Total Boys . .	1641	231	11	6
GIRLS.				
1. Locust Street School .	204	61	0	0
2. S.E. Secondary School .	261	37	0	0
3. Spring Garden . . .	218	24	0	0
4. Model School . . .	132	13	1 scrofulous ophthalmia	1
5. Black School . . .	119	0	0	0
6. Schuylkill Public School .	317	37	0	0
7. Alms House, Asylum for Children . . .	10	2	2 sore ears	1
8. Roman Catholic Asylum .	96	12	1 enlarged gland	1
Total Girls . .	1357	186	4	3
Total . .	2998	417	15	9

"My dear Sir,

"With the exception of the very lowest classes of the Irish and Negro Population, included chiefly in the District of Moyamensing, the poorer classes live in small two or three story brick houses, most of which have two rooms on a floor, a front and back room, usually from 12 to 15 feet square, and with a small passage and stair-way.

"Day-labourers, hand-loom weavers, chop-men, carters, &c., according to the size of their family and means, occupy from one room to a half of the house. Often in this class, each floor is occupied by a family. The houses are dry, well ventilated, and comfortable.

"None of the poor live in cellars, with the exception of the lowest Negro classes in Moyamensing.

"In this last District, from a quarter to half of the houses of the poorest classes are old frame dwellings; all the houses of modern erection are of brick.

"It has just struck me that I may be able to procure some interesting information from the Physicians of the Dispensary, and of the poor for this District, as to the relative proportion of Phthisis in this population. It is the worst lodged, the worst fed, and worst clothed of the inhabitants of this city.

"With great respect,

"Believe me yours truly,

"Samuel Jackson.

MR. KAYE'S RETURNS.

	Number examined.	Affected.	Scrofulous joints	Scrofulous scars or ulcers.	Scrofulous glands.	Diet.
Beyrout	58	3	0	1	2	Pulse and olives.
	17 girls.	0	0	0	0	
Alexandria	43	2	0	2	2	Olives.
	9 girls.	0	0	0	0	Olives, rice, peas, and black bread.
Piræus of Athens	85	5	1	3	5	Olives, bread, rice, and fish.
	5	0	0	0	0	
	23 girls.	3	0	0	3	
	23 boys.	6	0	0	6	
On board the Tyne and Geyser	22	2	0	1	2	Ships' provisions, perspiration acid.
Mr. Hill's School, near the Agora, Athens	23	9	2	0	9	Olives, bread, fish, fruit, and cheese.
	299	102	6	4	102	
	607	132	9	11	131	

MR. KAYE'S REPORT.

"I shall now offer a few explanatory remarks upon the foregoing Tables.* Of the 75 cases examined at Beirout and its environs, 17 were girls, 58 boys; of the 58 boys, 42 had dark, and 16 light hair. The whole of the girls had dark hair. 3 of the boys affected with Scrofula had dark hair and eyes. The clothing consisted merely of a few rags bound round the body by a sash, or hanging loose. The tongue in those affected, was covered with a white coat, as if Calomel had been rubbed over it. Among those examined it was found that the perspired matter and saliva of those affected with Scrofula turned litmus paper red; in others it was unchanged. The food of the Syrians consists chiefly of olives, bread, fruit, goat-cheese, rice, vegetables, and sour milk, called *lebban*. They seldom eat meat. The cases are taken, most of them, from the worst parts of the town, where the atmosphere is close, damp, and tainted by decomposing animal and vegetable matters; and, moreover, the children are dirty. Notwithstanding all this, I may safely say, that Scrofula is by no means a frequent disease amongst the Syrians; as I have seldom seen a scar on the necks of the adults. When affected with scrofulous swellings, they apply bean or mustard cataplasm upon the tumor. The bean-flour is obtained from common horse-beans, and is also used in Orchitis, White Swellings, &c., and with considerable benefit.

"Tables 3 and 4 contain 52 cases, 43 of which were boys, 9 girls. Of the boys, 42 had dark hair and eyes, 11 red; all the girls were dark. One of the boys had an open ulcer, the other affected, one had a scar. 5 only were examined at Cairo, and 1 at the Pyramids, the latter had scrofulous scars on the neck; both affected boys were donkey drivers. The clothing is very bad, some having nothing but a blue gown, or shirt, others quite naked. In one of the villages on the Nile, where we remained a short time, most of the children, and indeed some of the adults, were naked, dirty, and covered with small ulcers, living in mud huts, where pure air had neither ingress or egress except through a small hole near the ground, where they crawled in themselves. The upper stratum of air being of course vitiated from various causes; damp, filth, crowding of five or six persons, cats, and fowls; and this in a space five feet high, and three or four feet in diameter. The following figure gives an idea of the shape. Only fancy a powerful sun beating down on the roof of such a place, the air around impregnated with miasma. The food of these

* Mr. Kaye's various Tables have been reduced to the one above given.

people is even worse than that of the Syrians, consisting chiefly of black bread, (real Spartan bread), dipped in rancid olive oil, sour milk, (lebban), and a mess made of sopped bread, and a sort of pea, that they mix together in a wooden bowl; sometimes, but very rarely, they indulge in rice and meat chopped up and baked in fat and vine leaves. The girls were free from the disease. Under the head of 16, I have given the case of a dancing-girl, the temperature of the hut being at least 100°, and excessively damp and close. Most of the children have enormous abdomens; I may say 8 in 10.

"Tables 5 and 6 contain 108 cases; 85 of which were boys and 23 girls. 30 of the former had light hair, 27 dark, 3 red, 5 brown, and 20 various, not particularized. Among the girls, 15 had dark hair and eyes, 5 light, 2 brown, 1 red hair; 3 of the girls were affected with scrofulous enlargement of the glands; 5 of the boys were similarly affected, 1 having scrofulous joints and enlarged glands, 3 had scars, 1 an ulcer. Here the case is different from Syria and Egypt, for the natives have better houses, the children are better clothed, cleaner, better fed and instructed. When I say better fed, I imply regularly, not higher. Their food consists of olives, bread, good wholesome bread, fruit, fish, and at times meat, but not very often. They eat large quantities of sepia and pinna oysters. Their clothing is sufficient for the change of temperature, and the atmosphere of their dwellings is pure, when compared with that of Egypt and Syria. The children are not such healthy looking children as in the other countries mentioned, they have a sallow, emaciated appearance, owing perhaps to the atmosphere being charged with the miasma from an adjoining marsh of some extent.

"Table 7 gives the result of 22 cases of boys on board this ship and the "Geyser," 2 being affected with Scrofula, 1 in this ship, having enlarged glands, the perspiration being very acid, the other, in the Geyser, having the scars of an ulcer before he entered the service.

"Table 10 shows the result of 23 cases examined at Mr. Hill's School, Athens. Of these, 10 were affected with Scrofula; 9 of them were detected by the finger, 1 by the eye. This last case was a very bad one; the abdomen, knees, elbows, and wrists enlarged, the ankle very much so, and the eyes also affected. The other case with scrofulous joints was detected accidentally, whilst examining the boy, and was not accompanied by any other scrofulous symptoms, save the enlarged glands of the neck.

"Table 11 contains 299 cases from Mr. Hill's School; 102 of which are affected with Scrofula, 6 have scrofulous joints, 4 have scars;—85 were detected by the finger, and 17 by the eye.

"Astonishing as the two last Tables may appear, yet I assure you that they are correct in every particular, as I took great care in every examination, and to finish them I remained up at Athens two days. I must confess when I arranged them into Tables, it astounded me, for although the Greeks themselves confess to Scrofula, which they call hatóne, occurring in the proportion of 1 in 4 or 5, yet I have hitherto regarded it more as an exaggeration than a fact. Some Greek Surgeons here, say that it exists in 19 out of every 20 persons.

"With regard to those cases examined at Mr. Hill's School, it may be as well to observe, that the building in which these children pass the greater portion of the day is spacious, and well ventilated, cleanly, and well arranged. The children are divided into six classes, each class occupying a separate room, which is lofty and spacious. They have a large play-ground in front of the house, where they eat their dinners and amuse themselves, between the fore and afternoon school-hours, so that the atmosphere is not rendered impure by too many congregating together.

"Knowing the value of your time, I shall close this letter at once, and should you require any further information, I shall be happy to afford it. This last Return completes the results of my labours in Athens, and makes a total of 607 cases; 254 boys, and 353 girls.

"Ever yours truly,

"W. T. KAYE.

"September 14, 1845."

J. R. MARTIN, ESQ.

OBSERVATIONS WITH RESPECT TO SCROFULA IN INDIA.

"Before speaking of the relative frequency of Scrofula amongst European residents in India, as compared with that of their countrymen at home, I would mention, grounded on extensive observations during many years on the native of Bengal, both civil and military, that Scrofula, as an idiopathic disease, is seldom seen amongst them.

"At the Native Hospital of Calcutta, of which I was Surgeon for ten years, I saw, however, many cases of scrofulous disease amongst the poorer Bengalees, caused, as it appeared to me, by the abuse of

the rude preparations of Mercury and Arsenic, so liberally administered by the native empirics. Arsenic is given liberally in every form of fever, carefully avoiding evacuants, and as carefully excluding ventilation. It will be no matter of surprise then, that the survivors from such treatment should be troubled in after life with various glandular enlargements. Of Mercury a rude sort of Chloride is prepared by the native doctors, containing a goodly proportion of Bichloride. This mineral is quite as freely exhibited as the first-mentioned, and with fully as evil an effect on public health amongst the indigent natives.

"In all rheumatic cases, in eruptive diseases, as well as in every chronic ailment that puzzles the empiric, this horrible preparation is given in large quantities, and often alternated with Arsenic, while salivation and enlargement of the glands, consequent on this treatment, are never considered as reasons prohibitory of bathing in rivers or tanks even during the cold season. It is needless to describe the lamentable consequences, or the frequency with which protracted suffering from glandular disease and premature death ensue.

"Now as to European residents in India; the civil and military inhabitants of the better classes are almost exempt from Scrofula, and so are their children. This exemption is equally true of parents and their offspring in Bengal, whose families in England are notorious sufferers. During an extensive observation of twenty years in the capital of British India, I do not remember three instances of scrofulous disease declaring itself, though numberless persons were known to me in whom the disease remained latent; and, as it appeared to me, solely through the influence of climate.

"The following Tables contain an enumeration of the admissions into hospital, and the deaths. From 1830 to 1836 inclusively, amongst British Troops in the East Indies, whose aggregate strength amounted to 105,919 men, as compared with the admissions and deaths amongst 44,611* British soldiers serving in the United Kingdom.

"The Tables comprehend every disease that can fairly be considered strumous, and conclude by a comparison of the annual ratio of admissions and deaths from these diseases amongst British Soldiers serving in the East Indies and at home, so as to render the examination complete. The comparative exemption from pulmonary disease of those serving in Bengal in particular, is very remarkable; the ratio of admissions per 1000 being only 1.8† per annum, while in

* The Household Troops and heavy Dragoons, who never serve in the Colonies.

† It will be observed that at page 73 the .8 has been omitted.

England, it is 6.4 ; and the annual deaths, which in England average 5.3 per 1000 by this disease, are all over India, 'too small to calculate into Ratios.'

"The ratio of death by all descriptions of scrofulous disease in India generally is 1.6 per 1000 annually, whereas in England it amounts to 5.7. These and other comparative results exhibited in the Tables may be relied on for their accuracy, as the whole has been prepared at the War Office, under the orders of Major Tulloch, to whose kindness I am indebted for their construction.

Period, 1830 to 1836, inclusive.	Aggregate strength.	No. of Admissions into Hospital.						No. of Deaths.					
		Phthisis Pulmon.	Hæmoptysis.	Scrofula.	Hydarthrus.	Atrophia.	TOTAL.	Phthisis Pulmon.	Hæmoptysis.	Scrofula.	Hydarthrus.	Atrophia.	TOTAL.
Bengal	47,225	87	56	45	5	9	202	64	11	3	0	2	80
Madras	33,881	74	52	61	14	16	217	43	6	1	1	4	55
Bombay	24,813	80	15	59	19	6	179	32	1	0	1	3	37
India, generally	105,919	241	123	165	38	31	598	139	18	4	2	9	172
United Kingdom Dragoon Guards and Dragoons	44,611	286	85	102	8	2	483	236	13	3	0	1	253

Period, 1830 to 1836, inclusive.	Annual ratio per thousand of mean strength.											
	Admissions.						Deaths.					
	Phthisis Pulmon.	Hæmoptysis.	Scrofula.	Hydarthrus.	Atrophia.	TOTAL.	Phthisis Pulmon.	Hæmoptysis.	Scrofula.	Hydarthrus.	Atrophia.	TOTAL.
Bengal	1.8	1.2	1.	.1	.2	4.3	The numbers too small to be calculated into ratios.					1.7
Madras	2.2	1.5	1.8	.4	.5	6.4						1.6
Bombay	3.2	.6	2.4	.8	.2	7.2						1.5
India, generally	2.3	1.1	1.6	.4	.3	5.7	1.3	.2	.04	.02	1	1.6
United Kingdom, Dragoon Guards and Dragoons	6.4	1.9	2.3	.2	..	10.8	5.3	.3	.07	..	.02	5.7

"On the question of the general influence of the climate of India in scrofulous disease, I would observe in conclusion, that it is pre-

eminently beneficial. The equable determination to the surface relieves from glandular obstruction and disease, while the phlegmatic of habit, with dyspepsia, languid circulation, and cold extremities, improve under a residence within the Tropics. The weak chested, as they are called in England, and such of them especially as are of scrofulous habit, are saved by going to India; and I have known instances without number in the curable stage of consumption, that is, labouring under the preceding stage of 'Tubercular Cachexy, to enjoy good health in Bengal, and to survive their brothers and sisters at home. The fate of those, on the other hand, who go to India with suppurative Tubercles, or even in the stage immediately approaching to it, is only precipitated.

"J. R. Martin.

"Grosvenor Street, Sept. 16, 1842."

The following Return was obtained from Calcutta through the kindness of Dr. Stewart.

	1. Number of children examined.	2. Number of such children who have decidedly fair hair and eyes, and a fair soft skin.	3. Number of children exhibiting any of the following marks of Scrofula—enlarged cervical glands discoverable by touch, sinuses or ulcers succeeding to such glands, scrofulous bones or joints, or the consequences of them.	4. Number of children exhibiting the evidences of Scrofula described in the third column, and possessing the characters described in the second column.
BOYS.				
Upper Military Orphan School.	32, all of Anglo-Indian parentage	None exactly correspond, but 9 have grey eyes and light hair.	1 unusually dark, has scrofulous sinuses, and all are subject to glandular enlargements.	None.
Lower Military Orphan School.	89	31, pure English parentage.	None.	2
GIRLS.				
European Female Orphan School . .	55, all pure English parentage.	5	None.	..
Upper Military Orphan School.	43, Anglo-Indian	6	3	2
Lower Military Orphan School.	131	50, pure English parentage.	None.	1, slightly.

" Calcutta, December 19, 1842.

" Dear Sir,

" In reply to your letter of the 8th of September. I think that if you will refer again to the Table which I sent you from certain Schools here, which were those you had sought information regarding, you will be able to reconcile the apparent discrepancy in the results, for you will perceive that the children are none of them Hindoos, (*i. e.*, natives), and all are more or less English ; the difference in their constitutional characters bearing a marked relation to this circumstance chiefly.

" Thus, in one School, the European Female Charity, all the children, 55 in number, are of pure English blood by both parents ; in another, the Upper Military School, all are half-castes, and in the Lower Military School, containing 220 children, boys and girls ; 139 are half-castes, and 81 are English. Among these latter only are there to be found any with 'decidedly fair hair, and eyes, and skin ;' though I have marked 9 children in the Upper Military School as having comparatively fair skin and lighter eyes than their fellows ; for all the half-castes are comparatively fairer than natives, and among both classes the shades of distinction in each class are observable.

" Adding 55 European Female Orphans to 81 Military English Orphans, gives 136, out of which only 5 exactly correspond to your column No. 2, and not one has any symptom of Scrofula fully developed, or appreciable by the touch.

" Contrast this with the half-caste boys and girls in the Upper Military School, the children, generally, of officers by native mothers. Out of 75, 4 have open scrofulous ulcers, and all have swelled cervical glands, are subject to mumps, &c.

" In short, all half-castes in Bengal may be said to be scrofulous, though the disease does not develop itself so early in this climate as at home, in the forms you describe, but in cutaneous troublesome sores, weak eyes, mesenteric diseases, spleen, &c. What is very striking is, that 3 half-caste children will exhibit these symptoms for 1 English one, though all 4 be equally carefully brought up, fed, clothed, and tended.

" The climate seems to have a favourable effect in retarding, if not even arresting entirely the development of Scrofula in English children, while it has exactly an opposite effect on half-castes. I will not pretend to account for this, though it would be easy to

theorise, but I am sure that I have seen the lives of several English scrofulous-looking children saved, by keeping them in Bengal instead of sending them home, and I have known many scrofulous-looking half-caste children turn out stout fellows who were sent home very young, and must have grown up to be consumptive striplings had they been kept in India.

Your inquiries, however, refer, I now discover to the natives of the country, and I am able to give you satisfactory information, having examined with my own hand a large school of mixed Hindoos, between five and twelve years of age. Taking your Numbers and Columns in your printed blank Form :

1	2	3	4
504	44	300	24

" Thus it is evident that the scrofulous constitution is the prevailing one in Bengal, a fact well known to all Indian practitioners, and that among those who have comparatively soft skin, thin hair, and light brown eyes, the proportion is great.

" Another remark is worth mentioning, viz. : the very black natives are always the best constitutions; such as the ' Hill Coolies,' who emigrate, nearly as black as Negroes. Doctors always select the blackest women as wet-nurses for English children.

" Believe me very faithfully yours,

" D. Stewart."

" Madeira, April 3rd, 1843.

" My dear Sir,

" With respect to the comparative frequency of Scrofula in this climate, I regret that any observations made here, must be on such a limited scale, as hardly to admit of any very important deductions being drawn from them. I have done what I could, however, to obtain answers to the queries you put to me. Through the kindness of Dr. Henry, I have been enabled to visit and examine almost all the schools of any extent in Funchal, and the following is the result.

" 1. In a school containing 42 boys, from five to fifteen years old, not a single cicatrix was discovered, nor was there in any of them, found the slightest tenderness on roughly handling the cervical region. In six of them, however, there was enlargement of the glands, so as to be sensible to the touch.

" 2. In a school of 65 boys, neither cicatrix, nor tenderness on pressure, found in any of them, though in 7 the glands were perceptibly enlarged. The master, a very intelligent man, and quite alive to the importance of the inquiry, told me, that during the nine years he had had the school, he had only seen cicatrices in two boys, who had come from the Cape de Verd Islands, with glands, then, in an advanced stage of suppuration.

" 3. In another school of thirty-four boys, the glands were enlarged in 10, and in 2 there was tenderness; no cicatrix.

" 4. In a school of 79 boys, there were 14 with glands enlarged, none tender, but there was 1 cicatrix.

" 5. In the Lancastrian Girls' School, of 130 children, 1 cicatrix, 8 with enlarged glands, in none tenderness.

" 6. The last school I visited contained 55 boys; among them there were 14 with enlarged glands, 2 with cicatrices, and 1 in whom there was tenderness to the touch.

" So that of 405 children, of from five to fifteen years of age, there were 53 with cervical glands enlarged so as to be sensible to the touch, 3 in which there was tenderness on pressure, and 4 cicatrices.

" I know not how this would bear comparison with a similar examination in England, but it seems to show that, with a disposition to glandular enlargement, there is less tendency to inflammation, suppuration, and consequent marks.

" With respect to Phthisis, my own observation would lead me to say that the disease is here comparatively rare. My practice, however, among the natives, being very limited, I have spoken to all the Portuguese physicians on the subject, and they all agree on this point. We must look, too, to the causes to which they are exposed, bad, innutritious food, worse clothing, and still more infamous lodging; a large proportion of the working classes living in the higher grounds, in damp huts, and that after working all day here in the heat of the sun. Hepatic disorders and inflammatory affections of the intestinal mucous membrane being the most frequent result—may not your views of Phthisis being rare, when enlarged glands are common, arise from the same identical constitution wreaking its vengeance on the more external parts?

" Yours very truly,

" A. H. Renton."

EVIDENCE REFERRED TO AT PAGE 179.

According to Eden, in 1661, the average wages in the agricultural counties was less than 6*s*. 6*d*., while the price of wheat in the ten years ending 1665, was 51*s*. 8*d*.

In Suffolk, in 1682, the wages were 5*s*. 6*d*, a week, the price of wheat, 44*s*.

In 1768, Arthur Young says the agricultural wages ranged between 5*s*. 6*d*. and 7*s*. 8*d*.

In the last six years of the last century, the average price of wheat was 72*s*. 6*d*., average wages in agricultural countries, 7*s*.

At present the ratio of wages is from 9*s*. to 10*s*., the price of wheat, 50*s*. The wages nearly double the former average; the price of wheat only 15 per cent. dearer. The price of other necessaries being generally much lower at present than formerly.

EVIDENCE REFERRED TO AT PAGE 179.

Mr. Twiss says,* "The change which has taken place in the species of grain used for bread in England since the period referred to by Mr. Smith in his 'Tracts on the Corn Trade,' is notorious. Rye has almost entirely ceased to be employed. The same remark might almost be applied to barley; and oatmeal and oatcake are not consumed to anything like the same extent as in the previous century. Almost every individual now uses wheaten bread, and in some of our manufacturing towns the inferior sorts even of wheaten flour have been rejected by all except the most indigent classes. The total average produce of grain in England and Wales has been estimated within the last ten years at 29,450 000 quarters, of which, 12,450,000 quarters consist of wheat. It would thus appear, that whilst the population of England and Wales has doubled, the consumption of wheat, as well as of other grain, has nearly quadrupled.

In a similar manner in regard to butcher's meat. The number of cattle and sheep at Smithfield has doubled within the last century, while their weight has more than doubled in that interval. Mac Culloch sets down for the year 1830, 154,434,850 lbs. as the supply of butcher's meat required for London. Assuming for the same time a population of 1,450,000, the annual average consumption would very nearly amount to 107 lbs. for each individual. In

* Tests of a Thriving Population.

1842, he assumed it to be 120½ lbs. The Statistical Society of Manchester assumes 105 lbs. to be the average annual consumption for each inhabitant in that town. In Paris, Chabrol estimated it at 86 lbs., but there is reason to think that the present consumption in that town is less. For Brussels the estimate is 89 lbs. We thus find that the consumption of animal food in the towns of England far exceeds that of foreign cities; and as this consumption has gone on steadily increasing, we are warranted in concluding that the labour of the English people is not only more efficient as compared with other nations, but is daily acquiring greater efficacy, if the present be contrasted with previous results."

DIET TABLES OF DIFFERENT INSTITUTIONS.

DIET TABLES OF THE FOUNDLING HOSPITAL IN LONDON.

CHILDREN UNDER NINE.

BREAKFAST.

Bread, 4 oz.; milk a quarter of a pint, boiled with an equal quantity of water.

DINNER.

Monday.	4 oz. uncooked mutton for roasting, 6 oz. potatoes, 2 oz. bread.
Tuesday.	4 oz. uncooked beef for boiling, 6 oz. potatoes, 2 oz. bread.
Wednesday.	Same as Monday.
Thursday.	4 oz. uncooked beef, to be boiled into soup, with 1½ oz. rice, 4 oz. bread.
Friday.	Same as Monday.
Saturday.	Suet or rice pudding.
Sunday.	4 oz. uncooked beef for roasting, 6 oz. potatoes, 2 oz. bread.

SUPPER.

Bread 4 oz; quarter of a pint of milk.

AT AND ABOVE NINE.

The principal difference is 16 oz. more bread, 18 oz. more meat, and 20 oz. more potatoes.

BERLIN FREDERIC-ORPHAN ASYLUM DIET TABLE.*

" Ew. Hochwohlgeboren übersende ich in Folge des geehrten Schreibens vom 29sten Juli dieses Jahres ganz ergebenst die gewünschte Auskunft über die Diät der Kinder in dem hiesigen grossen Friedrichs-Waisenhause.

" Berlin, den 9ten August, 1842.

" Königlich Preussischer Polizei-Präsident,

(gez.) " v. PUTTKAMMER.

" An

" Herrn Benjamin Phillips,

" Hochwohlgeboren,

" zu

" London."

SPEISE-TARIF DES GROSSEN FRIEDRICHS-WAISENHAUSES.

ZUM FRÜHSTÜCK.

Roggenmehlsuppe. Die Erwachsenen pro Kopf 4 Loth Mehl, $\frac{3}{8}$ Loth Salz und $\frac{3}{10}$ Loth Butter. Die Kleinen pr. Kopf $\frac{1}{4}$ Quart Milch, für 6 Pfennige Semmel und etwas dünne Mehlsuppe. Kranke aller Stationen, pr. Kopf $\frac{1}{4}$ Quart Milch, für 3 Pfennig Semmel und Eichelkaffe. Diese zum 2ten Frühstück abermals für 3 Pfennig Semmel und 1 Tasse Fleischbrühe.

MITTAGS.

Pro Kopf: Bohnen, Erbsen, Linsen a 12 Loth, Reis, Graupe, Hirse, 4 Loth, mit $\frac{1}{12}$ Metze Kartoffeln. Werden Kartoffeln mit Mohrrüben, Kohlrüben, Kohlrabe, Weiss- und Wirsigkohl gekocht, so giebts per Kopf $\frac{1}{8}$ Metze Kartoffeln, und von den übrigen Sachen so viel als nöthig, da die grösse derselben verschieden ist. Werden diese Gemüse mit Fleisch gekocht, so giebts pr. Kopf $\frac{1}{4}$ Pfund roh Fleisch, $\frac{1}{2}$ Loth Salz. Giebts Mittags kein Fleisch, so kommt zu dem Gemüse pr. Kopf $\frac{1}{2}$ Loth roher Talg und $\frac{1}{2}$ Loth Salz.

Für die Kranken und kleinen Kinder giebt es täglich Fleisch und zwar pr. Kopf $\frac{1}{4}$ Pfund. Die Kranken bekommen nie Hülsenfrüchte und Kohlarten, sondern nur Suppe mit Reis, Graupe, Gries, Hirse und Semmel. Ausserdem bekommen die Kranken und Kleinen täglich pro Kopf $\frac{1}{4}$ Quart Bier; viele Kranken erhalten auch extra Bier,

* The above is given in the original language, as well as in translation, because there is some difficulty about measures.

Milch, &c., wenn sie es wünschen und die Aerzte es für gut und nothwendig befinden. Ebenso werden extra Speisen auf Verlangen für dieselben bereitet.

ABENDESSEN.

Suppe, Butterbrod oder Salzbrod. Zur Suppe giebts pro Kopf: Buchweitzen-Grütze 3 Loth, Hafer-Grütze $2\frac{1}{2}$ Loth, Gries 3 Loth, Brod zur Suppe 7 Loth, Salz $\frac{3}{8}$ Loth, Butter $\frac{3}{16}$ Loth.

Im Sommer bekommen die Gesunden Sonntag und Mittwoch Butterbrod; pro Kopf $\frac{1}{2}$ Loth Butter. Freitags giebts Brod und Salz per Kopf $\frac{3}{16}$ Loth Salz.

Im Winter giebts Freitags Biersuppe, pro Kind $\frac{1}{2}$ Quart verdünntes Bier und etwas Salz, Syrup und Butter. An den Tagen, wo die gesunden Kinder Brod bekommen, wird für die Kranken Semmelsuppe gekocht und zwar pro Kopf für 3 Pfennige Semmel. Die grössern Kinder bekommen täglich $\frac{3}{4}$ Pfund schwarz Brod, die Kleinen und Kranken täglich $\frac{1}{2}$ Pfund Weiszbrod, von letzteren bekommen viele Semmel, und dann täglich für 1 Silbergroschen. An den Tagen, wo Abends keine Suppe gekocht wird, bekommt jedes gesunde erwachsene Kind 6 Loth Brod mehr.

UEBERSICHT DER MITAGSESSEN.

Sonntag. Kohlrüben, Weisskohl, Kohlrabe, Wirsigkohl mit Kartoffeln und Fleisch a $\frac{1}{4}$ Pfund roh.
Montag. Bohnen, Erbsen, Linsen; zu Zeiten auch Reis. Stets Fleisch.
Dienstag. Gewöhnlich Mohrrüben, öfters Reis, mit Talg gekocht.
Mittwoch. Gewöhnlich wie Sonntag, also stets Fleisch.
Donnerstag. Hirse mit Talg.
Freitag. Linsen, Erbsen, Bohnen auch grüne Bohnen. Stets Fleisch.
Sonnabend. Gewöhnlich Graupen mit Talg.

Das Brod der Kinder wird in vier Theile getheilt und Morgens, Mittags, Nachmittags und Abends gegeben. Die gesunden Kinder bekommen vier Mal wöchentlich Fleisch. Die Kranken und kleinen täglich.

TRANSLATION.

"Berlin, August 9, 1842.

"Sir,

"In compliance with the request contained in your esteemed Letter of the 29th of July of this year, I have the pleasure to trans-

mit to you the desired information on the diet of the children in the Great Frederick Orphan Asylum of this place.

"The Royal Prussian Police Presidency,

(Signed) "VON PUTTKAMMER.

"To Benjamin Phillips, Esq.
"London."

DIET ROLL OF THE GREAT FREDERIC-ORPHAN ASYLUM.

FOR EACH OF THE OLDER CHILDREN.

BREAKFAST.

Rye-flour soup; composed of 2 ounces of flour, ¼ ounce of salt, and a dram of butter.

FOR EACH OF THE YOUNGER CHILDREN.

½ pint of milk, and a small wheaten loaf of the value of a half-penny, and some thin meat soup.

FOR THE SICK OF ALL AGES, EACH,

BREAKFAST.

½ a pint of milk; a small wheaten loaf of the value of a farthing, and acorn coffee.

The ailing children have, if necessary, a second breakfast or lunch, and are allowed a similar small wheaten loaf, and a cup of beef-tea.

DINNER.

Each child is allowed 6 ounces of bread, peas and lentils, and 2 ounces of peeled grain, rice millet, &c.; together with $\frac{1}{12}$th of a "Metze"* (a measure equal to a peck) of potatoes.

If the potatoes are boiled together with carrots, kohl rabi, white or crisped cabbage, ⅛th metze per head is allowed, and of the other things as much as is necessary, according to the age and size of the children.

If these vegetables are boiled with meat, the allowance for each child is a quarter of a pound uncooked, and a quarter of an ounce of salt.

* A kleine Metze is 1-16th of a bushel.

DINNER.

If there be no meat for dinner, there is an allowance of $\frac{1}{4}$ ounce of suet, and a $\frac{1}{4}$ oz. of salt to be added to the vegetables.

The ailing and the young children get meat daily, a $\frac{1}{4}$ lb. for each.

The sick do not receive husk legumina, or cabbage; they have soup with rice, peeled grain, groats, or millet, and wheaten bread. They receive $\frac{1}{2}$ a pint of beer in addition.

If the Physician thinks it necessary, extra dishes are provided.

SUPPER.

Soup; bread and butter, or bread and salt. The soup is made of buckwheat groats and oaten groats, $1\frac{1}{2}$ ounces for each child.

In addition to the soup, they have $3\frac{1}{2}$ ounces of bread, $\frac{1}{4}$ ounce of salt, and about a drachm of butter.

In the summer, the healthy children have on Sundays and Wednesdays, bread and butter, a $\frac{1}{4}$ ounce of the latter.

On Fridays, bread and salt.

In winter, on Fridays, they have a pint of beer soup, which is made of beer, salt, treacle, and butter,

The older children receive daily $\frac{3}{4}$ lb. of black rye bread. The young and sick ones $\frac{1}{2}$ lb. of white bread.

On the evenings when no soup is made, each healthy child receives an additional 3 ounces of bread.

GENERAL VIEW OF THE DINNERS.

Sunday. Kohl-rabi, white cabbage, turnip-tops, crisped cabbage, with potatoes, and $\frac{1}{4}$ lb. raw meat.
Monday. Beans, peas, lentils; sometimes rice, always meat.
Tuesday. Usually carrots; sometimes rice boiled with suet.
Wednesday. Same as Sunday.
Thursday. Millet with suet.
Friday. Lentils, peas, beans, and meat.
Saturday. Generally peeled grains, with suet.

The bread which the children get is divided into four parts, and given in the morning, at noon, in the afternoon, and in the evening. The healthy children get meat four times a week, the sick and young daily.

IMPERIAL ORPHAN ASYLUM, VIENNA.

DIET TABLE.

The number of the pupils of the Royal Imperial House of Orphans at Vienna amounts on an average to between 400 and 430. The quality and quantity of the pupils' food is as follows.

ON WORK-DAYS.

BREAKFAST.

$2\frac{1}{2}$ oz. of bread, and a pint of soup, prepared of roasted flour.

DINNER AT TWELVE O'CLOCK.

Beef-tea, boiled beef, vegetables, and $2\frac{1}{2}$ oz. of bread.

The beef-tea contains alternately: rice, Ulm barley, grit, coarse flour; vermicelli prepared with egg, 2 grit dumplings, 2 roll dumplings, with egg. It ought to be thick, and each pupil obtains of it 1 pint at least, and of the beef, the weight of 3 oz. independently of bones, after having been boiled,

The vegetables are cabbage, spinach, Kohl-rabi, boiled salad, turnips, carrots, sweet cabbage, sour cabbage, sour turnips, French beans with sauce, lentils with sauce, peas with sauce, potatoes ground in the sauce, which are allowed twice a week besides, but only up to the period when they are to be sowed. The rest of the vegetables are served only once a week, and each pupil obtains of them one pint.

At 4 o'clock in the afternoon each pupil gets $2\frac{1}{2}$ oz. of bread.

SUPPER.

Strong beef-tea, to which is added one of the sorts of flour above mentioned; in winter potatoes with sauce are sometimes given or, but seldom, preserved salt meat with sauce; $2\frac{1}{2}$ oz. of bread for supper.

ON SUNDAYS AND ORDINARY HOLIDAYS.

BREAKFAST.

As on work-days.

DINNER.

Soup, beef, and vegetables, as on work-days, but a pudding in addition.

On higher festival days, or festival days of the Court, birthday of the Emperor and Empress, birthday of a prince, &c., &c., the children obtain some roast veal or pork, the weight of which ought to be 3 oz., including the bones, after having been boiled. Instead of vegetables on these days some sauce is allowed in addition to the beef, and salad in addition to the roast veal; for instance, in winter, salad of potatoes and lamb's lettuce; in summer, endive salad.

ON FRIDAYS.

The children obtain the quantity of bread above-mentioned for breakfast and some soup; also for dinner, with vegetables, and instead of meat, vermicelli, with egg or grit, a pint of each portion; or 2 large dumplings of fine flour, each of $2\frac{1}{2}$ oz weight; besides this, they get 1 pint of very soft boiled peas, or lentils, or dried plums, &c., according to the season.

PATIENT CHILDREN.

Low Diet.

BREAKFAST.

Beef-tea, with bread.

DINNER.

According to the medical advice; either 1 pint of rice-soup, or of barley-soup, vermicelli-soup, white-bread-soup; or, according to the variety of the patient's wants, water-soup, wine-soup, a couple of soft boiled eggs.

At 3 o'clock in the afternoon, 1 pint of the same soup as at dinner.

AT 6 O'CLOCK IN THE EVENING.

One pint of one of the before-mentioned soups, or of a simple bread-soup.

PATIENT-CHILDREN BEING ON $\frac{1}{4}$ PORTION.

The same quantity and quality of the soups as above-mentioned, for breakfast and for 3 o'clock in the afternoon, dinner, and at 6 o'clock in the evening. Besides, there is allowed for those children according to the Physician's order, or the different seasons, apples stewed with sugar, boiled pears, plums boiled with sugar, spinach with sugar, boiled or stewed cherries. Of any of those fruits one pint is allowed; besides one roll daily.

PATIENT-CHILDREN ON ½ PORTION.

The same quality and quantity of soups as the children on low diet. Four times a day, according to the medical advice, 8 oz. of veal, and 3 roll dumplings, or 4 oz. of roast brain and sauce, or 3 oz. of boiled calf's tripe, or 3 oz. of lamb's leg or neck, may be given in addition to the soup at dinner.

DIET REGULATIONS FOR THE ORPHAN ASYLUM, AT MUNICH.

DIET OF THE PUPILS OF THE ASYLUM.

Ordinary Diet.

MORNING.

Wednesdays and Thursdays, milk-soup; the other days, water-soup, boiled with onions and Schmalz (made from melted butter).

NOON.

Sundays. Rolled or pounded barley, or rice-soup, and boiled beef, with vegetables according to the season.

Mondays. Water-soup with schmalz, and rice milk.

Tuesdays. Dumplings of brown wheaten bread (without meat), with schmalz, and sourkrout.

Wednesdays. Water-soup with schmalz, and dumplings (of white bread flour), with boiled plums.

Thursdays. Beef-soup with brown bread, boiled beef and vegetables.

Fridays. Pea or lentil-soup, or soup with meal and schmalz, and a sort of cake of white meal and plums.

Saturdays. Soup with schmalz, and schmarn (a sort of pastry, made brown over the fire) of white meal.

Every child receives daily at noon, a piece of bread, and no beer, but water to drink.

In case of a holiday, the boiled beef destined for Thursday is transferred to such day, in exchange for the lent-provisions, which thus form Thursday's dinner.

AFTERNOON.

Every child receives a piece of bread, in proportion to its age.

EVENING.

During the winter: Sundays and Fridays, boiled potatoes, and half a pint of beer each; on the other days, soup with schmalz; and daily, a piece of bread.

During the summer: Sundays and Fridays, salad and radish; on the other days, soup with schmalz, and the daily piece of bread.

Extraordinary Diet.

New year, Shrovetide, Easter, Whitsuntide, and Christmas, the children receive liver-dumplings, boiled beef and vegetables, sour-krout; and in the evening, roast meat, without salad.

Diet in cases of sickness.

According to the prescription of the physician of the Asylum, boiled beef, soup and fruit, or veal boiled in plain sauce.

AMSTERDAM.

ORPHAN ASYLUM.

La diète est pour tous les bien portants la même.

DÉJEÛNER.

Une beurrée de pain noir pour les enfans; au-dessous de 7 ans du pain blanc.

DÎNER.

Une fois par semaine de la viande, trois fois du riz, et trois fois des légumes.

SOUPER.

Une beurrée de pain ou du lait.

PHILADELPHIA.

USUAL DIET.

(*Extract from Dr. Jackson's Letter.*)

"The diet of the children of the Alms House Asylum consists of milk, coffee, tea, bread, sugar, rice, molasses, potatoes, beef, mutton, ham.

"The general diet of the children attending the public schools is nearly similar to the above. Meat, if not once a-day (often it is twice a-day), is eaten at least five days out of seven."

WET AND DRY COUNTIES REFERRED TO AT PAGE 212.

For the purpose of showing the influence of a moist atmosphere to induce Scrofula, I placed in context six damp counties, Bucks, Cambridgeshire, Bedfordshire, Essex, Huntingdonshire, Lincolnshire, with a population of 1,194,508, a general mortality of 1 in 51, and the deaths from Scrofula amounting to 1 in 10.387, with five dry counties, Herts, Nottingham, Wilts, Warwick, Northampton, containing 1,266,793 inhabitants, the deaths being 1 in 47, whilst those from Scrofula are 1 in 10,556, whilst in the counties included in the Northern and North Western Districts and Yorkshire, with a population of 4,480,000, the deaths from Scrofula are 1 in 23.540.

SEA-SIDE TOWNS, REFERRED TO AT PAGE 213.

The Towns included in the Sea-side List, amount to 50; they are given below. The gross population is 1,481,115; the deaths from Scrofula, taking an average of four years, were 123,25, or 1 in 12,030.

Isle of Thanet.	Bridport.	Scarborough.
Eastry.	Weymouth.	Whitby.
Dovor.	Bideford.	Sunderland.
Rye.	Truro.	Newcastle-on-Tyne.
Hastings.	Redruth.	Berwick.
Brighton.	Falmouth.	Whitehaven.
Isle of Wight.	Bridgewater.	Swansea.
Portsea.	Spalding.	Pembroke.
Southampton.	Boston.	Aberystwith.
Rochford.	Lancaster.	Carnarvon.
Maldon	Louth.	Anglesea.
Great Yarmouth.	Hull.	

INLAND TOWNS, REFERRED TO AT PAGE 213.

The Towns included in the Inland List were upwards of 60; the principal are mentioned below. The total population was 1,653,922; the deaths from Scrofula, taking an average of four years, were 125,50, or 1 in 13,178.

Croydon.	Dartford.	Winchester.
Guildford.	Maidstone.	Windsor.
Farnham.	Tunbridge.	Reading.

Wallingford.	Cambridge.	Shrewsbury.
Staines.	Colchester.	Worcester.
Uxbridge.	Chelmsford.	Tamworth.
Hertford.	Ipswich.	Warwick.
St. Albans.	Woodbridge.	Lincoln.
Wycombe.	Devizes.	Pontefract.
Oxford.	Melksham.	Doncaster.
Witney.	Exeter.	Durham.
Daventry.	Bath.	Abergavenny.
Towcester.	Cheltenham.	Pontypool.
Northampton.	Gloucester.	Builth.
Peterborough.	Hereford.	Brecknock, &c.
Bedford.		

INFLUENCE OF CLIMATE, DOCUMENTS REFERRED TO AT PAGE 218.

The following Returns serve to exhibit the influence of climate to induce Scrofula. They are compiled from the War-Office Reports, so ably arranged by Colonel Tulloch.

RANGE OF THERMOMETER UNDER 30°.

	Maximum.	Minimum.	Range.	White troops invalided for Scrofula.	Black also.
The Bahamas	92	63½	28½	1 in 535	1 in 591
Gibraltar	84½	55	29½	1 .. 486	
The Mauritius	88	70	18	1 .. 691	1 .. 1,395
Barbadoes	88½	73	15½	1 .. 11,968	1 .. 8,921
Honduras	85	72	13	1 .. 320	
St. Helena	83¼	68	15¼	1 .. 246	
Jamaica	92	83	9	1 .. 859	1 .. 818
Ceylon	88	74	14	1 .. 895	1 .. 724
Windward and Leeward Command			13	1 .. 1,141	1 .. 1,137
Sierra Leone	87	75	12	1 .. 921	1 .. 583

GREAT RANGE OF THERMOMETER, 30° AND UPWARDS.

	Maximum.	Minimum.	Range.	White troops invalided for Scrofula.	Black troops also.
Great Britain Cavalry	85	20	65	1 in 433	
„ Infantry				1 .. 17,269	
Canada	95	—30	125	1 .. 600	
Nova Scotia and New Brunswick	88	— 6 to 8	95 to 6	1 .. 928	
The Bermudas	89½	53	36½	1 .. 1,172	
Tenasserim	96	53	43	1 .. 454	
Cape of Good Hope	86	56	30	1 .. 295 Cape 1 .. 331 frontiers	1 in 413
Ionian Islands	84	49	35	1 .. 378	
Malta	83	52½	30½	1 .. 592	
Madras	104	86	18	1 .. 576	1 in 879

LOCALITIES WHERE THE MINIMUM TEMPERATURE EXCEEDS 60° FAHRENHEIT.

The extent of invaliding for Scrofula is at:

St. Helena	1 to	246
Jamaica	,,	859
Honduras	,,	320
Madras	,,	876
Bahamas	,,	535
Mauritius	,,	691
Ceylon	,,	895
Sierra Leone	,,	921
	5343	or 1 in 668 average.

LOCALITIES WHERE THE MINIMUM TEMPERATURE IS LESS THAN 60° FAHRENHEIT.

The invaliding for Scrofula is in:

Canada	1 to	600
Nova Scotia and New Brunswick	,,	928
Bermudas	,,	1172
Tenasserim	,,	454
Cape of Good Hope	,,	313
Ionian Islands	,,	378
Malta	,,	592
Gibraltar	,,	486
	4923	or 1 in 615 average.

FACTORY LABOUR.

MANUFACTURING TOWNS REFERRED TO AT PAGE 234.

The Maufacturing Towns included in the list are named below; they amount to 30. The gross population is 2,043,038; the deaths from Scrofula, taking the four years' average, were 100.25, or 1 in 20,430.

Norwich.	Frome.	Wolverhampton.
Axminster.	Stroud.	Birmingham.
Honiton.	Kidderminster.	Coventry.

Leicester.	Preston.	Halifax.
Nottingham.	Bolton.	Bradford.
Derby.	Manchester.	Leeds.
Stockport.	Ashton.	Newton.
Macclesfield.	Sheffield.	Montgomery.
Blackburn.	Huddersfield.	

NON-FACTORY TOWNS REFERRED TO AT PAGE 234.

The Non-Factory Towns amounted to 33; they are enumerated below. The gross population is 2,870,416, the deaths from Scrofula taking a similar average to the last, 147.50, or 1 in 19,526.

Canterbury.	Plymouth.	Worcester.
Maidstone.	Falmouth.	Warwick.
Brighton.	Taunton.	Lincoln.
Southampton.	Bath.	Doncaster.
Reading.	Bristol.	York.
Oxford.	Cheltenham.	Durham.
Cambridge.	Gloucester.	Newcastle.
Ipswich.	Ross.	Swansea.
Salisbury.	Ledbury.	Builth.
Exeter.	Shrewsbury.	Brecknock.

FACTORY LABOUR.

The Factory Towns included in the Returns which were made at the request of Messrs. Horner and Saunders, are :

Preston.	Clitheroe.	Oldham.
Bramley.	Lancaster.	Rochdale.
Ashton.	Manchester.	Halifax.
Bury.	Dewsbury.	Hull.

The number of children examined was 6754, the number presenting marks of Scrofula, was 905 ; the number presenting fair complexions, 2518, the number of scrofulous among the light complexioned, 666.

FACTORIES IN COUNTRY DISTRICTS, REFERRED TO AT PAGE 234.

"Leeds, August 27, 1844.

"Sir,

"I send you Returns from the only two really Rural Districts within twenty miles of Leeds in which are factories. Fenston, fifteen miles from Leeds, has a Cotton Factory, but it is not running at present. Skipton, twenty miles from Leeds, has several, but I do not know any one whom I could engage to furnish me with Returns from Rural Districts. Otley is a market town ten miles from Leeds, with a population almost entirely agricultural of 3000. There is one Cotton Mill, Mr. Ackroyd's, whose Returns I send you. Burley is two miles from Otley, and twelve from Leeds; it is a small village with a Woollen Factory. Both are delightfully situated on the River Wharf, and near to the famous watering place Ilkley, in the midst of a rural population. I think the Returns a fair sample of rural localities. The diet I have ascertained from some patients of mine residing in the neighbourhood, who have made the inquiry on that head for me.

"Yours faithfully,

"THOMAS SMITH."

MR. ACKROYD'S COTTON MILL, OTLEY, NEAR LEEDS.

1. Number of children examined between 6 and 16 years.	2. Number of such children who have decidedly fair hair, and light blue or light grey eyes, and a fair, soft skin.	3. Number of children exhibiting any of the following marks of Scrotula:—Enlarged cervical glands, discoverable by the touch; sinuses or ulcers succeeding to such glands. Scrofulous bones or joints, or the consequences of them.	4. Number exhibiting the evidences of Scrofula, described in the third column, and possessing the characters described in the second column.
BOYS.			
73	47	14	12
GIRLS.			
79	50	11	9
152			

DIET.

Tea, coffee, bread, butter, bacon in large quantity, rice, and flour puddings; small quantities of fresh meat.

MESSRS. GREENWOOD'S AND WHITTAKER'S WOOLLEN MILL, BURLEY, NEAR OTLEY.

BOYS.			
1. Number of children examined between 6 and 16 years.	2. Number of such children who have decidedly fair hair, and light blue and light grey eyes, and a fair, soft skin.	3. Number of children exhibiting any of the following marks of Scrofula:—Enlarged cervical glands, discoverable by the touch; sinuses or ulcers succeeding to such glands. Scrofulous bones or joints, or the consequences of them.	4. Number exhibiting the evidences of Scrofula, described in the third column, and possessing the characters described in the second column.
41	25	6	10
GIRLS.			
70	37	15	18
111			
DIET. Much the same as at Otley.			

MR. POYSER'S RETURN OF MR. ARKWRIGHT'S MILLS.

"On Thursday morning I examined all the work-people employed in the Cromford Mills, and yesterday those in Masson Mill. I went into every room, Mr. Melville, the partner of Mr. Arkwright, and one of the clerks accompanying me. By their direction all the male hands came to me, and I carefully examined with the fingers all, or nearly all of them in the manner pointed out by Mr. Phillips.

"The result was extremely satisfactory to me, and confirmed me in the opinion I have maintained and before expressed to you, that the employment in these Factories, so far from producing or aggravating Scrofula, has a tendency to prevent it. The light, dry, and airy rooms in which the hands are employed, the constant exercise they take in moving from one spindle, &c., to another, and the good food and clothing their wages enable them to procure, are I apprehend among the causes which induce this immunity from Scrofula.

"THOMAS POYSER.

"Wirksworth, May 13, 1843."

PERSONS EXAMINED.

Number.	Having enlarged glands, only discoverable by the fingers.	Discoverable by the eye.	Cicatrices, &c.
797			
Above twenty, 518	3	3	4
Under twenty, 279	12	4	5

Total in which the above marks, or any of them, are present:

Above twenty . . .	10
Under twenty . . .	19
	29

"There were also two cases of Scrofulous Ophthalmia, one of Anchylosis of the hip joint from Scrofulous disease, and two cases of curvature of the spine in young women, probably from the same cause. There were absent from work from illness, or other causes, twelve. These cases were not examined or reported."

LINEN AND COTTON AND WOOLLEN TOWNS REFERRED TO AT PAGE 234.

The Linen and Cotton Towns included, are:

Nottingham,	Bolton.	Ashton.
Stockport.	Warrington.	Oldham.
Burnley.	Manchester.	Halifax.
Preston.	Salford.	

The gross population was 945,159, the deaths from Scrofula, 38.50, or 1 in 24,549.*

The Woollen Towns included, are:

Axminster.	Rochdale.	Leeds.
Honiton.	Wakefield.	Newtown.
Wellington.	Huddersfield.	Llanidloes.
Stroud.	Bradford.	Montgomery.
Kidderminster.		

The gross population was 715,097, the deaths from Scrofula, 40.75, or 1 in 17,425.

RELATIVE FREQUENCY OF CONSUMPTION AND SCROFULA IN DIFFERENT LOCALITIES, AS SHOWN BY A REGISTER OF DEATHS.

		Deaths from Consumption.	Deaths from Scrofula.
Sea-side Towns	1,481,115	1 in 301	1 in 12,030
Inland Towns	1,653,922	1 in 266	1 in 13,178
Manufacturing Towns . .	2,043,038	1 in 219	1 in 20,430
Non-Factory Towns . .	2,870,416	1 in 256	1 in 19,526
Linen and Cotton Towns .	945,159	1 in 209	1 in 24,549
Woollen Towns	715,097	1 in 252	1 in 17,425
Eastern Counties . . .	1,041,000	1 in 258	1 in 8,395

* There is a slight difference between the above and the note in the text; it depends on the difference in the period included.

"Spring Gardens, February 17, 1845.

"Dear Sir,

"In compliance with your request, I have the pleasure of sending you a few facts illustrative of the degree of prevalence of Scrofula amongst criminal prisoners, and of the causes which seem to have had the principal share in producing the disease in persons of that class.

"In the statistical evidence which I shall adduce, I have been in many instances unable to distinguish between tubercular disease of the external glands, ordinarily denominated Scrofula, and the tubercular disease of the lungs and other internal organs: but whenever it has been possible to show the prevalence of either form of the disease separately I have done so.

"The frequency of Scrofula and internal tubercular disease amongst the prisoners in the Millbank Penitentiary, was one of the first and most important facts which offered themselves to my observation when I commenced my attendance at the Institution in the spring of 1840. I found that the prevalence of the disease had already engaged the attention of the Medical Officers, and that a considerable number of prisoners who were most severely affected with it, had been separated from the rest, and placed in a distinct Ward, and that the system of discipline as it regarded them, had by medical suggestion been much relaxed. The experience of the four subsequent years, and the examination of the Medical Records of the Penitentiary, only strengthened the impression which I had at first received.

"The great amount of tubercular disease engendered by imprisonment in the Penitentiary is proved by the following facts. During eighteen years, 205 deaths occurred amongst the prisoners in that Establishment. Of this number, however, 31 deaths arose from the Asiatic Cholera, which was epidemic during the years 1832-4, and only 174 from ordinary causes. Now of the 174 deaths, 75 were caused by Consumption, and eight by other forms of tubercular disease. Again, during the same period of eighteen years, 355 prisoners were pardoned on the ground of illness, and of these, 90 laboured under Consumption, and 78 under external Scrofula. So that very nearly half the deaths, and the same proportion of the pardons on medical grounds, were due to external or internal Scrofula, or tubercular disease.

"The great mortality caused by this disease in the Penitentiary

is, however, best shown by comparing the number of deaths it has produced with the number of persons living, in the Penitentiary and the whole Metropolis respectively.

"Now the annual number of deaths from Consumption during the period already mentioned, compared with the average number of prisoners, was in the proportion of 7.612 per thousand, and the annual number of deaths from other tubercular diseases in the proportion of .835 per thousand; while the pardons on account of Consumption amounted to 9.386 per 1000 prisoners, and the pardons on account of Scrofula to 8.135 per 1000. I believe we shall be very near the truth in admitting that three-fifths of the cases pardoned on account of Consumption, and one fourth of those pardoned on account of Scrofula, would have proved fatal in the Prison if no pardons had been granted; this at least is the estimate that I have formed after a very careful examination of the facts; and supposing it to be a correct one, we must add 5.361 to the proportional number of deaths from Consumption, and 2.034 to the ratio of deaths from Scrofula. We then find the total annual mortality from these diseases in the Penitentiary to have been as follows; from Consumption, 13,244 per 1000 prisoners, and from Scrofula 2.169 per 1000 prisoners. In the Metropolis, during the year 1842, the mortality amongst persons of the ages of fifteen to seventy from Consumption, was only 4.374 per 1000, and from other tubercular or scrofulous diseases, only .033 per 1000 The mortality from all tubercular diseases has therefore been nearly four times as great in the Millbank Penitentiary as in the Metropolis. The excess of mortality from other diseases in the Penitentiary has been comparatively slight.

On examining the statistical Reports of the Penitentiaries of other countries, I have found that in them also the scrofulous or tubercular diseases have been the principal cause of death, and that the mortality from these diseases has been twice or three times as great among the prisoners in those situations, as amongst persons of the same period of life in the general population of the respective countries.

"That this great prevalence of tubercular disease amongst prisoners is the effect of imprisonment; that an extraordinary liability, of the persons forming the criminal class, to the disease, is not the chief cause, seems to be proved by the following facts.

"In the year 1840, 1052 prisoners were received into the Millbank Penitentiary, and of that number only 22, or not quite 21 per 1000 were affected with tubercular disease in one or other of its forms, namely, 14, or 13.3 per 1000, with external Scrofula com-

bined in 4 cases with consumption; and 8, or 7.6 per 1000 with the latter complaint without external scrofulous disease.

"Amongst 3249 male convicts who were received into Millbank Prison during the year 1844, and whose state of health on reception is accurately recorded in the Medical Register, only 15, or 4.6 per 1000, were affected with consumption, and 44, or 13.5 per 1000 with scrofulous disease of the external glands. The proportion of consumptive persons amongst the convicts received in 1844, appears smaller than amongst those received in 1840, because the convicts in whom tubercular disease of the lungs existed only in a latent state at the time of their reception, are not included amongst the 15 recorded as consumptive in the Register of 1844, while the 12 whom I have stated to have been affected with Consumption at the time of their reception in 1840, comprehend not merely those in whom the disease was then in an active state, but also those in whom it first showed itself by marked symptoms within two months afterwards. The proportion of cases of external Scrofula was very nearly the same in the two years.

"It must here be remarked, that all the prisoners sent to the Penitentiary, had been confined in the local gaols, for periods varying from a few days to several months, while many had been several times in prison; and that at least half of those affected with Scrofula referred the commencement of the disease to some one of their previous imprisonments. The proportion of scrofulous and consumptive persons amongst criminals before their first imprisonment, must therefore be much less than would be inferred from the numbers above given. Still the proportion of cases of Scrofula and Consumption amongst the prisoners, even at the time of their reception into the Penitentiary, appears small when we compare it with the number of cases developed within a short period after the commencement of their confinement there. 1030 was the number of those who were free from the disease when received in 1840; of this number, 510 were females under sentence of transportation, who remained on the average not more than three months in the Penitentiary; and of these only two became scrofulous or consumptive during their sojourn there. The other 520 were Penitentiary prisoners, who on the average were confined from two years to two and a half years in the Institution, and of these no less than 78 became the subjects of Scrofula or Consumption before the expiration of their terms of imprisonment. This fact appears to me conclusive evidence of the influence of imprisonment, or conditions attending it, in the production of scrofulous disease.

"The periods of their confinement at which prisoners labouring under Scrofula and Consumption have most frequently died or been pardoned, and the periods at which they have become affected with these diseases, are also points worthy of attention.

"The proportion of deaths and pardons due to Consumption and Scrofula increase at first rapidly, and afterwards more slowly, as the periods of the convicts' imprisonment become more advanced. Thus, in the first year of their imprisonment, only 6.835 per 1000 of the number exposed to the chances of death or disease have died of these diseases, or have been pardoned on account of their labouring under them; in the second year the proportion has been 31.320; in the third year, 49.848; in the fourth year, 52,373, and in the fifth year, 63,829 per 1000.

Again, the number of new cases of Consumption and Scrofula compared with the number of prisoners amongst whom they occurred at different periods of imprisonment, has likewise increased as the periods were more advanced; the great increase, as we might expect, having taken place sooner here than in the case of the deaths and pardons. Amongst the prisoners, who when received into the Prison in 1840, were free from Scrofula and Consumption, the new cases of these diseases which arose in the first six months of their confinement in the Penitentiary, amounted to 10.701 per 1000 prisoners, but in the second six months to no less than 23.550 per 1000, and in the third six months to 43.859 per 1000. The number of new cases thus increased gradually during the first eighteen months; it then remained nearly stationary, or rather diminished. Now if imprisonment had produced no ill effects on the health, had exerted no influence on the development or production of Scrofula or Consumption, as many cases in proportion to the number of prisoners should have come under treatment in the first six months as in the second, third, and fourth periods of the like duration.

"It appears to me, therefore, that the predominance of Consumption and external Scrofula amongst the diseases of prisoners confined for long terms, must be regarded as the effect of this mode of punishment, or rather of the conditions which have hitherto generally attended it.

"The injurious influences which generally appear to be most active in producing scrofulous disease in prisons are, poorness and deficiency of food, defect of exercise; impurity of the air respired, want of external warmth, and depression of spirits.

"1. Poorness of diet cannot, it is true, be reckoned amongst the most active causes of Scrofula in the Millbank Penitentiary; for the

diet of this Prison has since 1824 been very abundant, more so, at least, than the ordinary fare of the labouring classes, as is shown in the subjoined Table.

WEEKLY SUPPLY.

		Wheaten bread.	Meat, after cooking.	Potatoes.	Cheese.	Soup.	Gruel.	Milk and water, with flour.	Other allowances.
		oz.	oz.	lbs.	oz.	pints.	pints.	pints.	
Dietary, from Oct. 1824 to April, 1830.	Men.	184	18	3	4	2	..	10½	1½ pt. broth.
	Women.	138	15	3	4	2	..	10½	
Dietary, from April, 1830 to Jan. 1838	Men.	176	24	4	2	2	..	10½	2 pts. broth.
	Women	132	20	4	2	2	..	10½	
Dietary, from Jan. 1838 to July, 1840.	Men.	184	20	5	4	1½	11	..	3 pts. broth.
	Women.	138	16	5	4	1	7	5¼	ditto.
Dietary, from July, 1840 to July, 1843.	Men.	176	25	4	2	1½	12	..	2 pts. broth, and 24 oz. boiled rice.
	Women.	138	16	3	4	1	7	7	ditto.

"The chief respect in which the diet of the Penitentiary has seemed calculated to favour the development of Scrofula, is its being too little stimulating. At all events, a more generous diet, including a larger proportion of animal food, and beer, has in many instances had a beneficial influence in checking the progress of the disease in prisoners in the Penitentiary.

"In many other British Prisons, actual poorness of diet, especially its deficiency in animal food has, I believe, been an active cause of Scrofula. A marked difference in respect of their general health and the number of them affected with scrofulous disease, is presented by the convicts sent to the central Prison at Millbank, preparatory to their transportation, from different parts of Great Britain. By far the thinnest convicts, and those having the largest proportion of unhealthy and scrofulous individuals amongst their number, come from Scotch Prisons, in which the diet consists of a sparing allowance of vegetables and farinaceous articles, and contains little or no animal food.

"2. All the best investigations of the causes of Phthisis and Scrofula hitherto instituted, have tended to show that defect of exercise or general muscular exertion, and the breathing of impure air are amongst the efficient causes of those diseases, and the extraordinary prevalence of scrofulous disease in Prisons certainly is confirmatory

of that result. For the majority of prisoners in most of the English Gaols are kept without any occupation before trial, and after conviction are employed in work of a sedentary kind, such as oakum picking and tailoring. These employments, neither of which requires any strong muscular effort of the body, nor in fact any movement except of the arms, were the occupations of all the male prisoners in the Millbank Penitentiary, except of a few who were shoemakers, and of a still smaller number who were weavers. A certain number of them, it is true, were employed for a short time daily in turning the cranks of a machine for raising water, but this labour was only occasional, and the movements required by it were unvaried, slow, and spiritless. The exercise, too, which they were allowed to take for one and a half, or two hours daily in the airing yard, was of the same character. They walked at regular distances from one another in a circle round each of the airing yards, generally at a slow pace, and with automaton-like movements.

"3. The breathing of impure air too, has I believe had a large share in the production of scrofulous disease amongst prisoners. The courts in which the prisoners in the Penitentiary walk for exercise, are so inclosed by the Prison buildings, that the air within them can with difficulty be changed. The air of these courts was formerly rendered impure by the foul air that escaped from the windows of the cells looking into them. The cells themselves, and the passages into which they open, were at that period very imperfectly ventilated; for the cells, though of good size, had no adequate provision for the renewal of the air within them. The occasional opening of the window or door allowed the air of the cell to be at times partially or entirely changed; but during many hours out of the twenty-four, and especially during the long night, the prisoners breathed air highly vitiated by their own breath. The smell, when the cells and passages were first opened in the morning, and at any time during the day when the doors had been shut for two or three hours, was exceedingly offensive. This state of things existed until 1841. In the course of that year a more perfect system of ventilation was partially introduced, and in 1842 was completed throughout the Prison. By the new system of ventilation, a constant renewal of the air of the cells and passages is effected, quite independently of the caprice of the prisoners, the direction of the wind, or other uncertain influence. An improvement in the health of the prisoners followed this change, and a smaller proportional number became scrofulous. But this improvement cannot be wholly ascribed to the improved ventilation; for other important changes in the condition of the

prisoners were also made in the years 1841 and 1842. The benefit derived from breathing a purer atmosphere was, however, frequently observed in the Penitentiary in the case of those prisoners who were already affected with Scrofula. They were allowed to spend three or four hours daily in the garden on the outside of the Prison buildings, and in almost every case their health was improved, and their disease temporarily, if not permanently checked. Here also, however, it is not possible to say how much of the benefit derived was due to the better air. For these prisoners while in the garden were employed in active labour; they also were allowed half a pint, or one pint of beer, two pints of milk, and half a pound of mutton daily, and wore under garments of flannel. These were undoubtedly causes contributing to the improvement of their health. In most prisons the ventilation of the cells occupied by prisoners has until very recently been exceedingly defective.

"4. The next of the causes to which the prevalence of Scrofula in Prisons seems to be due is external cold. It will not I think be difficult to demonstrate the powerful influence of this cause in the production of scrofulous disease.

"In the Millbank Penitentiary the sufferings of the prisoners from cold during the winter were extreme. Ample means of warmth were provided in the building; so much hot air, indeed, was thrown into the passages as to render them frequently warmer than was required for the sake of health; but this hot air had no access to the cells, except through the crevices round the doors, the small opening provided for the purpose of inspection, and in some instances another small opening near the ceiling. Very little warmth could enter by these ways, so that the air of the cells, when not occupied by prisoners, was but little warmer than the external atmosphere. It is not surprising, then, that persons for the most part not of robust constitution, cut off from stimulating food, and all spirituous drinks, having no extra clothing, breathing an impure air, often depressed in spirits, and above all, engaged in sedentary occupations, which required no muscular exertion,—in a word, subjected to almost every influence which has a tendency to render the circulation languid, and the oxygenation of the blood imperfect—it is not surprising, I say, that such persons should, in consequence of confinement during the winter in these cells have presented in an extreme degree the injurious effects of cold. These effects were not such as result from occasional sudden exposure to the influence of cold; not acute inflammation of internal organs, but such morbid conditions as we might expect to be produced by the long continued action of

a low temperature. The prisoners, with scarcely any exception, lost flesh during the winter; and a very large proportion of them suffered severely from rheumatic pains, and still more from chilblains, and their whole appearance betokened the languid state of their circulation. Such a state of the system was likely to favour the deposition of scrofulous matter in persons predisposed to scrofulous disease; and it is certain that the first symptoms of scrofulous disease, in by far the larger number of instances, appeared during the cold season of the year, and that the disease, if previously existing, always became aggravated at that season.

"My own observation of the health of the prisoners in the Penitentiary during several years has convinced me of this fact; and the Register of Deaths and Pardons on Medical Grounds, which has been kept in the Institution during a long series of years, demonstrate it in a striking manner. In every case of death, or pardon on account of impaired health, the date of death, or of the reception of the pardon, as well as the cause of death, or ground of the medical recommendation for pardon, has been accurately recorded. By the analysis of this Register, therefore, I have been able to ascertain the numbers of the deaths and pardons due to scrofulous disease which have occurred in the different months of the year respectively. Now Scrofula is a disease, for the most part, of slow growth and progress; consequently if it were produced, or greatly aggravated by the cold in the winter, it would in most cases not reach a fatal termination, or a stage so advanced as to threaten life until the spring, or the early part of the summer. This is what has actually been the case. The greatest number of deaths and pardons due to scrofulous disease occurred in the Penitentiary during the spring and summer months, the smallest number during the autumn and winter. Thus while the number of deaths and pardons during eighteen springs and summers was 175, the number during eighteen autumns and winters amounted to only 74. During the Mays and Junes of eighteen years, there were 79 deaths and pardons due to Scrofula and Consumptive disease, during the Novembers and Decembers of the same eighteen years only 20.

"This great difference between the different seasons as regards the number of deaths and pardons due to Consumption and Scrofula, which is observed also under other circumstances, but is nowhere, I believe, so marked as in Prisons, appears to me to be explicable in no other way than by regarding it as the effect chiefly of difference of temperature. The greater foulness of the air breathed by the prisoners during the winter, when they, in the endeavour to exclude

the cold air from their cells, kept their windows continually closed, most probably contributed to the result, but did not in my opinion produce nearly so much of the difference in the mortality of the different seasons as did the direct influence of cold.

" 5. The last cause which I have mentioned as giving rise to the great prevalence of Consumption and Scrofula in Prisons, is a depressed or listless state of mind. It will, I think, be readily admitted, that mental depression, aided by other circumstances, is capable of producing these diseases, or at least, of aggravating them when they exist. And although there may not have been much of absolute despondency or remorse amongst the prisoners in the Penitentiary, yet there was a state of mind not less injurious; I mean a listless and torpid condition, an absence of all cheerful and varied thought, attended, in most cases, by an uneasy and anxious sense of restraint, and desire of liberty. The influence which this state of mind had exerted, became most apparent when it was suddenly removed. Prisoners who were even in an advanced stage of consumptive disease, and who in the Infirmary had been gradually and rapidly getting worse, immediately improved on being released from confinement; and in many instances, I have observed this improvement in their symptoms to commence as soon as the fact of their being recommended for pardon was communicated to them, which happened sometimes two or three weeks before their discharge.

" The amelioration which began under these circumstances, was often not of a transitory nature; but the disease which a short time previously seemed to have reduced the patients to a hopeless condition, was permanently checked. I have had several opportunities of satisfying myself of this fact, and could instance five cases in which prisoners who had been discharged from the Penitentiary while labouring under fully developed Pulmonary Phthisis, with indubitable signs of softened tubercles, and even tubercular excavations, have, in consequence of fresh crimes, been sent again to that Prison, and have then not merely appeared, and felt themselves to be, in perfectly restored general health, but have offered only the most obscure, if any, physical signs of structural change existing in their lungs. In all these cases, however, the renewed exposure to the injurious conditions attending imprisonment, called their diseases again into activity. With external Scrofula, this has been even more frequently the case. Criminals who have been several times in prison, have often stated that they became affected with Scrofula during their first imprisonment, that they got entirely rid of their disease when they obtained their liberty, but that it returned soon

after they were a second time committed to prison; that the same mitigation of the disease attended each successive discharge from confinement, the same renewal or aggravation of it, each fresh imprisonment.

" Many of the facts which I have stated in general terms in this letter are given in a more detailed and statistical form in the accompanying Tables. The 12th Table, which illustrates the influence of age on the frequency of tubercular disease amongst criminal prisoners, will probably be of some interest to you, and requires no explanatory remarks to render it intelligible.

" I am, dear Sir,

" Yours very truly,

" Wm. Baly.

" Benjamin Phillips, Esq."

TABLE I.

Showing the numbers of pardons granted to prisoners in the Millbank Penitentiary on account of Consumption and Hæmoptysis, Scrofula, and all kinds of diseases during the eighteen years, 1825 to 1842 inclusive; also the ratio per 1000 of these pardons to the average number of prisoners.

	Cases of pardoning on account of Consumption and Hæmoptysis.		Cases of pardoning on account of tubercular diseases.*		Cases of pardoning on account of all kinds of sickness.	
	Number of pardons in 18 years.	Annual ratio of pardons per 1000 prisoners.	Number of pardons in 18 years.	Annual ratio of pardons per 1000 prisoners.	Total number of pardons in 18 years.	Annual ratio of pardons per 1000 prisoners.
Male prisoners .	68	9.362	51	7.022	213	29.326
Female prisoners	22	9.462	27	11.613	142	61.075
Both sexes . .	90	9.386	78	8.135	355	37.025

* All were cases of Scrofula, combined in many cases with internal disease.

TABLE II.

Showing the number of prisoners, of different classes, amongst those received into the Millbank Penitentiary, in the course of the year 1840, who were affected with Scrofula and Consumption at the time of their reception; also the number of prisoners amongst those who were received in 1840, who became affected with these diseases before the end of 1843.

	Number of prisoners received in 1840.	Number of prisoners, who when received in 1840, were affected with :				Number of prisoners apparently free from these diseases when received in 1840.	Number of prisoners (out of those apparently free from these diseases when received in 1840) who became affected with them before the end of 1843.			
		Scrofulous disease of the external glands.*	Pulmonary Consumption.†	Both Pulmonary Consumption and external Scrofula.	TOTAL.		Scrofulous disease of the external glands.	Pulmonary Consumption.	Both Pulmonary Consumption and external Scrofula.	TOTAL.
Male Penitentiary Prisoners . . .	432	3	6	2	11	421	15	38	9	62
Female ditto ditto	100	..	1	..	1	99	8	3	5	16
Females under sentence of transportation	520	7	1	2	10	510	2	..	..	2
All classes . . .	1052	10	8	4	22	1030	25	41	14	80

* Observed at the time of the prisoners' reception.

† Detected when the prisoners were received, or found soon afterwards to be in so advanced a stage, as to leave no doubt as to the disease having existed at the time of their reception.

TABLE III.

Showing the number of male convicts who were received at the Millbank Prison during the year 1843, and whose state of health is recorded in the Medical Register; and the number amongst these who were at the time obviously affected with Scrofula or Consumption, or had scrofulous cicatrices on their necks.

Total number received.	Number who had scrofulous disease of the external glands.	Number who had existing symptoms of Pulmonary Consumption.	Number who had cicatrices of scrofulous sores on the neck.
3249	44†	11*	27

* In four out of this number, signs of tubercular disease in the lungs were detected, and these four had also had Hæmoptysis.

† Two of these had cicatrices of scrofulous sores on the neck.

TABLE IV.

Number of deaths and of pardons, on account of Consumption and Scrofula during the 17 years, 1825—41.

Periods of imprisonment.	1st 3 mths.	2nd 3 mths.	2nd 6 mths.	3rd 6 mths.	4th 6 mths.	3rd year.	4th year.	5th year.	Above the 5th year.
Number exposed to the chances of disease or death in each period of imprisonment	3571	3470	3264	2905	2472	1645	611	94	
		3365		2682					
Number of deaths and pardons due to Consumption and other tubercular diseases in each period	..	2	21	43	41	82	32	6	
Annual ratio of deaths and pardons per 1000 prisoners at each period of imprisonment.	..	2.305	12.867	29.604	33.172	49.848	52.373	63.829	
		6.835		31.320					

TABLE V.

Proportion which the cases of Consumption and Scrofula bore to the number of prisoners in each period of imprisonment.

Periods of Imprisonment.	1st 6 mths.	2nd 6 mths.	3rd 6 mths.	4th 6 mths.	5th 6 mths.	6th 6 mths.
Mean number exposed to the chances of becoming diseased in each period . . .	841	552	456	418	359	255
Cases of Consumption and Scrofula which occurred in each period	9	13	20	14	15	9
Ratio per 1000 prisoners of the cases of Consumption and Scrofula in each period . .	10.701	23.550	43.859	33.492	41.782	35.293
Annual ratio per 1000 prisoners	21.402	47.101	87.719	66.985	82.565	70.587

TABLE VI.

Showing the number of deaths and pardons due to Consumption and Scrofula which occurred amongst the prisoners in the Millbank Penitentiary in the different seasons of the 18 years, 1825 to 1842 inclusive.

	18 Springs, March, April, and May).	18 Summers, June, July, and August.	18 Autumns, Sept. Oct. and Nov.	18 Winters, Dec. Jan. and Feb.
Number of deaths from Consumption and scrofulous disease . . .	31	28	12	10
Number of pardons on account of Consumption and scrofulous disease .	58	58	17	35
Number of deaths and pardons together . . .	89	86	29	45

TABLE VII.

Showing the ages of the 3777 Penitentiary Prisoners received into the Millbank Penitentiary, from October, 1824, to the end of 1842, and the number of deaths and pardons due to Consumption and Scrofula which occurred amongst the prisoners of the different ages.

AGES.	Under 15 years.	15 and under 20 years.	20 and under 25 years.	25 and under 30 years.	30 and under 40 years.	40 and under 50 years.	50 years and upwards.	Total.
Number of prisoners of each age when received . . .	296	1196	901	535	539	198	112	3777
Number who died of Consumption or Scrofula, of those received at the respective ages.	5	30	20	10	8	6	2	81
Ratio of deaths per 1000 prisoners received at the respective ages	16.89	25.08	22.19	18.69	14.84	30.30	17.85	21.44
Number who were pardoned on account of Consumption or Scrofula of those received at the respective ages . . .	14	61	46	23	17	6	1	168
Ratio of pardons per 1000 prisoners at the respective ages	47.29	51.00	51.05	42.99	31.54	30.30	8.92	44.48
Deaths and pardons due to Consumption and Scrofula amongst the prisoners received at the respective ages . .	19	91	66	33	25	12	3	249
Ratio of deaths and pardons per 1000 prisoners of the respective ages when received .	64.18	76.08	73.24	61.68	46.38	60.60	26.77	65.92

CEREMONY OF THE PRACTICE OF THE TOUCH.

OBSERVED IN THE TIME OF HENRY VII.

First, the King kneeling, shall say,

In the Name of the Father, and of the Son, and of the Holy Ghost. Amen.

And so soon as he hath said that, he shall say,

Give the Blessing.

The Chaplain kneeling before the King, and having a stole about his neck, shall answer and say,

The Lord be in your heart, and in your lips, to confess all your sins. In the name of the Father, and of the Son, and of the Holy Ghost, Amen.

Or else shall say,

Christ hear us. In the name of the Father, and of the Son, and of the Holy Ghost. Amen.

Then by and by the King shall say,

I confess to God, to the blessed Virgin Mary, to all Saints, and to you, that I have sinned in thought, word, and deed, through my fault; I pray, Holy Mary, and all the Saints of God, and you, to pray for me.

The Chaplain shall answer and say,

Almighty God have mercy upon you, and pardon you all your sins, deliver you from all evil, confirm you in good, and bring you to everlasting life. Amen. The Almighty and Merciful Lord grant you absolution and remission of all your sins, time for true repentance and amendment of life, with the grace and comfort of his Holy Spirit. Amen.

This done, the Chaplain shall say,

The Lord be with you.

The King shall answer,

And with thy Spirit.

The Chaplain,

Part of the Gospel according to St. Mark.

The King shall answer,

Glory to thee, O Lord.

The Chaplain reads the Gospel.

Last he appeared to those Eleven as they sat at the table; and he exprobated their incredulity and hardness of heart, because they did not believe them that had seen him risen again. And he said to them: Going into the whole world, preach the Gospel to all crea-

tures. He that believeth and is baptized, shall be saved. But he that believeth not, shall be condemned. And them that believe, these signs shall follow. In my name shall they cast out devils, they shall speak with new tongues. Serpents shall they take up, and if they drink any deadly thing, it shall not hurt them; they shall impose hands upon the sick, and they shall be whole.

Which last clause (they shall impose, &c.,) *the Chaplain repeats as long as the King is handling the sick person. And in the time of repeating the aforesaid words,* (they shall impose), *the Clerk of the Court shall kneel before the King, having the sick person upon the right hand; and the sick person shall likewise kneel before the King, and then the King shall lay his hand upon the sore of the sick person. This done, the Chaplain shall make an end of the Gospel, and in the mean time the Chirurgeon shall lead away such person from the King.*

And so the Lord Jesus, after he spake unto them, was assumpted into Heaven, and sate on the right hand of God. But they going forth, preached everywhere; our Lord working withal, and confirming the Word with signs which followed.

Then the Chaplain shall begin to say again,

The Lord be with you.

The King shall answer,

And with thy Spirit.

The Chaplain,

The beginning of the Gospel according to St. John.

The King,

Glory to thee, O Lord.

The Chaplain shall say this Gospel following:

In the beginning was the word, and the word was with God, and God was the word. This was in the beginning with God. All things were made by him, and without him was made nothing, that which was made. In him was life, and the life was the light of men. And the light shineth in darkness, and the darkness did not comprehend it. There was a man sent from God, whose name was John. This man came for testimony: to give testimony of the light, that all might believe through him. He was not the light, but to give testimony of the light. It was the true light, which lightneth every man that cometh into this world.

Which last clause (It was the true light, &c.), *shall still be repeated so long as the King shall be crossing the sore of the sick person with an angel of gold noble, and the sick person to have the same angel hanged about his neck, and to wear it until he be full whole. This*

done, the Chirurgeon shall lead away the sick person as he did before, and then the Chaplain shall make an end of the Gospel.

He was in the world, and the world was made by him, and the world knew it not. He came into his own, and his own received him not. But as many as received him, he gave them power to be made the Sons of God, to those that believe in his name. Who not of blood, nor of will of the flesh, nor of the will of man, but of God are born. And the word was made flesh, and dwelt in us, and we saw the glory of him, glory as it were of the only begotten of the Father, full of grace and verity.

Then the Chaplain shall say,

The Lord's name be praised.

The King shall answer,

Now and for ever.

Then shall the Chaplain say this collect following, praying for the sick person or persons.

O Lord, hear my prayer.

The King shall answer,

And let my cry come unto thee.

The Chaplain,

Let us pray.

Almighty and everlasting God, the eternal health of them that believe; graciously hear us for thy servants for whom we implore the aid of thy mercy, that their health being restored to them, they may give thee thanks in thy church, through Christ our Lord. Amen.

This prayer following is to be said secretly, after the sick persons be departed from the King, at his pleasure.

Almighty God, Ruler and Lord, by whose goodness the blind see, the deaf hear, the dumb speak, the lame walk, the lepers are cleansed, and all sick persons are healed of their infirmities: by whom also alone the gift of healing is given to mankind, and so great a grace, through thine unspeakable goodness toward this Realm, is granted unto the Kings thereof, that by the sole imposition of their hands, a most grievous and filthy disease should be cured. Mercifully grant that we may give thee thanks, therefore, and for this thy singular benefit conferred on us, not to ourselves, but to thy name let us daily give glory; and let us always so exercise ourselves in piety, that we may labour not only diligently to conserve, but every day more and more to increase thy grace bestowed upon us: and grant that on whose bodies soever we have imposed hands in

thy name, through this thy virtue working in them, and through our ministry, may be restored to their former health, and being confirmed therein, may perpetually with us give thanks unto thee the Chief Physician and Healer of all diseases; and that henceforwards they may so lead their lives, as not their bodies only from sickness, but their souls also from sin may be perfectly purged and cured: through our Lord Jesus Christ thy Son, who liveth and reigneth with thee in the unity of the Holy Ghost, God, world without end. Amen.

THE END.

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