Sketches of the medical topography of the Mediterranean : comprising an account of Gibraltar, the Ionian Islands, and Malta : to which is prefixed, a sketch of a plan for memoirs on medical topography / by John Hennen ; ed. by his son, J. Hennen.

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21. A. 317

Th. E. Brabazon

SKETCHES

OF THE

MEDICAL TOPOGRAPHY

OF THE

MEDITERRANEAN,

&c. &c.

"Every one of these things ought to be considered. For if a person knows 'em well, and especially all of 'em, or at least the greater part, he will soon be such a master of the diseases of the place, and of the nature of the common things, (even though he should come there a perfect stranger,) as not to be at a loss in the cure of those diseases, or liable to mistakes; things that are very likely to happen, unless a person is first acquainted with 'em, and has considered them well before hand."

CLIFTON'S *Hippocrates*, p. 2.

SKETCHES

OF THE

MEDICAL TOPOGRAPHY

OF THE

MEDITERRANEAN:

COMPRISING AN ACCOUNT OF

GIBRALTAR, THE IONIAN ISLANDS, AND MALTA;

TO WHICH IS PREFIXED,

A SKETCH OF A PLAN FOR MEMOIRS ON MEDICAL TOPOGRAPHY.

BY

JOHN HENNEN, M.D., F.R.S.E.,

INSPECTOR OF MILITARY HOSPITALS, AUTHOR OF THE "PRINCIPLES OF MILITARY SURGERY," ETC.

EDITED BY HIS SON, J. HENNEN, M.D.,

MEM. ROYAL MED. SOCIETY, EDIN., ETC.

LONDON:

THOMAS AND GEORGE UNDERWOOD,

FLEET STRRET.

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TO

SIR JAMES M'GRIGOR, KNT.,

K.C.T.S., M.D., F.R.S. Lond. and Edin.,

FELLOW OF THE ROYAL COLLEGES OF PHYSICIANS OF LONDON AND EDINBURGH,

HONORARY FELLOW OF THE ROYAL COLLEGE OF SURGEONS OF IRELAND,

AND

DIRECTOR-GENERAL OF THE ARMY MEDICAL DEPARTMENT,

&c. &c. &c.

Sir,

Had the author of the following "Sketches" been spared to his country, he would have dedicated them to you, who honoured him for so many years with your friendship, and from whom he received so many flattering testimonies of regard.

By your encouragement and support I have been enabled to complete my lamented father's design of publishing this work; and in fulfilling his intention of inscribing it to you, I am afforded the additional gratification of expressing the deep feeling of gratitude I entertain for the paternal interest you have taken in the author's surviving family.

Under your auspices I submit this posthumous volume to the

public, assured that the recommendation of a man, whose talents and judgment have raised the professional character of the department over which he presides to its present elevated rank, will alone be sufficient to procure for the work a favourable reception.

I remain, Sir,

With the highest respect,

Your grateful and devoted Servant,

JOHN HENNEN.

Southampton,
20th February, 1830.

PREFACE BY THE EDITOR.

It is not necessary, in this place, to point out the importance of the study of medical topography, or to enlarge upon the value of an acquaintance with all those external circumstances which influence the health of the inhabitants of any given country or district. If we except a knowledge of the symptoms of diseases, and the powers of the remedies used to combat them, there is, perhaps, no one species of information of greater importance to the medical practitioner than that which teaches the effects of *climate*, *locality*, and other *external* causes upon the health of man.

The necessity for some knowledge of the science of medical topography, by every individual in the profession, but particularly by those who are intrusted with the health concerns of large bodies of men, is so obvious, that I shall not here dwell upon the subject, particularly as the different heads of inquiry are so fully laid down in the introduction to this work; but shall at once proceed to give an account of the following sketches, and of the manner in which they were originally drawn up.

Dr. Hennen devoted many years of his life to the study and improvement of military medicine and surgery, and I may be allowed to say, that few men in our profession were ever endowed with a greater proportion of intellectual vigour, or strength and accuracy of discernment; while, at the same time, he possessed a felicitous power of communicating his knowledge to others; and his writings, independently of their great practical value, are every where admired for the beauty and vigour of their style.

The study of medical topography formed one of my father's favourite pursuits. To the second edition of his "Principles of Military Surgery" he added a section on the subject, chiefly with reference to the station of troops, to barracks and hospitals; as one of the editors of the Edinburgh Medical and Surgical Journal, he made many valuable remarks on the science, in his reviews of various medical works, between the years 1819 and 1821; and in the sixty-seventh number of that journal, he published his "Sketch of a Plan for Memoirs on Medical Topography," a paper which was a desideratum in the English language, as, previously to its appearance, we possessed nothing on this subject that had any pretensions to a regular systematic form.

In the year 1821, Dr. Hennen was placed at the head of the medical department in the Mediterranean. With a mind so ardent and assiduous in the pursuit of knowledge, it was to be expected that no opportunity would be lost by him, in collecting information from every source within his reach; accordingly, we find that he had no sooner arrived at Malta, than he commenced taking the most effectual steps to render himself acquainted with the medical history of the different islands occupied by the British forces, by circulating his printed topographical "Sketch" among the medical officers, and requesting answers to a series of queries connected with the medical topography of their respective stations; as it was only by the united exertions of many individuals he could expect to procure correct accounts of the extensive tract under his superintendence.

From the opportunities the author thus possessed, as principal medical officer, under the late Sir Thomas Maitland, Lord High Commissioner of the Ionian Islands, whose friendship and support he enjoyed in all the fulness of unrestricted intercourse, he was enabled to collect materials and draw conclusions altogether beyond the reach of less fortunate indivi-

duals. How he availed himself of those opportunities the public will now be enabled to judge.

After a residence at Malta of three years and a half, and at Corfu for nine months, during which time he paid repeated visits to all the Ionian islands, comparing the accounts he had received with the actual scenes as they exist, Dr. Hennen was removed in 1826 to Gibraltar, and assumed the medical superintendence of that important garrison. Here he continued to prosecute his researches with undiminished ardour, and upon every point connected with the medical history of Gibraltar he devoted much of his time and attention; of his indefatigable exertions during the fatal epidemic of 1828, to which he fell a victim, and of the estimation in which his services are held by the public, I have elsewhere spoken *.

The following "Sketches" are the result of Dr. Hennen's researches in the Mediterranean. They were originally drawn up in the form of reports, and transmitted from time to time to the Director-General of the Army Medical Department, for his information. They comprise an account of Gibraltar, Malta, and all the islands of the septinsular union, with the exception of the islets of Paxo and Cerigo. It was the author's intention to have followed up his original plan, and, had his valuable life been spared, he would have published the whole in a full and complete form; but although the work now labours under the disadvantages of posthumous productions, and has not undergone the last touches of his finishing hand, it will, nevertheless, I am satisfied, be found to contain much valuable information, and many useful hints for future medical topographers; and I conceive that not the least valuable part of these "Sketches," consists in the observations being drawn from a long and extensive series of authentic official

* Biographical Sketch prefixed to the third edition of Dr. Hennen's "Principles of Military Surgery."

documents. They by no means lay claim to exclusive originality, for they are in many instances compilations, though not servilely so; the original plan, however, was laid down by the author, and printed, as already stated, in the Edinburgh Medical and Surgical Journal, and assuredly "the man who has previously qualified himself for forming an opinion, by a faithful and conscientious study of every thing connected with the object he has in view, may fairly claim a right to offer the result of his inquiries and speculations. I would not say that an architect should necessarily be a statuary, but I would ask whether he is the less qualified for his task, that he has neither hewn the stone nor traced the ornaments that embellish the edifice he has planned *."

As editor, I have selected the materials and arranged the whole in a continuous form; the work could easily have been extended much beyond its present limits, but I have endeavoured to compress into a comparatively small compass the most valuable part of the information contained in the author's numerous papers and manuscripts.

As an introduction, I have republished, with some additions, the original "Sketch of a Plan for Memoirs on Medical Topography," which I trust will be found a valuable addition to the work. It would have been desirable to have given the plans, maps, and other illustrations attached to the original reports, but they would have so materially increased both the bulk and expense of the volume, as in a great measure to have defeated the object of the publication. For the same reason I have been obliged to omit the account of the late fatal epidemic of Gibraltar, which I stated, in a note at page 118, would appear in the appendix.

Were I permitted to offer an opinion upon any particular part of these reports, I would say, that the important informa-

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* Manuscript Report by the Author.

tion contained upon plague, which the author was enabled to collect from various authentic sources, mentioned in the introduction to Malta, will alone stamp a value upon the work, which in future will render it of the first authority upon this subject; and, in fulfilling the duty I owed to my father's memory, by publishing these "Sketches," I conceive I have performed an acceptable service to the profession, by rendering accessible many valuable papers which, except through the medium of this work, would never, perhaps, have been made public.

SKETCH OF A PLAN

FOR

MEMOIRS ON MEDICAL TOPOGRAPHY.

In preparing this outline, by which, it appears to me, the medical topography of a town, a district, or a country, may be advantageously drawn up, I am far from supposing that I have either exhausted the subjects of inquiry, or even indicated them all; but I trust it will be found that few points have been entirely omitted which are essential to the medical topographer, and I am convinced that, taking the present hints as the basis of his inquiries, he may render important services to science in general, while he materially assists himself in attaining a knowledge of those external circumstances which exert an influence upon the health of those among whom he may exercise his profession.

I shall divide the objects of inquiry into four general heads, and these again I shall subdivide into specific subjects. Under the first head I shall include the physical geography of the place to be described, comprising notices on its botany, mineralogy, and natural history. The second head will refer to the inhabitants, including an account of their food, habitations, customs, &c. Under the third head will be classed such subjects of inquiry as are connected with diseases, whether endemic, epidemic, or sporadic; which appear under the form of epizooties, among the lower animals; or which affect the products of vegetation. To the fourth head will be referred miscellaneous objects of inquiry, or such as could not be so well arranged under any of the preceding. Many of the subjects are so closely connected, that they fall under more than one head, and they will be treated most in detail in that division of the subject under which they seem most naturally to range themselves.

I. The Name,—the Latitude,—Longitude,—and Boundaries. — These heads require little or no comment. If the place to be described is extensive, it will be necessary to note whether the situation is insular, or a part of a continent. If it is only a small district or town, it will be necessary to state what distance it may be from the sea, and what elevation above it; what distance it may be from the metropolis, and the modes of communicating with it.

The Seas,—the Rivers,—the Lakes,—the Wells,—the Morasses,—the Bogs,—and the Canals. — These are points upon which the topographer should bestow considerable attention, as they so materially affect the dryness or moisture of a country. The nature of the deposits, animal, vegetable, or mineral, which are left by the waters, should be accurately ascertained; as on them, especially in warm countries, the most important consequences depend. The height to which the tide may rise in a river, as well as the rapidity or sluggishness of the stream, will materially affect these depositions; while the physical features of its banks, and the tortuosity of its meanders, will possess considerable influence, by concealing or exposing the substances deposited to the sun and the winds: hence also the depth of the waters, the soil through which they flow, or in which they stagnate; the height of the banks, the materials of which they are composed, the shelter which they afford, the nature of that shelter, whether of sedge, underwood, full grown timber, or rock, should all be pointed out; and the accidental or periodical accumulations of filth or alluvial materials, which pollute or enrich the stream, should be described. The inhabitants of the waters, as well as their vegetable products, become incidentally an object of investigation, as they may conduce to the nourishment or the destruction of man; and as many of them fix their "habitat" in waters peculiar for their rapidity, their clearness, or their slime, their presence may often distinctly mark the existence of such peculiarities. The surface for evaporation presented by the canals, the rivers, and other masses of water; the aid which they may contribute to the drainage of a country, the facilities which they may afford to agriculture and commerce; and the fitness of their waters for culinary purposes, are all objects of investigation. The

state of the subterraneous moisture should be inquired into; and this is frequently demonstrated in low marshy countries, Zealand, for instance, by the state of the wells, which are fed by the subterraneous water with which they are on a level. Indeed, the comparative healthiness of the villages in the Netherlands, is easily ascertainable by the inspection of their wells, the waters of which sink in proportion to the droughts of summer, and afford a proof of the constant exhalation of concealed moisture *. The nature and effects of those exhalations which arise from low muddy beaches should be specially inquired into, and no opportunity should be lost of ascertaining a point which seems not yet to be perfectly agreed on, viz., how far the admixture of fresh water may accelerate or retard the corruption of the animal and vegetable materials deposited upon them †.

The Mountains. — Their height, extent, and general direction; the snows with which they may be covered, periodically or throughout the year; the rivers or streams which may arise in them; the forest timber, plants, and minerals, with which they may abound; the passes through them, and the influence they may exert over the currents of the winds; the interjacent vallies, and the state of their temperature, compared with that of the surrounding elevations, should all be noticed ‡.

The Climate. — A *complete* system of meteorology is not only unnecessary for the purposes of medical topography, but is of such difficult execution that the life of man seems inadequate to effect it; it is absolutely necessary, however, that some of the leading facts connected with the physical characters and medical effects of the climate should be given. The steadiness or mutability of a climate is a physical property which seems more to influence the health of man, than either its heat or its cold, abstractedly considered; and a knowledge

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* Pringle, Diseases of the Army, chap. i. part i.

† Vide Lancisi de Nox. palud. effluv., lib. i. p. i. cap. 5.

‡ In general, for every two hundred feet of elevation, one degree of decreased temperature may be expected. The effects of the funnel-shaped chasms in the Ghauts of India, in tempering the heats of that country, are most remarkable.

of this can only be acquired by long and correct personal observation, or by averages drawn from the observations of several preceding years.

In whatever mode the topographer may choose to proceed, he should give accurate accounts of the highest, lowest, and medium states of the thermometer, barometer, and hygrometer, for two or three years at least, together with an account of the prevalent winds, and the occasional fogs, meteors, hurricanes, &c.

It must be observed, however, that nothing can be more jejune and uninteresting than a protracted enumeration of the daily variations of the atmospheric temperature, weight, and moisture, or of the different shiftings of the winds, if the person who describes such occurrences does not deduce from them some practical information, by marking the effects which they produce upon the health of man, and upon the face of nature. Hence it is that many of those volumes which have cost their authors the minute labour of years to compose, lie so often unconsulted amid the lumber of the library; but if to the changes of the state of the atmosphere, is added an account of the manifest influence which they have exerted on the health of those who were previously well, or on the diseases of the sick and convalescent,—then an otherwise trivial piece of information is converted into an interesting and an instructive fact. In like manner, if any particular state of the weather has a marked effect upon vegetation, it may consecutively produce a very powerful influence upon the health of the inhabitants of the district where it has prevailed. Upon the whole, while the medical topographer should by no means neglect minute and regular observations upon the changes of the weather, he should consider them not as a primary object of research, but should view them as merely subservient to the great purpose of explaining the origin and progress of disease; and it is by comparing the cause and the effect together, and repeating the comparisons faithfully and frequently, that registers of the weather can ever be made available to useful purposes; or can "illumine that darkness of conjecture, reconcile that contrariety of assertion, and reduce to a rational system that facility of belief which has so long existed upon atmospherical influences."

These comparisons should be fully stated in detail; for few readers will stop in the course of their perusal to refer to an appended weather table, and wade through the slow, dull, and dubious process of comparing degrees of the thermometer, and the anemoscope, with the variations of health. These records lose their utility and their interest by separation, and it is in vain to deny, that the most faithful recital of facts will often fail to make any impression, if they entail on the reader extraordinary and monotonous labour. It must be confessed, however, after all our pains, that we are still at a loss to state what precise share the weather may have in producing epidemics; for in years the same in every respect of winds, rain, &c. &c., the epidemics have been found to vary greatly, as has been long ago confessed by the English Hippocrates, Sydenham.

There are such a multiplicity of forms for registers of the weather, that the topographer can be at little loss in selecting a model, or in procuring from the observatories of large towns correct and satisfactory details; but it would be extremely desirable that the degrees of the thermometer, *in the sun*, to which the labouring classes are so much exposed, should be occasionally stated; and it should also be kept in view, that, if the observations are made uniformly at the same hour of the day, throughout the year, the atmosphere will have felt the sun's influence for a much longer period at some seasons than at others, previous to registering the height of the mercury. In detailing the state of the winds, it will be of essential importance to describe what tracts of land or water they blow over, and how far these may influence the deposition or absorption of heat and moisture, may alter the direction and force of their currents, or may affect the exhalations which they import or carry off; extensive tracts of forests will greatly modify the effects of the wind, and even a comparatively small number of trees will act as a check on healthful ventilation, or will intercept the baneful miasmata of marshes. The ordinary effects of the atmosphere on inanimate substances should be noticed: in some districts all polished metal speedily rusts; and the existence of saline particles in the air, is inferred in others, by the remarkable fading of those dyed stuffs, which require acids

to fix or heighten their colours *. Some peculiar states of the atmosphere have been observed to precede certain epidemic affections; thus Dr. Rush states, that substances painted with white lead, and exposed to the air, have suddenly assumed a dark colour, and that a smokiness or mist in the atmosphere has generally preceded a sickly autumn in some of the American states †.

Although we are ignorant of the causes, we know that the long prevalence of certain winds frequently predispose the body to disease; the effects of various winds are also remarkably displayed in the phenomena observable on trees and buildings. In the American forests, the bark on the north side of a tree uniformly thickens, and the north side of a brick building is said to be much more difficult to pull down than that of any other aspect. In our own country, buildings of certain species of stone ooze forth moisture, or effloresce, in those points where they are exposed to particular currents of wind ‡.

In all times, certain winds have been observed to produce deleterious effects on wounds and ulcers; these effects have proceeded from the south winds in some countries, from the east in others: at Gibraltar, such was the deleterious effect of the latter wind upon the wounded, after the battle of Algiers, that the Leander left that station without waiting for supplies; a privation which was amply compensated by the improved state of the invalids, so soon as they were removed §.

In our own country, certain seasons are more productive of buboes than others, and under certain states of the atmosphere, not yet clearly understood, both these, and all other venereal sores take on, simultaneously, a malignant character.

The effects which the climate produces, or is supposed to produce, in the alleviation of certain diseases, as phthisis, syphilis, hooping cough, &c., should be distinctly and fully described; while at the same time, those complaints in which it proves manifestly injurious, or where it retards convalescence,

* See Chalmers's Diseases of South Carolina, vol. i., p. 11.

† Rush's works, Philadelphia, 2nd Edition, vol. iv., p. 174.

‡ Saline bodies effloresce in dry, and deliquesce in damp situations; and furniture, in like manner, shrinks and swells.

§ Dr. Quarrier, in Med. Chir. Trans., vol. viii., p. 7.

should likewise be mentioned. These points will also come to be more fully considered under the head of diseases.

Besides the points already mentioned, as proper to be recorded, with regard to the state of the atmosphere, there are two others, which those who have the means of ascertaining them, should never omit; these are the states of the air with regard to magnetism and electricity. There are some facts known with regard to the latter agent, which tend to shew that the deficiency or abundance of electric fluid in the atmosphere, may greatly influence the health of man.

The Soil. — It will be of great importance to describe the general nature of the soil, and its elevation above the adjacent seas or other waters, and to particularize those properties by which it may favour the retention or the transmission of water, either at the surface or at a distance from it. With this view, it will be necessary to state the proportions of pasture, arable, and wood land, and whether the soil is alluvial, rocky, gravelly, clayey, sandy, &c.; while the stratification or intermixture of all these materials, as far as they have been ascertained, should be mentioned.

The periods of the year at which noxious exhalations arise from the soil in greatest abundance, will become an important subject of inquiry; at the same time, it will be necessary to investigate the extent to which evaporation may have proceeded, when these exhalations become most deleterious. That they most abound when the waters are nearly or quite expended, has been observed by able physicians, and they have also endeavoured to account for it, by supposing, that the sun's rays then penetrating the miry soil, exalt vapour which had been long pent up, and may be supposed to have contracted vicious qualities, or become concentrated from having remained undisturbed by the wind. Whatever may be the cause, it is certain, that, in many countries, the malaria does not arise until all the surface water has totally disappeared, and leaves the whole face of the country, including the very courses of the winter streams, an arid desert *.

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* See Chalmers's Diseases of South Carolina, vol. i., p. 6. Fergusson, Med. Chirur. Trans., vol. viii., p. 132.

The Vegetable, Animal, and Mineral Products of a country, have a powerful influence over the health of the inhabitants, and should be examined under the various points of view in which they may contribute to their food, their clothing, their warmth, and their domestic comforts; or as they may promote or retard these in a secondary way, by influencing population and manufactures, favouring the influx of new inhabitants, introducing new modes of living, or becoming subservient to the operations of commerce.

In the countries which abound in certain vegetable products, the effects of moisture and putrefaction are often found seriously to affect the health; of this, the culture of rice and various other plants, are striking examples.

The rearing of certain animals, as the silk-worm of Lombardy, and the Merino flocks of Spain, considerably affects the face of the country, and gives a new character to the natives. The periodical visits of certain birds, fishes, and even insects, prove most seasonable articles of supply in some instances, or are destructive to comfort and life in others.

The presence of extensive mines is marked with peculiar features, by the hand of nature. Among the more prominent instances of this, may be mentioned the gold and silver districts of Peru, the quicksilver mines of Almaden, and those of lead and tin in our own country, where *external* poverty and desolation reign; while the presence of coal, wherever it is wrought, is the sure forerunner of a crowded and manufacturing population.

The early appearance of many plants, and the slowness o rapidity of their vegetation; the torpidity, arrival, and departure of many quadrupeds, birds, and insects, will often mark more strongly than the indications of the glass, the nature of a climate; and the judicious naturalist will avail himself of the circumstances in his topographical description. Strong indications of the healthfulness of a country may be drawn from its plants and animals, and the approach of unhealthy seasons has often been marked by the changes produced on them. In America, the common house-fly has disappeared, while musquitoes have multiplied, and several new insects have been observed, previous to some of their malignant epidemics;

and, at similar periods, certain trees have emitted unusual smells, the leaves of others have fallen prematurely, and the fruits have been of inferior size and quality; while in some places, an unusual growth of vegetable productions (fungi) have preceded the most destructive scourges of mankind.

To give a complete medical topography, all the products of the district, whether poisonous, edible, medicinal, or employed in the arts, should at least be *enumerated;* and should be particularly investigated, as far as they may immediately affect the health of man.

Among the various products, those which are applicable to medical purposes, should be specially described, and this, whether they enter the established pharmacopœia, or are employed as succedanæa, by the regular practitioners, or as specifics by the inhabitants, or by empirics. The most approved modes of preserving and preparing them should be fully detailed, together with their doses and sensible effects. In this enumeration, the mineral waters will claim peculiar attention; the complete analysis of these should be given, or at least such experiments should be made upon them, as may serve to point out the most prominent articles with which they are impregnated; at the same time should be mentioned the articles with which they are adulterated, improved, or imitated at the spring, or at more distant places. The temperature of the thermal waters will of course be mentioned, together with the effect which their external application produces, or is supposed to produce, upon those who have recourse to their aid. Saline springs, not used for medicinal purposes, or mines of rock, salt, alum, &c., whether wrought or unwrought, will be deserving of notice.

The State of Agriculture. — This has a manifest and powerful influence on the health of the inhabitants of a country, and should therefore be fully considered, and not only are the immediate effects of cultivation of importance to be known, but it will be also necessary to inquire into the effects of such after processes as are ascertained, or suspected, to be unhealthful, especially where the putrefaction of the substances

treated, is a necessary part of them, as the preparation of flax, indigo, &c. *

The State of the Roads and Communications. — The facilities of communication are of such importance to the comfort and health of the inhabitants of a country, as to deserve being distinctly noticed.

A map of the places described will greatly enhance the value of a topographical description; nothing more will be necessary, than a simple outline of the boundaries, of the direction of the mountains and rivers, and of the situation and extent of the forests, lakes, morasses, bogs, &c. A sketch of the stratification of the soil would also be a valuable addition to the view of its surface.

II. The Population. — The aggregation of large masses of human beings produces effects so important upon the health, as to become a special object of inquiry to the topographer; he should, therefore, endeavour to obtain the most correct statements within his power. If, in a country, parish, or district, he should compare the number of inhabitants with the space over which they are spread; and if, in a town or city, he should ascertain the bounds within which they are pent up, and how far the evils of confinement are aggravated or relieved by various external circumstances, of which the following are the most important.

The Dwellings. — In describing the dwellings, the medical topographer should notice the exposure, the soil on which they are founded, their elevation above it, the materials of which they are built, the mode in which they are finished, especially as concerns their dryness, their warmth, and their ventilation, and the facilities afforded to the inhabitants for preventing or removing accumulations of filth. Under this view will come to be examined the nature and extent of the cess-pools and sewers proceeding from the houses to the common receptacles of filth; and, above all, the conveniences for

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* See Bancroft on Yellow Fever, p. 195 note, for an excellent illustration.

the reception of human ordure. It is a fact well worthy of attention, that the inhabitants of those buildings which are run up in a slight manner, at the back of a row, and exposed to the effluvia of privies, have been found most susceptible of the contagion of typhus fever *. The average number of inhabitants in each dwelling, the cubical contents of their rooms, and the number and direction of the means of ventilation, should be ascertained, with a view to show, how far they may enjoy the advantages of a free circulation of pure air. Much sophistry and much special pleading have been employed to invalidate the opinions of those who hold that the effluvia arising from the human body, in close and crowded situations, are productive of contagious diseases; but the facts collected upon this point appear to be incontrovertible.

The mode in which the streets are laid out, their width or compactness, their pavement, their drainage †, their exposure to the sun and to the wind, are considerations of much importance. The difference of a few paces may make a very considerable difference in the health of the inhabitants; thus at Rome some streets, nay, certain points, sides, and even houses, of some streets, are more damp, chilly, and exposed to the malaria, than others ‡; for instance, the wards of the Santo Spirito Hospital to the south and south-east, are more insalubrious than others, and the lower apartments of some hospitals are affected with the malaria, while those immediately above escape its influence. A very slight obstacle, as a gauze curtain, is said to prevent the entrance of the malaria of Padua. In the West Indies, soldiers residing in the lower part of the barracks were found to be more liable to yellow fever than those in the upper, in the proportion of two to one §. In many of our towns certain streets or districts have been

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* Ferriar, Medical Histories and Reflections.

† Compact gutters, by preventing the sinking of the water into the earth, are reckoned, by Dr. Rush, one cause of the unhealthiness of Philadelphia.

‡ See Clark's Medical Notes.

§ See Fergusson in Med. Chirur. Trans., vol. viii., p. 587. Dr. Nicol observed a similar fact in India, see Edinburgh Medical and Surgical Journal, vol. ii., p. 292. et seq.

always remarkable for fever, and they have been as remarkably exempted from its attacks when the air has been allowed freely to percolate them, by the removal of old walls or compact masses of houses, which prevented ventilation and the access of the solar influence.

The Bedding,—Clothing,—and Furniture. — With the superfluities of the rich the medical topographer has little to do ; but on the necessary supplies of these articles in possession of the poorer and more numerous part of the population, much of their comfort and health depends. A sufficiency of bedding and clothing, to obviate cold and moisture, is indispensable to health ; and, during the prevalence of contagious diseases of the typhoid class, is of the utmost importance as a preventive. A very striking illustration of this will be found in the medical report of Dr. Ainslie, Mr. Smith, and Dr. Christie, on the epidemic fever which lately ravaged an extensive district in India. Wherever the inhabitants were elevated above the surface, by settles or bed-frames, and defended by rugs, there the disease was decidedly less frequent and less fatal in its consequences. Every article of furniture which can aid in the promotion of cleanliness, in the preservation and cooking of food, and in other purposes subservient to domestic economy and personal comfort, must essentially contribute to the preservation of health. The materials of the beds and furniture, the frequency of their renewal, and the modes adopted to preserve and purify them, are all worthy of attention.

The Fuel. — The nature of the fuel, and the facility of procuring it, is of the utmost consequence to all ranks of society, but especially to the poorer. It is scarcely possible to conceive how thousands of the pauper inhabitants of Ireland could protract their existence, did not the bogs amid which they pine, furnish them with the means of cooking their food, and obviating the effects of the chilling damps with which they are surrounded.

The Diet. — The quantity, the quality, and the regularity of our meals have such an obvious influence upon health, that the medical topographer should be minute in his inquiries upon these subjects. He should enumerate the species and the price of the different articles, the modes in which they are

prepared or preserved, the adulterations which they undergo, and the condiments which are employed along with them. The nature of the beverages used should be investigated, and their effects, when taken in moderation, or pushed to excess, should be described. The diseases of ale drinkers are very different from those of wine drinkers, and these again greatly differ from the diseases of drinkers of ardent spirits. The nature of the water used as an article of diet, or employed for culinary purposes, should be ascertained; and those impregnations which act directly on the kidneys, the bowels, or the skin, should be investigated, while the secondary effects which their hardness or softness may produce, by their adaptation to the purposes of cookery and cleanliness, should be pointed out. The abundance or scarcity of this vital article should be particularly specified; the sources from whence it flows, the materials through which it is conveyed, and in which it is preserved, the accidental pollutions which may fall into it in its course, and the facility with which it disembogues itself after having served the various purposes of life, will be important subjects of consideration. The effects of the water on strangers should be mentioned; in a great number of situations no new comers can taste the water with impunity, and the same effects are produced on their cattle. The ordinary mode in which nature appears to remove these noxious effects, is by the bowels; but it will be an interesting object of inquiry to ascertain what other outlets she may employ for that purpose..

The use of snow water for drink, in Alpine regions, has long been supposed to give rise to goitrous tumours. This mode of explaining these unseemly appearances has been questioned by some, upon the principle that the disease is frequent in Sumatra, where snow and ice are never seen, and unknown in Chili and Thibet, though the rivers of these countries are chiefly supplied from melted snow; but a sufficient proof that goitre proceeds, in some cases, from snow or ice water, is, that navigators, who were not exposed to any other of the circumstances which affect the inhabitants of the Alpine regions, yet, after having been forced to drink ice or snow-water, have become affected with the disease. It has been supposed that goitres are peculiar to those valleys which run

from east to west, and that they are not to be found in those which run from north to south; but this appears to be without any foundation. Marsden, in his history of Sumatra, attributes goitres to the breathing of the damp foggy air condensed in valleys situated between ranges of high mountains; for the disease is found in such situations in Sumatra where no snows exist, but where the natives are exposed to the *caboot*, or thick fog. "Cretinage," or cretinism, seems also peculiar to mountainous regions, where goitre is endemic; it is extremely difficult to determine what connexion there may be between the two diseases, but they are found together in the mountains of Switzerland, in the Pyrenees, and, according to Sir George Staunton, in the mountainous parts of China *.

It will be a most interesting and legitimate object of inquiry to ascertain how far cutaneous affections depend upon the peculiar sources from which the water in ordinary use has been procured.

The good or bad effects produced, or supposed to be produced, in some districts, by some articles of food long continued, should be inquired into; the use of oil is stated in some countries to predispose to hernia; beer and cyder are supposed to be productive of calculous disorders, while salted meat is, on no slight grounds, presumed to prevent them. In tropical climates, calculus is scarcely known. On the continent, and in Britain, it occurs in the public hospitals in about 1 case in 300 or 400 patients. In the cyder counties of England, it is much more frequent than in many others; but in the Norfolk district, it is as frequent as 1 in 38, a proportion exceeding any thing which has been noticed in any other district of Europe. In the British army, calculous complaints are exceedingly rare, but I do not know whether any comparative estimate has been made of their frequency; in the navy, however, they are strikingly low, as 1 in 17,200, and this is principally attributed to the use of salted food †.

THE EMPLOYMENTS. — The nature of the employments or

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* See a good paper on this subject in the Edinburgh Medical and Surgical Journal, vol. v. p. 31; and Fodere "Sur le Goître et Cretinism."

† See Hutchison in Medico-Chirurgical Transactions, vol. ix., p. 459.

trades of the inhabitants, the periods occupied in them, whether in close, crowded, and damp apartments, or in the open air; the metallic or other vapours, or the currents of air or water to which the workmen are exposed, and other similar circumstances, should all be most minutely particularized. To these particulars should be added the nature of the diseases produced among artificers, the means they adopt to prevent their occurrence, and the remedies peculiarly useful in their removal *.

The Amusements and Customs. — As these mark the general habits, and often in particular instances lead to disease, they are well worthy of enumeration. The topographer should notice whether they are active or sedentary, whether exercised within doors or in the open air, whether they tend to the excitement of the depressing passions or not. Even the most trivial local amusements may produce the most powerful effects on the passions and the health; a fact which will not be denied by those who recollect the effects of music in exciting the Scotch highlander, or in producing nostalgia in the Swiss mountaineer.

The Morals,—the Education and Mode of Rearing Children. — The influence of religious instruction on the modes of living of individuals, cannot escape the most unconcerned observer, and hence the general state of the morals of the district which he describes should be an object of the medical topographer's investigation. In pursuing this he should not lose sight of the number of inhabitants which the exhortations and the example of fanatics have so constantly consigned to the mad-house and the foundling hospital; while he will perhaps find that equal numbers have been reclaimed from the gin shop,—another fruitful source of supply to one at least, if not to both, of these establishments. Under this head the effects of early marriages upon health seem most naturally to range themselves.

The Police of a city or district has a considerable influence upon the health of the inhabitants at all times, but in periods of public calamity, from contagious disease, it becomes abso-

* See Rammazini and Edinburgh Medical and Surgical Journal, vol. iii., p. 170.

lutely essential to it. The subject of medical police in general is one of such extent, and comprising such a multiplicity of objects of inquiry, as to form a distinct science of itself. I shall, therefore, content myself with enumerating a few only of the principal points which appear to bear more directly on the subject of medical topography, and which should be minutely inquired into by all who cultivate that study.

The first of these is the establishment of common sewers, without which no town can ever be either a pleasant or a healthful residence, the erection of necessaries, the pavement, cleansing, and lighting of the streets; the regulation of the slaughter-houses and markets; the removal to convenient distances of burial-grounds and all manufactories productive of noxious exhalations *; the establishing a control over the admission and lodging of vagrants; the regulating the purchase and exposure of old clothes and furniture; the controlling the venders of spirituous liquors; the diminution, as much as possible, of the number of prostitutes; and the holding out to them, and the lower orders of society in general, encouragement to have recourse to hospitals on the first appearance of disease among them.

The State of the Poor. — Under this head should be enumerated their employments, the rate of wages, the price and nature of the food which they are enabled to procure for themselves, or which is supplied them, either as an equivalent for their labour or in the form of charitable donations; the rent of their cottages or rooms; the public institutions for their instruction and their support, and the friendly or other associations for their relief, &c. &c.

III. As the ultimate aim of medical topography is to ascertain every circumstance that has an influence upon health, the

* The consequences of burying in churches are now well known; perhaps the best mode ever adopted, is that in use at the branch of the hospital of Incurables of Naples, near Torre del Greco. The burial-ground is divided into three hundred and sixty-five large deep vaults, one of which is opened every day of the year, and after bodies are deposited, is accurately shut. The process of putrefaction is completely finished before it is again opened. See Eustace's Italy, vol. ii. 8vo., p. 346.

nature, extent, and varieties of the diseases of the district which he undertakes to describe, are subjects of primary importance to the topographer. Under the present, as well as the other heads of inquiry, much must be left to the judgment, and much must depend upon the opportunities for observation, but the following objects appear to me indispensably necessary to be investigated.

The Endemic Diseases. — In the details on this head, the following points of inquiry should be particularly attended to. The age, sex, and constitution of those most commonly attacked; the nature of the diet, employments, or situation which render them most liable to be affected; the popular opinions on the disease; the domestic prophylactics; the mode of cure followed by the regular practitioners in private life, and the result of hospital treatment deduced from the tables of admissions, discharges, and deaths.

The Epidemic and Sporadic Diseases. — The same subjects of inquiry should be attended to in these as in the preceding class, and the utmost caution should be observed in examining into the proofs of the contagious or non-contagious nature of the diseases of whatever species. It has become of late fashionable to deny the contagious nature of some diseases, as typhus and plague, and to support this opinion with a series of sophistical arguments, backed by a display of classical learning. With regard to this last, any well-read school-boy would be able to prove that the ancients, if not acquainted with the *doctrines* of contagion as now taught, were intimately acquainted with the *facts;* thus in describing the pestilential disorder which raged at the siege of Syracuse, and which affected both the attacking and besieging armies, Pliny expressly says that the disease was spread "contactu ægrorum," by the contact of the diseased, which is strictly and unequivocally the operation of contagion. With regard to the arguments, one *fact* overwhelms them all, and these facts are of such daily occurrence, in the typhus fever of this country, for instance, that to deny them savours more of determined obstinacy than of philosophical scepticism. To the army and navy surgeon doubts as to the propagation of certain diseases by contagion, may be of the most fatal consequences; considering

the subtle nature of the matter of febrile contagion, it becomes of the very highest consequence to ascertain the state of the atmosphere in which it is most readily diffused. Moisture has a considerable effect; thus, when the atmosphere is saturated with water in Egypt, after the overflow of the Nile, the plague is most common. In that country our troops quartered on the moist shore of Aboukir suffered severely; while the troops that marched to Cairo escaped the contagion of plague. On the other hand, while the dry harmattan of Africa blows, epidemics cease, the small-pox, which is at other times fatal, among the number; and the infection cannot be easily communicated, even by inoculation, or any other process of art*. It is well known that volatile bodies are sooner rendered gaseous in moist than dry weather: thus, lime burns readier in the former than the latter; the perfume of flowers is more perceptible, and the stench of ditches and sewers more oppressive, when the air is charged with moisture, as about the falling of the evening dew, or pending rain.

There is another extremely contagious disease, purulent ophthalmia, in the propagation of which, a moist state of the air is most decidedly favourable to the spreading of the contagion: this has been observed both by Volney, the French "savant," and Assalini, an experienced army surgeon, as well as by our own medical officers in Egypt; and even Prosper Alpinus, who attributed the disease to the heat, dust, and alkaline nature of the soil, admits that it is most frequent in autumn, although the inundation of the Nile completely relieves the eye from the action of the sand and hot winds of the desert. It is from this effect of moisture in conjunction with the contagious matter, that our soldiers in Egypt caught the complaint, chiefly in the dews of night. In England, Dr. Vetch invariably found marshy situations the most unfavourable to the cure†.

Hereditary or Family Diseases claim the attention of the topographer, and not only should their existence be ascertained,

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* See Philosophical Transactions, vol. lxxi.

† See Vetch on Ophthalmia, p. 151; Assalini and Power on Egyptian Ophthalmia; and p. 611, et seq. of the following work.

but any modes which may have been adopted to prevent or to cure them, should be fully detailed.

The existence of Feigned Diseases should not be overlooked, and the details on this point should be ample, embracing the history of individuals, the particular diseases and symptoms which they have imitated, the real diseases which they have brought on, and the modes adopted for their discovery. The history of the fasting woman of Titbury, and the steps which led to her detection, will long be remembered in the medical annals of this country.

The diseases of the manufactories, the prisons, the poor-houses, and boarding-schools, should not be forgotten, nor should those from Imitation, which so often arise in the latter establishments, be overlooked. These diseases of imitation also often prevail in other situations, for instance, the convulsive disease in Wales, Shetland, and elsewhere, and the disease known by the name of the "louping ague," in Angus-shire *.

Tables of Marriages,—Births,—Diseases,—and Mortality, —if drawn from extensive and authentic collections of reports, become peculiarly valuable, and the greater the number of points of comparison with preceding years which they furnish, the more is their value enhanced.

Epizooties. — The diseases of cattle, and other animals, should be inquired into, particularly when they have been very extensive and fatal. The most severe epidemics, the plague, for instance, which have afflicted man, have been preceded by similar affections of the lower orders of animated beings. The influenza, which raged in this country, and extended almost over the world, in the latter end of the eighteenth century, was preceded in some places by a mortality among cats, and in others, birds were found to be peculiarly affected. The diseases of the cattle, which serve for agricultural purposes, or directly for the food of man, should be an object of particular inquiry. The health of this class of animals is peculiarly linked with that of the human species who tend and feed them, and who, in return, owe to them so much of their comfort and their

* See a full account of these in the Edinburgh Medical and Surgical Journal, vol. iii. p. 434.

support. In the epidemic which lately ravaged some of the Indian provinces, upwards of 44,000 head of cattle died in one district in the course of seven months, partly from want of food and partly from disease.

It is asserted that dysentery is produced among sheep closely pent up, and that the disease thus generated becomes contagious among these valuable animals *. The nature of the rot to which sheep are subject, is an inquiry of much importance; the more so, that in its early stages it is found that they take on fat, and are therefore in that morbid state often applied to the purposes of food. There can be no doubt that the flesh of animals who have died of disease, or who are killed when overheated by excessive labour, is highly injurious to health; and even the flesh of those who have died a natural death has occasioned sickness, and has in some instances proved fatal †.

The Diseases of Plants employed as articles of food should be inquired into, as they are by them deprived of a considerable portion of their nutritive qualities, and even rendered deleterious: thus, to the ergot or blight in rye, a most extensive and fatal endemial gangrene has been traced in France, and there is reason to suppose that a similar disease has been produced from blighted wheat in England.

Popular Medicine. — Under the head Endemic Diseases, I touched upon a branch of this subject, but it is worthy of being still farther enlarged upon. In many districts periodical bathings, bleedings, purgings, vomitings, diet drinks, &c. are resorted to, under the supposition that sickness in *general* is prevented by such practices; while there are other practices adopted for the prevention and cure of *particular* complaints. Rum and milk, egg and brandy, and similar disguised drams, are in high estimation in incipient cases of phthisis, in some districts, and contribute to swell the number of annual victims to that scourge of our islands. The popular remedies used

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* See Edinburgh Medical and Surgical Journal, vol. vi., p. 235, and Dr. Duncan, junior, in the third vol. of the Transactions of the Highland Society.

† The diseases produced by the use of various animals, while out of season, as it is called, should be considered under the article "Diet."

for the diseases of cattle and other animals, should also be noticed.

Hospitals. — An account of the establishments of this description, whether for the reception of particular diseases, as fever, mania, syphilis, &c. for lying-in women, foundlings, blind, deaf and dumb, or for more general purposes, should be a very principal object of the medical topographer's inquiries. He should inform us of the site, size, and plan of the hospital, the number and accommodation of the wards, with the methods of ventilating, warming, and cleansing them; the plans for separating and classifying the patients, their numbers, and the measures pursued for obviating or checking contagious diseases among them; the materials and arrangement of their beds, bedding, and other articles of furniture; the means of collecting and conveying the sick to the hospital, with a statement of the obstacles or facilities of access to the building itself, as well as to its various apartments. We should have an account of the plan, extent, and arrangement of the kitchens, baths, and wash houses, and of their supply of cold and hot water, and steam, together with a detail of all contrivances for the abridgment of labour; the diminution of the consumption of fuel; and the increase of the nutritive quality of the food, or its fair, regular, and comfortable distribution. Knowing, as we do, how much the individual comforts of the sick and the general good order of an hospital depend on the water closets or "latrines," we should attach great importance to the description of their site, size, and actual state, the extent of their supply of water, air, and light, and the measures adopted for removing the soil, or preventing the diffusion of unpleasant and unhealthy effluvia. To all this information on the immediate accommodation for the sick, there should be added an account of the storehouses and offices of every description; the airing ground for the convalescents; the places of reception for the dead, with the modes of disposing of the bodies, &c. &c. We should have also a statement of the rank, number, salaries, and duties of the various officers of the establishment, whether medical, surgical, or purveying, with an enumeration of the servants of different classes, their wages, the proportion which they bear to the sick, and the respective duties which they

perform. In short, we should wish for information on every point subservient, or preparatory to the grand objects of administering food, medicine, and surgical assistance. We should then be prepared for a view of the mode of carrying on the medical, surgical, pharmaceutical, and purveying duties, which would naturally lead us to the history of new or peculiar practices or operations; accounts of new remedies; details of the diet, ordinary and extraordinary, administration of wine, and other cordials, &c. The sources of revenue from which these wants are supplied should be specially enumerated, and, from all these premises, we should have no difficulty in entering into a view of the expenses of the establishment. The nature of the records and annals kept at the hospital should be stated, and, from these, interesting information on comparative mortality, prevalence of disease, and peculiar epidemics, originating either from within or without, might be afforded; as well as satisfactory notices on every point, medical, statistical, or financial *. The same principles of examination should be applied to prisons, lazarettos, work-houses, &c.

If there are any veterinary hospital establishments, they should be described; and any peculiar practices or operations by the regular profession, or quacks, should be mentioned.

Spontaneous Cures.—Diseases in general have not a natural tendency to terminate in death, and some, if not interfered with, proceed spontaneously to a favourable termination. The medical topographer should investigate these cases, and should endeavour to discover how far external circumstances, which do not come under the head of medical means, may have aided the efforts of nature. This inquiry will also lead him to the investigation of the effects of the climate and situation, which he describes, on diseases imported into it. The disease for which change of climate has hitherto been principally recommended, in this country, has been phthisis; but there

* I have already given this outline of inquiry into the state of hospitals in my review of Dr. Carter's work on Climate, &c. in the sixteenth volume of the Edinburgh Medical and Surgical Journal, p. 76; but I think it more convenient and more adapted to the purpose of the present paper to reprint than to refer to it.

can be little, if any, doubt, that many lives have been sacrificed in this way. Physicians, judging from latitude, have supposed that many situations *should* be favourable to phthisical patients, which, on trial, have proved remarkably the reverse. Many parts of the south of Europe come under this character, from the nature of their climate alone; and many others, which are more fortunate in this respect, are eminently defective in all the domestic and medical comforts which are of the last importance to the recovery of the invalid. The effects of climate in accelerating the cure of syphilis, of cutaneous affections, of diseases produced from the excessive employment of mercury, and of other chronic affections, should also be an object of inquiry.

The State of the Practice of Physic and Surgery, as well as that of Empiricism, should be noticed; the privileges or the control exerted over the members of the profession, with their divisions, numbers, &c. should be stated; as also their various institutions, libraries, societies, &c.; their peculiar doctrines and practices should be noted generally, and anything of special interest should be particularized; the progress of vaccination should be minutely inquired into. Upon the circumstances above stated, either singly or combined, will greatly depend the last and most important object of the investigations of the medical topographer, with which I shall close this class of suggestions.

Longevity. — Not only the remarkable instances of longevity should be given, but a general view of the mortality among all ages and sexes, extended to as long a period of years as the inquirer can refer to, marking those which have been particularly affected by epidemic or contagious visitations. If the inquiries of the topographer extend over a large surface of country which comprises several districts, tables of mortality for each district should be given, otherwise a very incorrect idea may be impressed on the mind of the reader; thus, from Dr. Price's calculations, there is great reason to suppose that, in hilly districts, half the numbers born live to the age of forty-seven; and that one in twenty reach so far as eighty years of age: while, in marshy districts, one only in fifty-two attains that period of life, and only one-half the number born sur-

vive to the age of twenty-five. There is also, as is well known, a considerable variation between the ages of persons who reside in towns and in country parishes, insomuch, that, in some instances, the difference is more than double, some cities being calculated to give a mortality of one in nineteen, and some healthy country villages being reported so low as one in forty, fifty, or even sixty, although it must be confessed that there is great reason to suppose that these estimates have been overrated, from inattention to concomitant circumstances. It is certain, however, that those employed in the insurance of lives estimate the longevity of a country village at fifteen, while that of the metropolis is only rated at ten and a half*.

IV. Under the fourth head should be classed those miscellaneous topics of inquiry which more remotely bear upon the medical topography of a town, district, or country, and which could not be so conveniently arranged under any other heads. Peculiar circumstances will of course contribute to the enlargement of these, but the following appear the most important.

A catalogue of the works already written on the subject of the places described, whether referring to their topography, natural history, or diseases—Notices on the subjects of the colleges, or schools for medical education, of their museums and libraries, and of the rare and curious articles contained in them, whether preparations, books or manuscripts—Notices on singularities in the formation of the brute, and more especially of the human species, as dwarfs, giants, cretins, &c., and on such persons as have been remarkable for their physical powers and propensities, as strength, voracity, &c. &c.—Notices of eminent medical authors and practitioners who have flourished or live in the places described—Notices on important and curious objects of botany, mineralogy, natural history, &c. As the excellent directions of Professor Jameson, addressed to the contributors to the Museum of the University of Edinburgh, may not be in the possession of many of my readers, and as they will enable any common observer to preserve various

* Hints for an Insurance Company for Kent and Sussex, 1804, p. 7.

important contributions towards the natural history of the place where he resides, or which he accidentally visits, I shall conclude this paper with an abridged statement of them.

"Quadrupeds and Birds are to be preserved by taking off their skins, which may be easily done by making an incision in a straight line, from the vent to the throat, and removing the skin by means of a blunt knife. The skull and bones of the legs and feet are to be left. The brain, eyes, and tongue, ought also to be extracted. The skin, in order that it may be preserved from decay, should be also rubbed on the inside with some one of the following compositions: 1st. tanner's bark well dried and pounded, one part; burnt alum, one part; and in a hot climate one part of sulphur, to be well mixed.—2nd. tanner's bark well dried and pounded, one part; tobacco, perfectly dried, one part; burnt alum, one part; add to every one of these ingredients one ounce of camphor, and half an ounce of sulphur. (N.B. No sublimate or arsenic ought to be put on the skins, as both substances destroy their texture.) These compositions to be kept for use in well corked bottles or jars.

"Skins when thus prepared, and partly dried, must be packed carefully in boxes, the lids of which ought to be pasted up, and in the paste used in fixing the paper, a little corrosive sublimate must be put, which prevents insects from eating through the paper.

"Reptiles and Fishes are best preserved in spirit of wine, rum, or whisky, some of which must be injected into the stomach, through the mouth, and into the other intestines through the anus. Before putting them into bottles, jars, or barrels, they ought to be washed clean from slimy matter. If long kept in spirits before they are sent, the spirits should be changed two or three times. The jars or bottles ought to be closed by means of sheet-lead and bladders. The larger reptiles, as crocodiles, and the larger fishes, may be preserved in the same manner as quadrupeds and birds.

"Animal Concretions. — Concretions of various kinds are occasionally found in the brain, lungs, heart, liver, kidneys, gall-bladder, intestines and urinary bladder. The stomachs of many animals afford concretions of different kinds, particularly those known under the name of *bezoar stones;* and travellers

inform us, that stones are met with in the eggs of the ostrich. All of these bodies are interesting and valuable to the natural historian.

"Skeletons. — Collectors ought not to neglect to preserve the skeletons of the different species of animals. Of man, the skull is the most interesting part, as it varies in the different races of the human species, and is also frequently singularly altered by the practices of savage tribes. The best way of cleaning bones is to expose them to the air, and allow the insects to eat off the flesh. This being done, they ought to be washed with sea-water, and afterwards freely exposed to the sun. The best skulls are obtained by putting the whole head in rum or whisky, or a strong solution of alum; and both male and female heads ought, if possible, to be preserved.

"Molluscous Animals,—Vermes,—and Zoophytes. — Molluscous animals, such as cuttle-fish, the inhabitants of shells, &c., vermes or worms, zoophytes, or animals of the coral and other allied kinds, ought all to be preserved in spirits; and in the two former classes, viz. the mollusca and vermes, the spirit of wine should be injected into the intestines, by means of a syringe, to prevent the putrefaction of the internal parts, and the consequent destruction of the organs of digestion, respiration, and of the nervous system. Many zoophytes or corals, or rather their houses, may be preserved dry; but fragments of every species ought to be put into spirits, that the real structure of the animal may be discovered.

"Shells, or the coverings of molluscous animals, are anxiously sought after by the naturalist, not only on account of their great beauty, but also from their intimate connection with the various fossil species met with in rocks of different kinds. The best live shells are collected by means of a travelling-net, such as is used by fishermen, if the depths are not too great; they are also brought up by the cable in weighing anchor, the log-line, and in sounding.

"After a storm, good shells may be picked up on sea beaches or shores, as the violent agitation of the ocean in a tempest separates them from their native beds, and often casts them on the shore. Shells that have been much tossed about by the waves are of less value than fresh ones; but these, when

other specimens are not to be got, ought to be carefully collected. Many interesting shells are found in rivers and lakes; and numerous species occur on the surface of the land.

"Fresh shells, or those in which the animal is still alive, ought to be thrown into hot water, the temperature of which may be gradually brought to the boiling point, by the repeated additions of hotter portions, by which means the animal will be killed; the shells are allowed to cool for two or three minutes, and then the animal is picked out.

"Insects. — Beetles of every kind are speedily deprived of life by putting them into boiling water, which does not injure those having black, brown, or any dark colour; but those which are covered with a fine down, or have brilliant colours and lustre, should not be exposed to moisture, but are easily killed, if put into a phial, and placed in a vessel of boiling water for some time. When insects are quite motionless, such as have been in the water should be exposed to the air and sun for a day or two, until perfectly dry; in this state they are to be placed in boxes with cotton-wool, along with camphor. Beetles may also be preserved in spirit of wine.

"Butterflies, moths, and many other tribes of insects, with delicate and tender wings, may be easily killed, by pressing the thorax or breast betwixt the finger and thumb; and it is preferable to have the wings closed, because they thus occupy less space, their colour and lustre are better preserved, and they can be expanded afterwards by the steam of hot water. Care should be taken that the antennæ or feelers, and legs, are not injured. A pin should be stuck through them, by means of which they are fastened to the bottom of a box, lined with cork, or to one of deal or other soft wood. Camphor ought to be put into the box.

"The arachnides or spiders are best preserved in spirits. In collecting insects, we use either the forceps or a net. The forceps are about ten or twelve inches in length, provided with fans of a circular or other form, and are covered with fine gauze. They are held and moved as a pair of scissors. The net is very easily made. It is of gauze, or any very fine open muslin, made upon a piece of cane of four feet long, split down the middle about the half of the length: the split part is tied

together, so as to form a hoop, upon which the gauze is sewed in the form of a bag; the lower part serves as a handle, and with this, all flying insects may be very easily caught. When the insect is once within the rim of the net, by turning it on either side its escape is completely prevented by the pressure of the gauze or muslin against the edge of the hoop.

"Crabs. — Crabs, lobsters, &c. may be suffocated in spirits of wine or turpentine, and then dried in an oven.

"Crustaceous Animals. — Sea-stars, after washing in fresh water, may be extended on boards by means of pins, and when dry, laid between folds of paper, and packed in a box with a little camphor.

"In echini, or sea eggs, the soft internal parts are to be extracted by the anus; they are then to be stuffed with cotton, and carefully packed with tow or cotton. Particular attention should be paid to the preserving of the spines.

"Seeds. — In collecting seeds, it is desirable that they should be well ripened and dried in the sun. Large quantities should never be put together, but only a few, and these well selected. They retain their vegetative powers much better if tied up in linen or cotton cloth, than in other substances; and if then packed up in small boxes, and placed in an airy part of the ship, there is every probability of their arriving in a sound state. The same remark applies to bulbous roots. Bulbs should never be put in the same box with seeds. The boxes with seeds, and with bulbs, ought never to be put into the ship's hold.

"Dried Plants. — The greater part of plants dry easily between leaves of books, or other paper. If there be plenty of paper, they often dry best without shifting; but if the specimens are crowded, they must be taken out frequently, and the paper dried before they are replaced. Those plants which are very tenacious of life ought to be killed by the application of a hot iron, such as is used for linen, after which they are easily dried. The collections are to be carefully packed in boxes with camphor, and closed in the same manner as directed for quadrupeds and birds.

"Minerals. — 1. Every mineral, from the most common clay or sand, to the gem, ought to be collected.

"2. Specimens of rocks, such as the granite, porphyry, limestone, &c., should, if possible, be broken from fixed rocks, and not from loose masses, which are generally decayed. In selecting the specimens, one set ought to represent the different varieties of appearance presented by the rock in the fresh state; another, the rock in its different states of decomposition.

"3. When the specimens of simple minerals, or rocks, contain crystals, they ought to be wrapped in gauze paper, then in cotton, and afterwards in several folds of strong wrapping paper.

"4. The specimens of rocks ought, if possible, never to be less than four inches square, and one inch in thickness, and of a square form. As soon as they have been prepared, they should be labelled and wrapped in several folds of strong wrapping paper. When paper cannot be procured, moss, or other soft vegetable substance, may be substituted for it.

"5. The sands of deserts, steppes, and rivers, ought to be carefully collected. The sands of rivers often contain precious stones and metals, and hence become very interesting objects to the naturalist. The sands of deserts and steppes throw much light on the nature of the surrounding country, and are much prized by the geologist.

"6. Numerous mineralized animal and vegetable remains occur imbedded in strata of different kinds; all these ought to be very carefully collected and preserved. Abundance of shells, in a fossil or petrified state, are met with in limestone; of vegetables in slate clay, sandstone, &c.; and numerous bones, and even whole skeletons of quadrupeds, birds, amphibious animals, fishes, and even of insects, occur in rocks of various descriptions."

My original intention in preparing this paper was to confine myself to subjects connected with our own islands, but I found so many important queries and illustrations presenting themselves from among the phenomena observable in foreign countries, that I was unconsciously led to extend the heads of inquiry so as to make them applicable to these also. In truth, the same causes of disease exist in all countries, more or less, while their effects are proportionally elicited by circumstances

peculiar to each. That physician who has studied the influences of external circumstances on the human constitution, in one situation, cannot, therefore, be long or greatly at a loss to detect them in another, and thus observations made under the burning sun of the Indies may materially assist the investigation of the origin of disease in the less fervid temperature of northern climes.

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INTRODUCTION.

"Non tam perficiundi spe, quam experiundi voluntate."

With the shores of the Mediterranean, its history, its antiquities, and its beauties, who is not familiar? We all participate with the poet and the antiquarian in that enthusiasm with which they dilate on the sacred groves, the venerable mountains, and the classic rivulets of a country, of which it may with great justice be said,

"Nullum est sine nomine saxum."

To the Medical Topographer, belongs the less pleasing task of describing these far-famed scenes as they at present exist:—no longer the seat of science, the chosen residence of demigods, and the fruitful nursery of sages and heroes; but now, alas! too often the residence of squalid misery and sordid ignorance; immersed in the noisome vapour of untrodden marshes, and fanned by no zephyrs but those which scatter disease and death from their wings.

In a tract of country so extensive as that which borders on the Mediterranean sea, the diversities of climate and soil must necessarily be great; and accordingly we find, that mountains covered with eternal snow, and plains scorched by unmitigated heat, present themselves along its shores. To attempt any

general description of the climate would be absurd, for each continental district, and each island possesses peculiarities dependent on their relative situations; suffice it to say, that little information can be gained as to the temperature or healthiness of any particular spot in the Mediterranean, by a consideration of its geographical position. It is upon the innate features of the country itself, that its climate and its salubrity depend; and in the following pages, I shall endeavour to afford such information upon these points, as I trust may be adequate to the purpose of giving a fair estimate of the influence of detached spots, upon the health of the troops destined for their defence. It may, however, be proper, before entering into particular investigations, to offer a very general sketch of the Mediterranean coasts.

From the narrow inlet of Gibraltar, we see before us an immense inland sea extending to the coast of Palestine, a distance of 2300 miles.

For general purposes, it is sufficient to divide it into three great portions: the first commencing at Gibraltar, and extending to the point where Sicily approximates to the African shore at Cape Bon; the second commences at a line drawn between Trapani and Cape Bon, and terminates at a similar line between Candia and the nearest point of Libya; the third extending from this last point up to the coasts of Egypt and Syria. It is only at Gibraltar and in the central division, that British troops are at present quartered, which, therefore, become the principal object of my inquiry in this survey; but I may remark, that in the first division lie the Balearic Isles, Corsica, Sardinia, and the islets scattered along the coast of Italy; in the third, Candia, Cyprus, and the Islands of the Archipelago; while in the second will be found Sicily, Malta,

the Islands of Greece, and the numerous islets which form a barrier along the Dalmatian coast of the gulf of Venice.

I shall begin with a Sketch of the Medical Topography of Gibraltar, then proceed to the island of Corfu, and in succession to that of Cephalonia and Zante, the principal and best known of the Septinsular Union; and shall afterwards go on with Santa Maura and Ithaca, and terminate with Malta.

This, in some degree, reverses the strict geographical order, but the deviation will be found, as far as regards the Greek islands, to be greatly compensated by the saving of repetitions, and of references to the accounts of the larger islands; which I must necessarily have made, did I conform completely to the line of position in which the smaller lie.

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SKETCHES

OF THE

MEDICAL TOPOGRAPHY

AND

DISEASES OF GIBRALTAR.

So much has already been written on the subject of Gibraltar, and so many valuable facts and observations are to be found in the reports of my immediate predecessor and other medical officers of the garrison, as well as in the published works of various authors, that the present might be deemed both a superfluous and a presumptuous attempt, were it not undertaken in obedience to the orders of the Director-General, and in conformity to established usage.

In some parts of my Report, little either of novelty or originality can be expected, the materials having been collected from various official and published sources, which I shall point out as I proceed. The arrangement is conducted upon the general plan of my Memoir, given in the sixty-seventh number of the "Edinburgh Medical and Surgical Journal" for April, 1821.

Having been quartered on this rock for a part of the years 1809 and 1810, and having resided here as principal medical officer since January, 1826, (not to mention eight or ten anterior visits,) I have frequently been enabled to compare the topographical accounts of others with nature, and to satisfy myself on the spot, of the relative degree of credit to be given to them: I have also inquired into some important points, which have never, to my knowledge, been fully treated of before; but I claim no merit for any researches, except that proportion, which may be due to persevering diligence in classifying and condensing facts, and to a desire of reporting them

with fidelity, unbiassed, (as far as I am conscious,) by any preconceived theories.

To enlarge upon the importance of Gibraltar, or to multiply superlatives, as to the high interest attached to every thing connected with it, would be more than uncalled for; I shall therefore at once proceed to the different heads under which I propose to treat of it, beginning with its Medical Topography.

NAME AND GEOGRAPHICAL POSITION.

Among the ancients, Gibraltar was known by the name of "Mons Calpe," an appellation supposed to be given to it from its position, which advances into the sea from the main land like a bucket, called by the Greeks, Καλπη, (*urna*). After the destruction of the original pillars, said to have been erected somewhere in the neighbourhood of the Straits, by Hercules; "Calpe," and the mountain Abyla, on the opposite African coast, received the name, and have, both in ancient and modern times, been frequently called the "Pillars of Hercules." The modern name is generally allowed to be derived from Tarif-Abenzarea, the Moorish General, who landed in the neighbourhood about the year 714, erected a fortification upon the side of the hill looking towards Spain, and gave both the fortress and the entire mountain the name of Gibel Tarif, or Tarif's Mountain; hence the modern corruption of Gibraltar*.

I am not aware of any description which gives so accurate, and at the same time so concise an outline of the locality of Gibraltar, as that by Major Imrie, in the fourth volume of the "Edinburgh Philosophical Transactions;" from his able paper, therefore, I shall borrow the following remarks on that point:—

"The mountain of Gibraltar is situated in 36° 9′ north latitude, and in 5° 17′ east longitude from Greenwich. It is the promontory which, with that of Ceuta upon the opposite coast of Barbary, forms the entrance of the Straits of Gibraltar from the Mediterranean; and Europa Point, which is the

* See "Carter's Journey from Gibraltar to Malaga," vol. i. chap. i. and "James's History of the Herculean Straits."

part of the mountain that advances most towards Africa, is generally regarded as the most southern promontory in Europe. The form of this mountain is oblong; its summit a sharp craggy ridge; its direction is nearly from north to south, and its greatest length in that direction, falls very little short of three miles. Its breadth varies with the indentations of the shore, but it nowhere exceeds three-quarters of a mile. The line of its ridge is undulated, and the two extremes are somewhat higher than its centre.

"The summit of the Sugar-Loaf, which is the point of its greatest elevation towards the south, is 1439 feet; the Rock-Mortar, which is the highest point to the north, is 1350 feet, and the Signal-house, which is nearly the central point between these two, is 1276 feet above the level of the sea. The western side of the mountain is a series of rugged slopes interspersed with abrupt precipices. Its northern extremity is perfectly perpendicular, except towards the north-west, where what are called the 'Lines' intervene, and a narrow passage of flat ground, that leads to the Isthmus, and is entirely covered with fortifications. The eastern side of the mountain mostly consists of a range of precipices; but a bank of sand rising from the Mediterranean in a rapid acclivity, covers a third of its perpendicular height. Its southern extremity falls in a rapid slope from the summit of the Sugar-Loaf, into a rocky flat of considerable extent, called Windmill Hill; this flat forms half an oval, and is bounded by a range of precipices; at the southern base of which, a second rocky flat takes place, similar in form and extent to Windmill Hill, and also, like it, surrounded by a precipice, the southern extremity of which is washed by the sea, and forms Europa Point. Upon the western side, this peninsular mountain is bounded by the Bay of Gibraltar, which is, in length, nearly eight miles and a half, and in breadth upwards of five miles. In this bay the tide frequently rises four feet. Upon the north, the mountain is attached to Spain by a low, sandy isthmus; the greatest elevation of which above the level of the sea, does not exceed ten feet, and its breadth at the base of the rock, is not more than three-quarters of a mile. This isthmus

separates the Mediterranean on the east from the Bay of Gibraltar on the west."

The Isthmus, of which Major Imrie speaks, is not only of great importance in a military point of view, but is more intimately connected with the health of the garrison than appears to the generality of observers on a superficial examination; it is to its military capabilities alone, that we owe the measurements that have been made of it. Colonel James, in his history of the Straits, gives the following among others:—

"Breadth of the Neutral Ground, or Isthmus, from sea to sea, near the Spanish lines, 1750 yards. Breadth about midway to the garrison, 1200 yards. Breadth near Gibraltar 950 yards. Distance from the outworks of Gibraltar to the Spanish Lines 1650 yards."

The shape of the Isthmus is irregular, and the sand extends considerably beyond the Spanish Lines, both upon the Mediterranean and Bay sides, so that it may not be an exaggerated estimate if we take the circumference at eight or ten miles.

Colonel James gives some other measurements, which may afford additional illustrations of the description of Major Imrie.

The greatest length of the Peninsula of Gibraltar, viz. from Forbes's Barrier to the Flag Staff of Europa, is 4700 yards.

The breadth, from the New Mole to the sea at the back of the rock, is 1600 yards.

From Europa Point, in the south of Gibraltar, to Cabrita Point, on the Spanish side, (which two points form the mouth of the Bay,) 10,945 yards.

Although Europa is generally considered the most southerly point of Europe, (as it certainly is of Gibraltar,) Colonel James states, that Cabrita Point, near Algesiras, is more to the southward by two or three miles, and that of Tarifa by five.

These few remarks may suffice for geographical purposes. I shall now proceed to other subjects of more importance to human health; and it is not without some degree of hesitation that I venture upon topics, which assuredly have, in many points, been greatly misunderstood by persons who have not had the advantage of personal investigation.

THE SEAS, INUNDATION, DITCHES, NEUTRAL GROUND, AQUEDUCT, TANKS, WELLS, AND OTHER POINTS CONNECTED WITH AQUEOUS EXHALATIONS.

In front of Gibraltar, to the westward, is an extensive Bay, between thirty and forty miles in circumference; to the eastward is the great expanse of the Mediterranean. Although tides are unknown, generally speaking, in this immense inland sea, yet in the Bay of Gibraltar and the neighbouring shores, as far as Malaga, they are regular, though not so remarkable in extent of ebb and flow as on the shores of the Atlantic. At spring-tides, the water rises in Gibraltar Bay about four feet, and then washes the base of the works at several points; with strong easterly winds, the water rises still higher; in general, however, there is a small portion of beach left dry between ordinary high water mark and the line wall. At some points this beach is rocky, especially in front of the town; at others it is sandy, and forms little bays, as at Rosia in the south, and Catalan Bay at the back of the rock towards its northern extremity. The space between ordinary high water mark and the base of the line wall, is so extensive about the centre of the town, as to admit of a garden and bathing-house, at a situation where the Butchery formerly stood. At the back of the rock, and round to the New Mole, (with the exception of Rosia and Catalan Bays, and a few spots where there may occur an insignificant cove or diminutive indentation, scarcely deserving the name of bay,) the sea washes up to the face of the rock, and in many places is of considerable depth close to it. Perhaps the whole of the space which is alternately covered and deserted by the tide, does not occupy more than a tenth of the entire circumference of the rock: the most important and extensive part of this (as far as health is concerned) lies opposite the town, and extends in a southerly direction along the Line Wall.

The natural flow of the sea is interrupted at a few points by the projection of moles, breakwaters, and batteries. The first of these, counting from the north end of the works, and adjacent to the neutral ground, is the Old Mole, and that

battery known by the name of the Devil's Tongue. The smaller craft moor in a little bay sheltered by these erections, and the water is frequently so smooth within them, as literally to resemble a mill-pond. From the Devil's Tongue, which is itself a breakwater at nearly right angles with the Line Wall, another very extensive work of the same description extends in a parallel direction for between three and four hundred yards, towards the King's Bastion. Between the southern extremity of this breakwater and the King's Bastion, a small wharf, now no longer used, extends a few yards from the old zoca into the bay; it is composed of loose stones, and offers little impediment to the flow of the water.

The King's Bastion, which projects from the Line Wall nearly about the centre of the town, offers no material obstruction to the flow of the water, except in very high tides. Beyond this is Ragged-staff Mole, which, in this point of view, is of still less consequence. The New Mole is the next in succession to the southward: it lies about one mile and a half from the Old Mole. This work runs out to the southward of the Dockyard; the depth of water is such, that ships-of-war can lie within a few yards of it, secured from ordinary winds. Connected with the Dockyard is a sort of basin or wet dock, called the "Camber," in which smaller vessels lie in perfect security. The water in this is almost stagnant, and admits of boats being hauled up, and larger vessels heeled over for repairs. At a short distance to the southward is a mole, erected at the side of Rosia Bay, at an enormous expense, for the convenience of discharging the cargoes of the victuallers for the naval service.

The immediate neighbourhood of the spots now enumerated, demands the particular attention of the Medical Topographer. At each of them, public sewers discharge themselves, and public necessaries are erected; from these causes, as well as from the occasional admixture of marine exuviæ, the effluvia which arise are frequently very offensive, especially when the westerly winds blow, which drive them inwards upon the town, from which they are prevented from escaping with sufficient rapidity, by the intervention of the rock behind. In summer, when the afternoon sun lies for so many hours on the western

face of the mountain, this nuisance is occasionally felt with peculiar severity.

Besides these general nuisances, each of these spots has its own peculiarities. The offensive matters thrown up on the beach from the numerous small craft which are crowded around the vicinity of the "Old Mole," must tend to deteriorate the purity of the air in no small degree; much of these exuviæ are carried away daily, but much remain afloat, and when old hulks, timber, boats, and other incumbrances are allowed to lie on the beach, a considerable quantity of filth accumulates among them beyond the reach of the scavengers. When it is recollected, that the floating population of the Bay of Gibraltar may be estimated at 2000 souls the year round, the amount of animal and vegetable offal must obviously be considerable.

To the north and the south of the King's Bastion, several public sewers empty themselves, but not having been carried into the sea, or even to low water mark, a great proportion of their contents is left on the beach. It is only since the administration of Sir George Don that they have been carried as far as they are at present, but it is proposed to extend them so as to obviate the nuisance completely. Wooden sheds are also projected from the Line Wall in this neighbourhood, and serve as necessaries; the soil is never effectually removed from them, as the operation of the tide is not sufficiently powerful, even when it is at the highest. These sheds will soon, I trust, be removed, or so altered, that the soil may be at once conveyed into appropriate drains, or drop directly into the sea. From the Old Mole to the King's Bastion, nearly one-half of the Line Wall is covered by the breakwater already noticed. This breakwater was thrown up about the year 1788; within it, very extensive new works are now constructing. Until of late years the water had not free course, and the fœtor was excessive; even now it is at times very unpleasant, and is increased by some extensive sewers emptying themselves in the neighbourhood.

The Camber near the New Mole receives a great part of the filth of the sewers at the south, and some years ago was notorious for affording an offensive effluvium: the bottom was

formerly three or four feet thick with mud; at present it is not so much complained of*.

In Rosia Bay, the sea is frequently, during the summer season, as stagnant as in a mill-pond. On the north end it is protected from the wind by high rocks; on the south it is defended by the Mole, and is only open to the westerly winds, which are most prevalent in winter. From the Line Wall, which runs along the rocks, two wooden necessaries, similar to those near the King's Bastion, project, and the soil is in like manner retained on the sandy beach. Two large sewers also empty themselves here. Exhalations of a very offensive nature arise from these sources, and with other circumstances, hereafter to be noticed, may tend to account for the unhealthy character which Rosia Bay has laboured under. In every spot where sewers mix their contents with the sea-water, numerous air-bubbles are perceptible on the surface, doubtless from the extrication of gas from the putrid matters thus accumulated. At the Old Mole this can be very readily observed. Mr. Hugh Fraser and Mr. P. Wilson, gentlemen of the Civil Hospital, from whose local knowledge I have derived much information, assure me that there is not a summer in which watermen, who sleep in their boats anchored at that part of the Mole where several sewers intermix their contents, are not seized with bilious remittents.

The nearest running stream to Gibraltar, is at the distance of about three miles from the garrison, on the side of the Bay; where a small rivulet, collected from different springs in the hills that bound the sandy isthmus, pours itself into the sea. There is a small plantation of oranges, pomegranates, sweet canes, figs, &c. on its banks, and hence it is called the "Orange Grove." Agues are common among the inhabitants of this and the neighbouring villages of Campo, &c.; and in 1809 I knew an instance of a delicate young female, resident of the garrison, contracting that disease on a pleasure-party to this spot.

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* Gilpin, in "Med. Chi. Transactions," vol. v., page 309. Since Dr. Gilpin's time, a communication with the sea has been opened at the north end of the Camber, and the adjoining tank-wharf, where there was much stagnant water, has been improved.

At five miles and a half from the garrison, on the side of the bay, is the mouth of the Guadaranque, or first river, formerly the port of Carteia, a celebrated Roman city, conjectured, and with no small degree of probability, to have been the Tartessus or Tarshish of the ancients*. The mouth of the river being much choked up, and the banks uncultivated, the neighbourhood, for an extent of four or five miles, has become swampy and unhealthy. Intermittent or remittent fevers, caught here by casual visiters, may occasionally be brought into the garrison; but it is highly improbable, both from its distance and from the course of the prevalent winds, that the exhalations should affect the health of the troops quartered in Gibraltar. At eight miles distant, between this and Algesiras, is another stream, commonly called the second river, or "Rio Palmones." The mention of these streams is necessary in a report of this kind, and shews how far sources of aqueous exhalations may be traced in the country immediately around the fortress.

I shall now proceed to describe topographical facts, as they exist in, and close to the garrison, which, when considered in connexion with other circumstances, may justly be deemed illustrative of the production of disease.

The foot of the glacis in front of the North Bastion, and part of the curtain, is washed by the water of that part of the bay near the Old Mole already described. Along the edge of the beach there is erected a causeway leading out to the Neutral Ground; bounded by this causeway on the west, and by a part of the Rock and Spain on the east and south, there is an artificial inundation, which serves as a strong protection to the works.

This inundation was formerly a morass, and the only one that has probably ever existed near the garrison. In plans of the fortress and of the siege of 1704, this morass is represented as communicating with the sea by a long narrow channel running parallel with the beach for some distance. In 1732 it was dug two feet below the level of low-water mark in the bay, and many deep pits in the quincunx form were sunk

* See "Carter's Journey," vol. i. p. 112.

in it*. At present it contains eight transverse and one longitudinal ditch, from ten to twelve feet deep; it covers nine acres of ground, and the depth of water generally, is from four to six feet. The contents can be partially let off by means of sluices, at the foot of the glacis; around the edges, however, the water is often dried up, leaving behind a green mossy substance, probably the remains of "Lemnæ, Algæ," and other aquatic plants, which, from their approach to an animal nature, and their abundance of nitrogen, are capable of affording highly putrescent miasmata. It also must partially stagnate in the pits and ditches above described; and its vicinity to the beach, behind the Mole, most probably serves to render the exhalations from this neighbourhood of a still more insalubrious tendency than they otherwise would be. To heighten all, there formerly existed a line of necessaries in the "Orillon Ditch," or Lazaretto, which, previous to 1814, discharged their soil into the inundation, and emitted a most offensive odour; they are now removed.

Several underground springs, which probably assisted to form the original morass, pour forth their contents, and dilute the sea-water of this inundation. An extensive series of springs can be observed nearly under the works on its southern side; and some time since, in cutting a ditch into it close by the rock, the fresh water gushed out with such force, and in such abundance, as to render it necessary to employ pumps. A drain from the Neutral Ground, also, runs into the inundation, and carries a considerable portion of fresh water into it. From all these supplies the contents are rendered brackish, the degree of brackishness of course alters with the quantity of sea water; but in whatever proportion the mixture exists, there is every reason to suppose it more noxious than either salt or fresh water alone.

The principal ditches in Gibraltar are those of Landport and Southport—they each cover about a fourth of an acre of ground: the former is close to the inundation; it is a dry ditch

* See "James's History of the Herculean Straits," vol. ii. p. 304. In this work is given a plan of the siege of 1704. The depth of water may be considerably increased by damming up and thus retaining the produce of the springs.

of fifty feet in width, not sunk below the natural surface of the ground, but formed by the erection of a glacis before it; this glacis, or covered way, is only fifteen feet above the ditch; a well is sunk in this ditch, and formerly a garden occupied the greater part of it, but at present it is devoid of vegetation, grass excepted, which in the winter and spring nearly covers its surface.

Southport Ditch is also a dry one, and is divided into two irregular portions by an elevated causeway, leading to the gate; it contains an old burial-ground, which abounds in fig trees, on one side of the gate, and a kitchen-garden on the other. Through the burial-ground are conducted the waters of a small gully, which has been hollowed out of the solid rock, and runs under an arch in the upper road that bounds the cemetery on the eastern side. In the garden are two large wells for horticultural purposes.

The aqueduct is a very noble work, originally planned by the Moors. The present structure was commenced in the year 1571, after the plan of a Spanish Jesuit, and was finished in 1694. This aqueduct begins in the south, in the neighbourhood of the old burying-ground, and terminates in the centre of the town. The water with which it is supplied, filters through the red sands (hereafter to be described), and runs through openings, technically called weep-holes, made of brick, into a reservoir, from whence, after rising to the height of eighteen inches, it is conveyed in earthen pipes to various parts of the town. In itself, the aqueduct cannot be considered as any direct source of disease; but the history of it, as well as of the tanks, is intimately connected with the estimate of sources of aqueous exhalations. The autumnal and winter rains are the grand means by which the aqueduct is immediately fed; but there can be little doubt that water is supplied to it by the slower process of infiltration from the body of the mountain; the fluid in both cases originally proceeding from the same atmospheric sources.

The whole surface of the mountain abounds in caves, fissures, and pot-like holes, which retain the rain, dews, and passing vapours. The most celebrated cave of Gibraltar is that called St. George's by the Spaniards, and St. Michael's by the Eng-

lish. It lies to the southward of Charles the Fifth's wall, at a point nearly overhanging the old burying-ground in the red sands, and at about 1100 feet above the level of the sea. This cave, it is probable, was known so far back as the time of the Romans. From a passage quoted by Mr. Carter from "Pomponius Mela," a native geographical writer of Spain, who flourished in the early part of the first century, it would appear, that it extended to a much greater length than it is at present penetrable*. Some persons are reported to have proceeded, within our own times, 400 or 500 yards in a southerly direction, but tradition informs us, that the cave extended almost to the southern extremity of the fortress, till blocked up by vast masses of falling earth and rock. At present it can be explored without difficulty to the extent of 100 or 150 yards. From the roof, in different parts, the water constantly distils, and forms, in its passage, numberless stalactitical productions. In the interior is a large collection of water, which, by popular accounts, supported by the testimony of Mr. Carter, never overflows, and is never more at one time than another,—a fact which, as he acutely observes, "evidences a communication downwards, else the continual distillation from the roof would in time fill and overflow it." This circumstance has been taken advantage of by his Excellency Sir George Don, by whose directions, the channels formed by the rain-water in the vicinity of the cave, have been turned into it, and the water which is thus preserved, filters through and supplies the aqueduct and wells in the neighbourhood.

Wherever artificial excavations have been made in the rock, water, in almost every instance, filters through in great abundance from various springs and mountain rills, and in the Lines a very fine well is sunk, which was first discovered while the excavations were cutting.

From similar sources, the various wells scattered throughout the garrison, are principally supplied†. Although wells and tanks might be considered under another head, I have introduced them here, as the mention of them tends to illustrate

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* See "Carter's Journey," vol. i., p. 44.

† Doubtless, the infiltration of sea-water affords some supply to the wells of the garrison, as it evidently does to those of the Neutral Ground.

the subject of aqueous exhalations; for the water which supplies them, is derived either from the infiltration of rain or moisture through a long line of soil, as in the aqueduct and wells, or directly from the rain water, as in the case of tanks; but the rains which fill these last must, it is obvious, produce an immense superflux of water, part of which, doubtless, goes to the supply of the wells, and a great part is absorbed by the vegetable productions, or evaporates in the air, while the more violent torrents in part run to waste over the Line Wall. Under the article "Unhealthy Situations," I shall have occasion to shew that the rain is not thrown off so rapidly and universally as has been supposed, and that the inferences drawn from this supposition, are not perfectly correct.

The most extensive tanks are those for the use of the navy, in the immediate neighbourhood of Rosia Bay. They are capable of containing 1,317,120 gallons of water. There are besides these tanks, which are four in number, seven other public tanks, capable of containing 235,580 gallons, so that the total, amount to the large quantity of 1,552,700 gallons. Laborde, and after him (I suppose) a writer in Rees' Cyclopedia, article, "Gibraltar*," absurdly states that the water of the naval tanks is "purified in coppers erected for the purpose." The water flows into them without any preparation whatever; it flows, as it does into all the other tanks, from the roofs of the houses, and the only means of purification consist in throwing in a few live eels, which eat up the animalculi, and occasionally they grow to such a size as to render them very desirable objects to be themselves eaten.

Among the public tanks there are some which are objects of curiosity to the antiquarian, especially one on Europa Flats, called the Nun's Well, supposed to have been formerly a Moorish bath; and one at the old Moorish castle. The former of these can contain upwards of 100,000 gallons of water, and the latter upwards of 12,000; but I strongly suspect that the extent of the tanks in the Moorish works is not yet fully known or even conjectured. On sinking the foundation of a new

* "A View of Spain, translated from the French of Alexander de Laborde, 5 vols., 8vo., London, 1809."—Vol. iii., 385.

officers' barrack in August, 1825, close to the parapet, several tanks were discovered filled with excellent water. Three arched passages of seven feet wide and thirty long have since been traced.

One of the tanks belonging to the naval department is an open one, and is situated at Rosia Bay, in front of the necessaries on the Line Wall. The water of this reservoir has not for some years been used for culinary purposes,—it has been solely employed for watering gardens, washing clothes, &c., &c., during the winter, spring, and early part of summer; by the latter end of summer or beginning of autumn, it has been always dried up. On my first inspection of this point in February, 1826, I found the water stagnant, and with a thick green scum covering its surface. On measuring, it was found that the tank was sixty feet long, by twenty broad, and seven deep; but the bottom being filled with sand, mud, and stones, and a hole being bored in the wall at some distance from the top, so as to admit of an overflow, there was but little water in it. Nevertheless, considering that every man in his visits to the necessary, must be exposed to the exhalations generally once a day, I advised that it should be cleared, and either filled up, or covered over, as might be deemed most expedient. I am strongly tempted to suppose, that this tank has long been a source of malarious exhalations, at this particular spot.

By a return made in May, 1818, there appeared to be 105 private tanks in the garrison, calculated to contain 25,228 pipes, or butts of water. In addition to these, there were, about the same period, twenty-two private wells returned to government, in which the average depth of water was from three to twenty-six feet; the water was found at various depths from the surface; some appearing within four feet of it, and proceeding progressively to ten, twenty, thirty, forty, fifty and seventy feet, until in a well at Windmill Hill it was necessary to sink 106 feet. In this last well, the nature of the strata bored through was rocky, and the stratum at the bottom was loamy rock. The upper strata of the others were principally of red sand and loamy gravel, and the bottom in all was loamy rock, with the exception of four, in which it was sand,—

one, in which it was black loam,—and one, in which it consisted of blue loam and gravel. The nature of the strata thus bored through, proves to a demonstration that even the internal parts of the rock abound with water; while an examination of the exterior crust, at any point where it is perpendicular to the horizon, or on an inclined plane, especially about the northern point and Willis's Heights, will shew the moisture trickling down, and leaving indelible marks of its progress. In winter these external evidences are of course most perceptible, but at no period of the year are they ever entirely wanting.

Several new houses have been built since the date of the return alluded to above, but on the express condition that tanks should be attached to them, which are supplied by water from the roofs; some additional wells have also been sunk.

Upon the whole, this rock, arid as it may appear in summer, contains within itself a supply of water sufficient (with care) for the use of its inhabitants, and the navy which may occasionally require it. Were the expense of building tanks and sinking wells more within the power of individuals, we might safely say that the internal sources of supply would be found inexhaustible.

Although the rain pours in torrents down the entire western face of the mountain, there are several points at which these torrents have worn out deep channels or gullies for themselves. Five of them are particularly worthy of notice. Of this number four discharge their contents through the town, and one upon a large bank of sand to the southward of the New Alamada, close to the reservoir of the aqueduct. It should be kept in mind, that the points at which the rains pour off with the *greatest* precipitation, are precisely the points where there are no habitations; and that where the violence of the torrent ceases, there the residences of man commence, and there, consequently, aqueous exhalation is most felt by him. The principal gully in the town lies the most northerly, and not far from the Moorish Castle; it is called the "Castle Gully." In its progress down the hill it becomes contracted in width, and discharges its contents through a very populous and crowded neighbourhood; formerly it was quite open for a great part of its passage through the town. Within the last year, however,

a very fine common sewer has been sunk, through which it holds its course for about a third of its length. It will scarcely be credited, that in the gorge of this gully one of the principal depôts of the filth of Gibraltar existed so lately as 1814,—a subject upon which I shall have occasion to enlarge in describing the epidemic of that year.

About midway between the castle and southern boundary of the town, (known by the name of Charles the Fifth's Wall,) is an insulated strip of the hill, with a gentle swell on either side; it is inclosed with a stone wall, which renders it somewhat pyramidal to the eye: the base is occupied by a range of houses known under the name of "Arengo's Buildings," the upper part, by the Gardens called after the proprietor. On each side a gully runs down. These gullies completely insulate the interjacent space, and give it a striking appearance from the Line Wall and Bay; like the former, they discharge their winter-torrents through a crowded district of the town. Immediately to the southward is the fourth, or "Old Lime-kiln Gully," the water of which discharges itself, as the others do, through a crowded district.

The bottom and sides of all these gullies are rocky; in their general appearance they resemble, on a small scale, the unhealthy "fiumares" of Sicily and the Ionian Islands, but without the vegetation which so richly clothes their banks. Although perfectly dry in the summer months, they cannot be supposed to be entirely free from underground moisture, considering the immense volumes of water which descend through them in winter, and the cavernous nature of the limestone rock through which they are worn. There are but few houses in their immediate neighbourhood where they take their rise on the side of the hill, but it is well worthy of remark, that they run their course in the direction of the Blue Barracks, City, Mill-lane, Boyd's Buildings, Cavellero's Buildings, and other spots which were notoriously unhealthy during the epidemic years of 1804, 1810, 1813, and 1814.

I shall have occasion to speak of these gullies under another head, when I shall also point out many spots within the town, where water, so far from passing off with rapidity as it has been generally supposed to do, lies upon perfectly level surfaces.

Surfaces of this nature are also to be found both to the southward and northward of the town. Under the former may be classed the Grand Parade, the South Parade, Rosia Parade, Windmill Hill, and Europa Flats; the last is the most extensive, and though the bottom is certainly rocky, it is equally certain that it abounds in fissures, pot-like cavities, and depressions filled with mould and capable of absorbing and retaining moisture beneath, while the surface is perfectly dry. These flats are little less than a mile and a half in circumference, and many spots in their neighbourhood, present, on a small scale, little caverns and glens among the surrounding rocks, rich in vegetable mould, and some so extensive as to afford room for houses and gardens, not one of which is deficient in sources of aqueous exhalations.

There is one spot in particular on these flats, which I have repeatedly examined in company with many of my brother officers; it lies between the road and the officer's mess-room, formerly an hospital. A pool of water remained on it for twelve days after a fall of rain in May, 1826, with all the characters of a pond in miniature; the central mass of thickening, green fluid, the surrounding circles of half-dried mud, and the exterior ring crisped, broken, and curling up in proportion as it was exsiccated. It was not before the rains of October that the cracked surface was obliterated.

I shall now offer some observations on the Neutral Ground, which is of more importance to the health of the garrison than has been generally stated in books, and comes most legitimately under consideration among the sources of aqueous exhalations.

Antiquarians assert that this isthmus, which in many points is of the nature of a quick-sand, was formerly covered by the sea, and that Gibraltar was an island, and the present Devil's Tower an ancient light-house in the channel between it and the main land. However this may have been, it is certain, that in winter the sea has occasionally washed over nearly two-thirds of the isthmus when strong easterly winds prevailed, and with spring tides especially; and hence, extensive pools have on these occasions been left behind, close up to the very gardens, of which there are a considerable extent on that part

nearest to the garrison. The spray is driven violently up every year in the same state of the wind and tide, but no irruption of the sea has occurred to any extent within the last ten years, except once during a very heavy swell of unusual duration, when a breach of a few yards in extent was made behind the butchery *.

In winter, the rain-water forms numerous and extensive pools, which continue during the spring months. These pools are only dried up completely by the summer heats; but there is one near the high-road beyond the gardens which is never completely dry. Besides these adventitious depositions of moisture, there are numerous internal sources of permanent supply at the Neutral Ground. I have been led particularly to examine this spot, in consequence of the assertion that no source whatever of Marsh miasmata existed at Gibraltar. If, by this assertion, it is meant that *no morasses* at present exist, I perfectly concur with it, but I can go no further, because, under the present head, I have indicated numerous sources of aqueous exhalations, and I am about to point out others of a still more extensive nature. Indeed, the most superficial observer could scarcely ride over the Neutral Ground without perceiving many external evidences of underground moisture. The "Arundo Phragmites," the infallible test, grows even now, in great luxuriance, on several of the banks which surround the gardens; it is only necessary to thrust the reeds into the sand and they soon take root. It appears that this plant was formerly much more common and more extensive, for in the different histories of the siege, we frequently meet with accounts of the reeds being set on fire, &c.; but the fact does not rest on this species of evidence, or on external appearances, the auger and the shovel prove it completely.

At almost every spot that has hitherto been perforated, water has been found within six feet of the surface of the Neutral Ground. By Mr. Fraser's reports it would appear, that it has been found in several places so close to the surface as two feet. In none of the numerous wells, however, that I have examined, is the water nearer to the surface than four or five feet; this

* Sir George Don has recently erected a dike on the eastern beach, in order to obviate this occurrence.

difference may be reconciled by supposing, that the surface round these wells has been artificially raised since Mr. Fraser wrote, as indeed several parts of the Neutral Ground have been, by the rubbish of the town.

The water varies very much in quality; in some wells it is excellent, in others it is scarcely potable; generally speaking, the nearer to the garrison the worse it is. It is difficult to account for this, but it may possibly be connected with the locality in the immediate neighbourhood of the inundation. At a greater distance from the garrison, it is thought that the water runs in veins, as the quality varies in wells which are quite contiguous, and of equal depth. Thus, in a tenement belonging to a person of the name of Solare, there are three wells in a yard of the small dimensions of nine paces by four. In the centre one of these, the water is excellent, in the others it is much inferior and nearly brackish. The water of these wells maintains its character the whole year round, unaffected by the season or spring-tides. The vicinity to the sea does not appear uniformly to influence the quality, for in some wells close to the beach it is excellent, while in others more distant it is not potable. Thus, in a public well destined for the supply of the shipping, the water has been found so brackish as to be unfit for the purpose; this well is situated at the distance of 230 yards from high water mark, at the south end of the village, while in a new well sunk (to supply the deficiency of the other) at the north end of the village, and only 100 yards from the beach, it is of excellent quality. In whatever situation it may be placed, if the well is sunk very deep, the contents are found to be brackish from the infiltration of sea-water. It has also been observed, that if the wells are nearly exhausted by frequently repeated demands on them, the water becomes brackish for some time afterwards; this is accounted for on the supposition that the salt water oozes through the sand more rapidly than the fresh, and fills the well.

The quantity of water drawn from the wells on the Neutral Ground is immense. The gardens alone consume some thousand gallons daily, not to speak of what is brought into the town for domestic purposes, and issued to the shipping. From one well alone, the average daily issue to the shipping for seven

months was 5000 gallons. The daily supply sent into the garrison during the same period, from the other public wells on the Neutral Ground, was 19,242 gallons, giving a total of upwards of 24,000 gallons of water drawn up every twenty-four hours from a sand apparently as arid as the deserts of Arabia, without including the amount applied to horticultural purposes. This fact speaks volumes on the subject of aqueous exhalations, but this is not all. The number of private wells sunk in the Neutral Ground is considerable; there are between ninety and one hundred houses in the village, and each has from one to three wells. They are formed by sinking a common cask in the sand, and letting into this one or two more, as may be thought necessary; and so steady is the supply of water, that it continues throughout the whole summer. Even in that of 1825, which was particularly dry, the supply of water never failed.

Besides the wells attached to private houses, that for the navy already mentioned, and some others for public use, there are six ponds and five Noria Wells * for horticultural purposes, besides ten or twelve wells of a smaller description.

MOUNTAINS.

Gibraltar is itself an insulated mountain, and the Bay is bordered by hills which form a semicircular sweep around it. At the distance of three or four miles, hills of a moderate height begin to present themselves above the sandy sthmus, and extend into the interior in groups of various elevations, till at the distance of twelve leagues to the eastward, the ancient city of Ronda presents itself, and forms the centre of an extensive sierra or chain of mountains which bears its name. A part of this sierra extends itself towards Malaga, and another towards Seville, but it would be superfluous to trace out its various branches and directions;—suffice it to say, that the only influence it appears to possess over the garrison of

* The Noria Well is one where the water is raised by some species of machinery, either a wheel turned by an ass, or a bucket and long lever worked by hand.

Gibraltar, is, that the winds which blow over its snowy surface, are peculiarly refreshing, and that occasionally snow and ice are obtained from it as articles of luxury. The air, in all parts of this chain of mountains, is cold and peculiarly wholesome, insomuch, that it has become proverbial for the longevity of its inhabitants, and for the beauty and fecundity of its women. The entire district is rich in medicinal plants. On the western side of the Bay also, is a chain of hills, an offset from the chain of the sierra of Ronda, which stretches to the Straits as far as Tarifa. This part of the Sierra does not produce any sensible effect on the climate of Gibraltar, except that to a certain extent it screens the Bay from the salutary western breeze. This effect, however, is more felt by coasting mariners, than by the inhabitants of the garrison *.

The Straits themselves may here be noticed, as there can be but little doubt, that, by their funnel-shape, bounded on each side by mountain ridges, they greatly influence the current of the winds. They extend for about twelve leagues from Cape Spartel to Ceuta Point on the African coast, and from Cape Trafalgar to Europa Point on the coast of Spain. At the western or atlantic entrance they are about eight leagues broad, they contract considerably towards the middle, and again expand between Gibraltar and Ceuta, where they are about five leagues wide. Generally, the winds blow either up or down through this most remarkable funnel, while the current of water runs invariably from west to east at the rate of four or five miles an hour. This last phenomenon is best explained on the supposition of counter currents at some depth below the surface †.

CLIMATE.

The climate of the south of Spain in general, and of Andalusia in particular, has been much celebrated by ancient writers.

* An interesting account of the Sierra Ronda, illustrated with a map, is to be found in "Carter's Journey," vol. i.

† *Vide* "Colonel James's Work," vol. i. p. 191, 223, and "Dr. Hudson's paper in the Philosophical Transactions, No. 385." A chart and memoir illustrative of the currents has been published by a resident, Mr. Reiner, Anno, 1824.

The province of which Gibraltar forms so conspicuous a portion, was known to them under the name of Bœtica, and is highly spoken of for its fertility and the perpetual serenity and clearness of its atmosphere, by Pliny, Strabo, Lucan, and others. In after times, the salubrity of the climate is said to have attracted the infirm and unhealthy from the neighbouring parts of the country for the re-establishment of their health; and hence the place has frequently been styled the Montpellier of Andalusia. Colonel James remarks, that although hard drinkers and phlegmatic constitutions are much affected by the Levant winds, "the place is very healthy, and more people have died by their irregularity and inattention, than by climate."

This opinion was published in the year 1771. With some exceptions, in late years, we may safely assert that the climate is healthy, though sultry in summer, and frequently involved in fogs and mists, both at that season and throughout the year, during the prevalence of the easterly winds.

From registers kept in the principal medical officers', and other public offices since the year 1816, I have directed a table to be constructed, from which the following facts appear with regard to the thermometrical heat, the state of the winds, and the fall of the rain at Gibraltar.

In 1816, the thermometer rose to 79° in the month of September; the lowest range of that year was 52, to which it fell in December. The medium was 65° $\frac{5}{10}$.

In 1817, the thermometer was at 86° in July, and sunk to 53 in December; the medium 69 $\frac{5}{10}$.

In 1818, the thermometer was 82° in July and September, and in December it was so low as 48°. Medium 65° $\frac{5}{10}$.

In 1819, the thermometer was 84° in August, and its lowest descent was observed in March, when it was at 54°. In December of that year it was not lower than 56°. The medium of 1819 was 69°.

In 1820, the highest range of the mercury was 87° in August, and descended to 51° $\frac{5}{10}$ in January. The medium 69°.

In 1821, the mercury rose to 89° in the month of September, and fell to 57° in January. Medium 73°.

In 1822, in the months of July and August, the thermometer

stood at 82° $\frac{5}{10}$, the lowest range was 45° in December. The medium 63° $\frac{5}{10}$.

In 1823, the highest range was in August and September 83°, the lowest in January 43° $\frac{5}{10}$. The medium 63°.

In 1824, the highest range was 85° in July, in January it was 45°. The medium was 65°.

In 1825, the highest range was 83° in August, and the lowest 59° in February. Medium 71°.

It will here be sufficient to say, that the months of June, July, August and September, are the hottest, and January, February and December the coldest. In the ten years under review, the medium heat of the former months was 84°, and that of the latter 51° $\frac{3}{10}$. The highest range of the mercury being 89°, (viz. in September 1821,) and the lowest 43° $\frac{5}{10}$, viz. in January 1823.

These observations were made by a thermometer of Carey's, kept in the shade in the inspector's office about the centre of the town. In an exposed window of the same house, it rose to 128 in September 1824, and I have no doubt that, in some other situations, it might be found to rise still higher in the open air, and under the sun's direct rays.

In the morning, before the sun gets above the rock, the air is cool and agreeable even in the height of summer; from eight o'clock until two, it progressively gets more sultry in the town. As the sun passes the meridian, those whose employments require them to frequent the streets, feel the rays very powerfully, but in many situations they soon become mitigated by the shade of the streets, and from a little after two o'clock, the heat is much less severely felt. For about an hour before sunset, the heat on the Line Wall is very fervent, but immediately after, the air becomes cool and refreshing; unlike Malta, where the difference between day and night is in the height of summer scarcely perceptible by the senses, and very often is found not to differ more than a degree or two. At Gibraltar, the night temperature in summer is generally from two to four degrees lower than that of the day, and sometimes more.

Occasionally the air becomes suddenly hot and oppressive at Gibraltar, as it frequently does in Syria and Malta. Colonel James speaks of one night in particular during his residence in

the year 1752, as being so peculiarly sultry, that the inhabitants conceived their houses were on fire, a strong sulphureous smell was perceptible, and even the birds forsook their nests and flew into the houses. The state of the wind at this particular period is not mentioned by Colonel James *. Within my own experience, these sultry and oppressive states of the atmosphere, are felt most when the easterly winds have been prevalent. About the end of August, when the manufacture of charcoal commences in the neighbourhood of Algeciras and St. Roque, and on the opposite mountains of Barbary, the actual heat is very greatly increased whenever the wind blows towards the rock.

The summer months are permanently hot and often extremely oppressive;—the sky during that period is generally serene and almost without a cloud. In the winter months, the cold, though of a piercing nature, especially to those who have been relaxed by the summer heats, is not so severe as in the neighbouring mountains, where the snow is of annual occurrence, and where ice is common in the lower grounds. In Gibraltar, snow may be considered a great rarity; and when it does fall, it is in very trifling quantities. In April, 1816, an extraordinary fall took place on the range of mountains immediately connected with, and to the north of the Queen of Spain's Chair, (a rocky eminence beyond the sandy isthmus, about two miles from the Spanish lines,) but did not reach the garrison. Ice is so rare, that Colonel James, who resided long in the garrison, states that it has been observed on the hill side only of a morning, of the thickness of half-a-crown.

Hail occasionally falls with much violence: it is generally the accompaniment of a thunder-storm.

It should be recollected, that falls of snow do not mark so much the temperature of the year, as the sudden refrigeration to which a district is exposed by its local situation: this seems to be the only reason that falls of snow do not extend to Gibraltar, although the mountains of the adjacent sierras are covered in winter, and in some sheltered spots it lies the whole year round. From this fact we may fairly infer that vicissitudes

* See "James's History of the Straits," vol. ii. p. 358.

of heat and cold are much less frequent in Gibraltar than in the neighbouring districts. In these districts a very curious fact is reported: Baron Dillon, who has written on Spain, and composed a sort of "olio" from Bowles and other writers on that country, says that the "Sierra Vernuga" between Gibraltar and Malaga, though formed of two ranges of hills which run parallel, and so close that their bases join, yet one is red and the other white. Snow will not lie on the highest, while it constantly covers the other. The red hills have no oak, but are covered with fir-trees, and have several ores, but none of iron. The white produce oak and cork, and afford iron in small masses. "The waters of the white hills," says this author, "are martial and vitriolic; those of the red, sulphureous and alkaline*."

For the last ten years, between 1816 and 1825, the greatest height of the barometer was $30°\frac{90}{100}$; the lowest, $28°\frac{62}{100}$.

Winds.—In Gibraltar and the adjacent parts, the winds are considered principally with reference to the direction in which they blow through the Straits; and therefore we hear more of the easterly and westerly winds than of any of the intermediate points. All winds blowing between the north-east and south-east are called, in general, "easterly," or "Levanters;" and all between the north-west and south-west are in the same manner called "westerly."

It appears, by reference to a table constructed for the same period as that of the thermometer, that

In 1816	the wind was	easterly	206	days, and westerly	160 days.
1817	,,	,,	208½	,,	156½
1818	,,	,,	186	,,	179
1819	,,	,,	167½	,,	197½
1820	,,	,,	153½	,,	212½
1821	,,	,,	172	,,	193
1822	,,	,,	171½	,,	193½
1823	,,	,,	153	,,	212
1824	,,	,,	169	,,	197
1825	,,	,,	184½	,,	180½
			1771½		1881½

* Travels through Spain, with a view to illustrate the Natural History and Physical Geography of that Kingdom. By John Talbot Dillon. 8vo. Dublin, 1781. Page 376.

In the whole ten years, the winds blew very nearly the same number of days from each point, being 1771½ easterly, and 1881½ westerly, making a difference of only 110 days excess in the westerly winds.

In the books of the principal medical officer's office there is a return which extends the history of the winds as far back as 1810; by which it appears that

			days.		days.		days.
In 1810	the winds were	easterly	164	westerly,	194	variable,	7
1811	,,	,,	198	,,	160	,,	7
1812	,,	,,	159	,,	189	,,	18
1813	,,	,,	233	,,	114	,,	18
1814	,,	,,	219	,,	133	,,	13
1815	,,	,,	200	,,	161	,,	4
			1173		951		67

In these six years, the easterly exceeded the westerly by 222 days. The difference in the two periods amounting to sixteen years, is scarcely worth noticing, as it does not average 8 days annually.

In the course of ten years, between 1816 and 1825, there were in the months of

January	140½	days easterly, and	169½	days westerly winds.
Feb.	140	,,	143	,,
March	153	,,	157	,,
April	134½	,,	165½	,,
May	125½	,,	184½	,,
June	139½	,,	160½	,,
July	174½	,,	135½	,,
August	167½	,,	142½	,,
Sept.	167½	,,	132½	,,
Oct.	154	,,	156	,,
Nov.	157	,,	143	,,
Dec.	131	,,	179	,,

Hence we infer, that easterly winds are most prevalent in the months of July, August, and September; and westerly winds in December, January, and May, although each occur occasionally in every month of the year. Hence also, it is evident, either that the climate has changed, or, what is more probable, that Mr. Carter judged from his feelings, when he

states that eight months of the year are disfigured with Levanters*.

The ascertaining of this point is desirable, not so much for the gratification of speculative curiosity, as for practical purposes; for the comfort and salubrity of the inhabitants of Gibraltar, and especially of those who are sick or valetudinarians, depends much on the state of the winds.

Ayala, a Spanish writer, observes in his history of Gibraltar, that the east wind is the tyrant of the Straits, and the west their liberator. He makes some pertinent observations on the weather, although he appears to overrate the prevalency of easterly winds, which, he says, prevail for eight months of the year, while he allows only four months for the westerly†.

Like all other writers, Ayala attributes to the easterly winds all the properties of the "scirocco," upon which I shall enlarge in my topographical reports of the Ionian Islands and Malta. These winds are felt peculiarly by convalescents from acute diseases; patients with contusions, fractures, wounds and ulcers; persons of bilious and phlegmatic temperaments; hard drinkers and those affected with rheumatism. By some, the approach of a Levanter can be announced before it reaches the hill, and there are few whose diseases or infirmities are not aggravated by its presence. We have a remarkable fact as to the effect of these winds, recorded by Dr. Quarrier, in his account of the state of the wounded in the action before Algiers in September, 1816‡.

"The wounds looking extremely well, and the men were in the highest spirits until our arrival at Gibraltar, on the 10th instant. Immediately after the battle an hospital was formed of the ward-room and after part of the main deck, and before two o'clock of the succeeding day seventy of the wounded were snugly and comfortably slung in cots. There was a fine and most agreeable ventilation; the thermometer did not exceed 76°, and generally ranged from 70° to 74°. Cleanliness was most particularly attended to, and spirits were used as a topical

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* Voyage to Malaga, vol. i. p. 237.

† Historia di Gibraltar, p. 101, *et sequent.*

‡ Medico-Chirurgical Transactions, vol. viii. p. 5.

application. I have never seen wounds put on a more favourable appearance, or heal more rapidly.

"On the 31st the pestilential easterly wind set in, by its sudden puffs obstructing the pores of the skin, and bringing disease and death in its train. That night John Taylor, whose stump had healed by the first intention, leaving only a trifling discharge from where the ligatures were withdrawn, was seized with bilious remittent fever. The symptoms were too unequivocal to be neglected, and early the next morning I represented to Captain Chatham, the urgent necessity of our departure from Gibraltar, as I feared not only that the fever would extend itself among the wounded and those in health, but that the wounds were beginning to assume a more unfavourable appearance. The captain immediately waited on the commander-in-chief, who permitted us to sail, notwithstanding our supplies had not arrived from Tangier. We could not get away until the afternoon; and that day three others were affected with symptoms similar to Taylor's. The propriety of sailing soon evinced itself by no others being taken ill, and the three men who were seized on the 14th having no return of the paroxysm."

It is a curious fact, that the effect of the easterly wind should be felt even in the Aqueduct, which runs parallel to the western Line Wall, and is apparently so much sheltered. The clerk of the works, an intelligent man, who has been employed in the garrison for many years, tells me that he never willingly opens nor enters the aqueduct while the easterly winds prevail; for, at those times, the atmosphere within it is foggy, damp, and sultry, to such a degree that the perspiration immediately bursts out and flows copiously, a circumstance to which he has traced the foundation of repeated fits of sickness in his own person, while, on the contrary, when westerly winds blow, the Aqueduct is free from vapour, is cool, and can be entered without inconvenience or risk.

While the easterly winds blow the sewers throughout the town emit the most offensive vapours, and even before they come on, the practised olfactory organs of the inhabitants detect their approach. Is this the result of the humid atmosphere softening the soil of the sewers, and occasioning an increased exhalation?

Although all the winds from the easterly points are damp, raw, and unpleasant, yet the most dreaded are those from the southward of east, which are called the black, rainy, or genuine Levanters. They come on with thick, impenetrable fogs, which roll over the rock and down its sides, and deposit considerable quantities of moisture wherever they touch. A person who views these phenomena, can easily understand how the various caves and mountain rills are supplied with water, even in the midst of summer. The south-east wind, when it blows a gale, continues generally for three or four days in full force, and in winter, frequently brings on violent showers of rain, insomuch as to dislodge numerous masses of the rock, which roll down the hill, and often occasion damage to the enclosures and houses. In allusion to this, the Portuguese have a proverb—"Quando com Levante chore as pedras move;" which may be translated into English doggrel,

"A rainy Levanter
Makes the stones canter."

If the gale comes to the northward of east, the condensed vapours are dispersed, the sky clears up, and distant objects are apparently elevated and brought nearer: thus Algeciras, a town on the opposite side of the Bay, seems to be advanced into the middle, and Africa appears to stretch into the centre of the Straits*.

My friend Mr. P. Wilson, of the Civil Hospital, informs me, that however unpleasant the easterly winds are to the inhabitants of Gibraltar, yet that at Malaga, Estepona, and Tangier, all situations in our Mediterranean neighbourhood, they are much more agreeable in summer than the westerly. At Cadiz, Xerez, and the neighbouring towns on the Atlantic side, it is the very reverse; for the easterly winds excite the same disagreeable sensations as at Gibraltar; yet, strange to say, while moisture is the obvious character of the easterly

* The excess of humidity in a fog, destroys the transparency of the air, while a moderate proportion increases it. See Humboldt's Personal Narrative, vol. i. pp. 80, 100, 113, for truly scientific illustrations of this fact. See also Scoresby's Journal, 8vo. Edinb. 1823, pp. 117, 144, 164.

winds at Gibraltar, the inhabitants of the last-mentioned towns attribute their unpleasant effects to their extreme dryness. In the case of Gibraltar, the deposition of moisture is perfectly obvious, as it is condensed by coming in contact with the mountain, and trickles down in palpable drops. It is not equally clear why the reverse should be the case at Cadiz; nor is it necessary to inquire here: suffice it to say, that electricity has been supposed to be one of the causes. The coolness of the east wind at Tangier evidently depends on its blowing across the Atlas chain of mountains; while the column that reaches Gibraltar has swept the watery surface of the Mediterranean.

The westerly winds are clear, dry, and refreshing; and are as grateful to the sick and valetudinarian, as the easterly are disagreeable: their influence is felt in all parts of the rock, as they blow directly on the face of the hill, unobstructed by any of those local circumstances, which so often cause a partial stagnation of air in the town. Mr. Carter, an accurate observer, makes a topographical remark, which strongly illustrates this subject, and which shews very clearly, that strong winds may occasionally blow at Gibraltar, without giving that agitation to the air at all points, which is generally thought necessary to maintain its salubrity.—"The hill," he observes, "is of such an irregular form, that when you are near, you can never see it all from any one point; its head clearly faces the east, thence to the Castle, and beyond Croutchet's Garden, it fronts the north; forward, as far as the Signal-house, the north-west, where it takes a sharp turn, and continues to Europa Point, due south, by reason of which oblique situation, when you approach the town from the inundation, you can see no further of the rock than the Castle, and even in the town your sight is bounded by Charles the Fifth's Wall. Again, after you have passed the south gate, and got upon the red sands, the town vanishes from you, and all the hill with it to the north of the Signal-house*." From this description, which is most accurate, we see, that such winds as may blow along the face of the rock

* See "Carter's Journey," vol. i. p. 13. Since Mr. Carter's time, a bluff point of rock at the north end of the inundation, was cut away by General O'Hara, in forming some new works.

from north to south, or *vice versâ*, cannot perflate every part of it, for they are refracted and thrown off by the various projections on which they first strike, and form eddies, or partial cross currents, varying in force and direction in proportion as the angle of incidence varies.

But the winds which blow in these directions are rare at Gibraltar. The north and south winds, when they do occur, continue but for a very short time, and generally die away about mid-day. The height of the mountain screens the town from the east wind, and it is by the west alone, as I have already observed, that all the habitable points are thoroughly perflated. It is highly probable that, in part, the salubrious character of the west wind depends upon this circumstance.

The formation of eddies and cross currents, is observable in a very remarkable manner at Gibraltar; the back of the mountain obstructs the direct passage of the Levant winds, which reverberate from it, and fly round each end of the rock with great impetuosity. Whenever these winds meet, they produce a partial vortex, or flurry, as it is called by seamen, by which serious accidents have often occurred to the shipping. These vortices are still more violent when a gust from the upper regions of the air meets the other two; this frequently occurs in consequence of a "third column," to use the language of Colonel James, "which mounts over the rock, and is forced down by the mass of free wind which blows far above the summit*." These three columns meeting at an equilateral point, form into eddies, the effects of which are visible upon the surface of the water, and often present a very curious spectacle.

The broken ridge of the summit of the rock, tends considerably, in my opinion, to increase this effect, for the mass of air which comes over the back of the rock is divided into numerous currents, or slips, if I may so express myself. This shape of the summit is best seen from the hill of St. Roque, a distance of six or seven miles, or from the ruins of Carteia near the shore.

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* History of the Straits, vol. ii. p. 283.

RAINS.

The autumnal, or first rains, generally commence towards the latter end of September or beginning of October, and generally fall with almost tropical violence for several days. The rains of November, December, January, February, and March, are of a more permanent character, though lighter, and by no means so striking to a stranger, as the earlier falls which succeed a long period of drought, during which, not a cloud is to be seen for weeks together. June, July, and August, frequently pass without a shower, and sometimes February, March, and September are equally dry. In a period of ten years from 1816 to 1825, the number of rainy days in each month has been as follows:—

January	91	July	4
February	71	August	9
March	62	September	29
April	101	October	57
May	61	November	95
June	18	December	88

Thus we see that, during these ten years, the greatest number of rainy days occurred in the month of April; yet a much greater quantity of rain fell in other months. For instance, in the month of April, 1816, there were sixteen rainy days, and the Pluviometer gave the fall at 3 inches $\frac{33}{100}$, while in October, nine rainy days gave 5 inches $\frac{33}{100}$. In the whole ten years, the Pluviometer shews, that the greatest quantity of rain fell in the month of January. During the months of September, October, November, and December, it increased in progression, and then decreased progressively, with the exception of the month of March, which affords less rain than either the preceding or succeeding months.

The torrents that pour down at times, are extremely violent. When I was in this garrison in 1809, an instance was reported, of an infirm female and an infant being carried away by one of them, and drowned in the main street; and Colonel James states, that in 1755, the waters rose to the second story of the houses in Irish Town, close to the Line Wall, in the centre of

the town. Drinkwater, in his history of the siege, gives an account of some of these falls of rain, which did great damage to the works; and, indeed, scarce a year passed, until of late, without much injury being done to the sewers and pavements by the violence of the rains: wherever the drains have been enlarged and built on an improved plan, this inconvenience has been remedied.

At the commencement of the rainy season, thunder and lightning are very frequent accompaniments; the flashes are extremely vivid, and the reverberation of the thunder from the various eminences and hollows of the mountain, are exceedingly grand and awful: deluges of rain follow these phenomena. Throughout the winter and spring, occasional thunder-storms occur, and always tend to the amelioration of the atmosphere. In summer, vivid coruscations of sheet lightning are often observed, but they are not succeeded by rain, nor is the accompanying thunder always audible. Falling stars and other meteoric appearances are occasionally observed at Gibraltar: a remarkable one is mentioned by Colonel James. In the year 1753, a fire-ball shot over the rock with prodigious swiftness, in a direction from west to east, and after the space of about a minute and a half, exploded with a very loud report*.

In many parts of the rock there are appearances which lead to the supposition that volcanic agency has been exerted, or that extensive earthquakes have occurred. Of the former, we have no records; the latter have frequently been met with, even of late years. In the great earthquake that destroyed Lisbon in 1755, the convulsion was observed at Gibraltar, in the forenoon of the 1st of November; it began with a trembling of half a minute, and then a violent shock, and went off as it began. The sea rose every fifteen minutes, 6 feet 8 inches, and fell so low, that boats and all the small craft near the shore, together with many small fish, were left aground. The sand at the back of the rock sunk in its bed several feet, and large pieces of rock fell into the sea. On the 3rd, 4th, and 5th of the same month, small shocks were felt†.

* History of the Straits, vol. ii. p. 383.

† James's History of the Straits, vol. ii. pp. 45, 412.

In January, 1804, frequent shocks were felt at Malaga, and on the 13th of that month they extended to Gibraltar and the neighbouring coasts. In September of the same year, another shock was experienced. Sir James Fellowes, in his Reports of the Epidemic, observes, "As if to render the catastrophe more awful, the pestilence was preceded by an earthquake which agitated the whole rock*." On the 29th of September, 1822, about six o'clock in the morning, two slight shocks took place in a direction from north to south; they lasted about thirty seconds, and occasioned some trifling damage to the walls and ceilings of some of the buildings.

Fogs are experienced, more or less, in Gibraltar, whenever the Levant winds blow; the quantity of moisture deposited by them is very considerable, and renders the air, while they prevail, extremely raw and damp. In the autumnal season, also, the dews are very heavy at night, and thick fogs frequently prevail. It is a striking fact, that there is scarcely a house in Gibraltar which has not some of its walls or apartments subject to damp; whether this proceeds from the easterly winds, or from the admixture of sea-water in the mortar with which the houses are built, is not positively determined, but the fact is daily demonstrated by the mildew on leather, the damp smell and feel of linen and woollen clothing, and the green mould and other appearances of moisture which indelibly stain some of the apartments in their walls and ceilings, from the poorest hovel to the residence of the Governor.

The quantity of dust, which blows about in all directions, is almost equal to that of Malta, and is extremely penetrating and disagreeable. It consists principally of a fine light sand, derived from the neutral ground, and the surface of the streets, intermixed with pulverized lime-stone. Formerly the streets were regularly watered, and in the printed orders of September, 1812, the practice is enjoined upon each householder, as far as his own premises are concerned; of late years the plan has been abandoned, but it is to be hoped it will be re-established.

Upon the whole, Gibraltar may fairly be denominated a healthy climate; indeed, were it not so, disease must have

* Reports of the Pestilential Disorders of Andalusia, p. 91.

broken out much more frequently than it has done, especially before the arrival of His Excellency General Sir George Don, to whose incessant care this garrison is indebted for improvements in its police and municipal regulations, so important, as to place his name at the very head of the catalogue of its benefactors.

Notwithstanding the incalculable amelioration in the state of the town of late years, by the opening of streets and roads, sinking sewers, erection of markets, and numberless other improvements, which will be more particularly noticed under the heads "Police," "State of the Poor," &c., there are qualities in the climate, which arrangements of this description cannot reach: of these, the most remarkable is its effect on phthisical patients, who invariably suffer by it.

Bucnemia Tropica, or Barbadoes Leg, a very frequent disease among the lower orders, and hydrocele, which is also frequent among them, and generally attended with a thickening of the scrotum resembling elephantiasis, are supposed to be connected with the nature of the climate and of the water: these diseases will be considered more fully hereafter. Whatever effect the water may have *remotely* in producing these complaints, it is certain that nephritic affections are rarely met with, and I strongly suspect, that in the popular attribution of hydrocele to the water, the vulgar have confounded the kidney with the testicle.

Before closing this head, I should observe, that the south is considered both a more healthy and a more comfortable climate than the town; the dust is much less troublesome, the ventilation is more complete, and the heat is considerably less to the feelings, while the thermometer is, generally speaking, two or three degrees lower than in the town during the summer months: indeed it is stated, that the difference has been so great on some occasions, as to reach to six or eight degrees. In 1804 it was found, that during the night and at sun-rise, the average heat at Windmill Hill, during the hot months, was eight degrees less than in town, and six degrees less in the day time; the distance between the two points being two miles.

SOIL.

The principal mass of the mountain is, according to Major Imrie, a rock of a grey, dense, primary marble, the beds or strata of which are of various thickness, from twenty to upwards of forty feet, dipping in a direction from east to west, nearly at an angle of thirty-five degrees. The soil is of several kinds; that on which the town is built is a red sand, which extends as far as the southern gully already described; this immediate neighbourhood is known by the name of the "Red Sands." They form the largest bank of arenaceous matter on the western side of the mountain, and consist, according to Major Imrie's account, of small particles of crystallized quartz, colourless and perfectly transparent "per se," but of an ochreous colour in the mass, on account of a red argillaceous earth which adheres to them. The sand of this bank is perfectly loose and uncombined; one-half has been levelled into an extensive parade, its surface having been combined by the lime and rubbish from the ruins of the town; a part of the southern extremity, which is used as a burying-ground, is still in its natural state, but the majority has been converted by Sir George Don, within these few years, into a beautiful and extensive public walk and garden. The sand-bank, upon the eastern side of the mountain, is composed of small particles of the calcareous rock: the whole has a whitish grey colour. The rain-water, which falls from the bare mountain-rock above the sand, brings along with it calcareous matter, which is deposited upon the bank, and combines its surface into a crust, which, in some places, is so much indurated, as to bear the pressure of the foot, and, in others, is hard enough to be quarried.

To the southward of the Red Sands, the soil is variegated; in some places it is a light, loose, fine, and extremely fertile mould, which is found irregularly scattered in the fissures and crannies of the rock, and which, in the rainy season, becomes of a saponaceous sliminess; in other places, this mould is mixed with sand. In some situations, a stiff marl soil and a species of fuller's earth are found. The soil, on the sides of the upper part of the rock, is very shallow, and has, in many spots, been

washed away by the winter torrents; lower down, towards the bay, it is much deeper naturally, and is augmented in quantity by that which is washed down from the higher parts, and which, therefore, may be considered alluvial.

Major Imrie is of opinion, that "however high the surface of the rock may now be elevated above the level of the sea, it has once been the bed of agitated waters." This opinion is supported, if not confirmed, by a phenomenon to be observed in many parts of the garrison, and which is constantly found in the beds of torrents. It consists of pot-like holes of various sizes, hollowed out of the solid rock, and formed apparently by the attrition of gravel or pebbles, set in motion by the rapidity of rivers, or currents in the sea. "One of these which had recently been laid open," continues Major Imrie, "I examined with attention; I found it to be five feet deep and three feet in diameter, the edge of its mouth rounded off as by art, and its sides and bottom retaining a considerable degree of polish. From its mouth, for three and a half feet down, it was filled with a red argillaceous earth, thinly mixed with minute parts of transparent quartz-crystals; the remaining foot and a half, to the bottom, contained an aggregate of water-worn stones, which were from the size of a goose's egg to that of a small walnut, and consisted of red jaspers, yellowish white flints, white quartz, and blueish white agates, firmly combined by a yellowish brown stalactitical calcareous spar. In this breccia, I could not discover any fragment of the mountain rock, or any other calcareous matter, except the cement with which it was combined. The spot is 940 feet above the level of the sea."

The earth, which is picked out from spots of this description, at points of easy access, is extremely fertile, and is sought after with avidity by gardeners: mixed with the black mould already mentioned, and a portion of dung, it forms a rich compost for the raising of vegetables.

A calculation of the proportion of cultivated soil within the walls of Gibraltar, can best be formed by ascending the rock, and viewing the subjacent surface from four or five different points; but even in this way, we can only obtain an approximation to the truth. In looking over the town, the principal gardens which we observe, are those of his Excellency the

Governor, which lie on nearly a dead level along the line wall, in the neighbourhood of southport-gate; near them, on the same level, is a small garden attached to the old bomb house: about the centre of the town is one, attached to the quarter of the Chief Engineer, and close to it, another belonging to Mr. Glynn, an inhabitant, which stretches the line of vegetation close to the Moorish Castle; lower down, between the Commercial-square and the Civil Hospital, there is also an extensive garden, the property of Mr. Duguid, another inhabitant; and near it the garden of the Commandant of Artillery. In the more southerly part of the town, at the mouth of a *cul de sac* formed on the side of the hill, in the neighbourhood of the old lime-kiln gully, is a piece of garden ground attached to the Garrison Library. Higher up, along the face of the hill, are "Arengo's" gardens (between the two gullies already mentioned) and Levi's gardens, which lie on a piece of ground similarly circumstanced with Arengo's, having a gully on each side. About midway up the hill, are certain enclosures called "Farms," all of which are within Charles the Fifth's Wall, and situated directly above the town; they contain about ten acres, and, although interspersed with rocks, they produce vegetables of all kinds throughout the year: among these the profusion of artichokes is remarkable.

Besides these principal points, small patches of parterres, intermingled with vines, figs, ornamental trees, and flowering shrubs, are thickly interspersed among the houses.

The most extensive garden grounds in the garrison lie to the southward of Charles the Fifth's Wall. Immediately on passing southport-gate, there is a small but rich garden in the ditch: advancing southward, we find the New Alamada, a very beautiful public promenade, constructed on the Red Sands, by his Excellency Sir George Don; these are bounded on each side by roads, planted with rows of luxurious poplars and other trees, and abound in geraniums and flowering shrubs; but by far the richest and most cultivated portion of the rock lies along the lower face of the hill, extending southward from the New Alamada to the Naval Hospital and Buena Vista.

The most extensive and most highly cultivated grounds in this tract, are those belonging to the Commissioner and other

Officers of the Naval Department. There are also a considerable number of gardens attached to private houses, and several kept by market gardeners.

These cultivated spots are not, as in the town, dispersed over, and dotting the surface; they form a kind of belt along the hill, which presents a striking and beautiful feature in the landscape, when viewed from the bay. On examining it more closely, we find, that this belt is, generally speaking, bounded by two roads, which commence at Charles the Fifth's Wall, and lead directly from the two entrances to the town on the southward, viz., Southport Gate and Prince Edward's Gate, which are distant about 100 yards from each other: the roads run in a direction towards Rosia and Windmill Hill; the one is carried close to the sea line, the other branches off along the face of the rock above; they vary in their distance from each other, from 100 to 500 yards. The whole space between these boundaries, as far as the Dock-yard and the foot of Windmill Hill, is under cultivation, with the exception of two small burial-grounds, which are filled with shrubs and trees, and that part of the Alamada used as a guard-mounting parade. There are a few scattered houses interspersed in this tract, which cannot be less than three-quarters of a mile in length; the more compact buildings and barracks of the south here intervene, but from the foot of Windmill Hill, cultivation proceeds onwards in a narrow strip of gardens above the upper road, and several below it, which cannot be said to be within the belt now described, but form offsets from it.

It is to the lower fourth of the hill that all the CULTIVATED grounds are confined, the vegetation of the remaining three-fourths consisting of aloes, broom, fig-trees, geraniums, squill, sage, prickly pear, palmettoes, and other plants, the majority of which are dried up in the summer: they grow wild upon the face of the hill, and in many spots are quite inaccessible.

On the neutral ground, are several extensive gardens, the Governor's Meadow, and the Garrison exercising-ground, the whole of which are formed of an artificial soil, which lies over, or is incorporated with the native sand. This made ground consists of the richest part of the mould dug out of the foundations of houses in the town, stable dung, the offal of the markets,

houses, &c. which altogether form a compost of a very rich, highly fertile nature. There are nearly 200 acres of ground producing vegetable matters, and under cultivation, in and close to the garrison. From the nature of the soil, the richness of the manure, and the industry of the cultivators in watering and manuring, aided by the warmth of the climate, the vegetation, especially of the gardens, is most luxuriant; and, although in the very hottest part of the year it must necessarily languish, and in many instances be destroyed, yet the entire surface is never left bare of living vegetable matter, nor are the various processes of vegetation ever totally suspended. Whenever water is judiciously applied, vegetable life is supported in full vigour throughout the year; and after the autumnal rains, spots, which to a stranger appear the most unpromising, start at once into life and verdure.

From what has been stated, it is obvious that Gibraltar is not devoid of sources of vegetable exhalations, small indeed in extent, when compared with other situations, but by no means amounting to that total sterility, and exemption from miasmata, both vegetable and aqueous, that has been supposed.

UNHEALTHY SITUATIONS.

The autumnal season is that in which noxious exhalations from the surface arise in greatest abundance: the principal situations which have been or are at present deemed the most remarkable for them, are enumerated below. In this enumeration, localities may be pointed out, in which those exhalations are not cognizable by the senses, but their existence is inferred, from the unhealthy character with which these situations have been stigmatized.

Before entering into particulars, I may be permitted to make a remark upon one general source of alleged insalubrity. The refuse of vegetables in the markets and dwellings have been spoken of; and some merriment has been afforded to the critics while calculating on the imaginary connexion between cabbage stalks and contagion. Now, although I believe that long after the vegetable is cut, the exhalation from its surface continues,

and that its decaying leaves are obviously a source of filth and putrefaction, I beg it to be clearly understood, that I never for a moment could suppose that imported vegetables were the sole cause of fever. If vegetation has had any effect on the health of Gibraltar, it has been the active vegetation within its walls, a source of insalubrity which, however, has been denied with most surprising obstinacy: even my respected friend Sir Joseph Gilpin has been led into the assertion, that, with regard to vegetables in summer, there were none*.

1st. The eastern side of the neutral ground has been observed to be more productive of disease than the western, and especially that portion of it in the vicinity of the "Devil's Tower."

The diseases of the highest importance which have been remarked among the inhabitants, are remittent and intermittent fevers, dysenteric affections, and infantile marasmus. Many medical men are of opinion that the troops who perform the duties of the village and Devil's Tower have been more subject to ophthalmia than any other class, and most severe cases of those febrile and bowel affections above enumerated have also occasionally appeared among them: hence the guards that do duty in these situations are relieved daily. When the troops have been encamped on the neutral ground for any length of time, there has been no room left for doubt, for the returns demonstrate a most striking increase of febrile and dysenteric affections. At Catalan Bay there is a small detachment, which formerly remained for some months, but is now relieved every fortnight. The men who compose it are accommodated in barracks, and have in general enjoyed excellent health, though on the eastern beach they are in a situation quite distinct and insulated from the neutral ground.

2d. The neighbourhood of the inundation has been remarked for the putrid exhalations which have arisen from it. Mr. Amiel, in his answers to queries proposed by my predecessor relative to the epidemic of 1814, asserts, from his own experience, that several foreign recruits, who were successively em-

* See Medico-Chirurg. Transactions, vol. v. page 314. The quantity was indeed *small*, but to assert its *non-existence* is worse than absurd, because it casts a shade of doubt over the *facts* of the paper.

ployed at the pumps in the neighbourhood, had been attacked with fever of a bad type*. Nor is this at all to be wondered at, when we reflect on the circumstances already described when speaking of this inundation. The cleanliness of this piece of water has been attended to much more strictly of late years than formerly. The commanding engineer, Major-General Pilkington, informs me, that on his arrival in the garrison in 1819, the stench was almost intolerable, and so diffusive that it was experienced in his own quarters, in the very centre of the town, at the distance of several hundred yards. To this putrid exhalation he attributes the prevalence of fever in the Moorish Castle during the period of the epidemic. This ancient building, occupied principally by the ordnance, is built on the side of the hill, and from its site is peculiarly obnoxious to any exhalations which arise from the inundation and adjoining beach. General Pilkington ordered the whole of the water to be drained off; the bottom and sides were scoured, and immense quantities of mud, green scum, and other noxious matters, were removed from it. Since that period the water has been removed twice a month in summer, and the excessive fœtor, formerly complained of, is no longer to be perceived; still, however, effluvia of an offensive nature frequently arise, and this spot should never for a moment be lost sight of, as a source of febrific miasmata.

3rd. Within the town there formerly existed several spots remarkable for their filth, and for the crowded state of the inhabitants. Many of these places have been entirely new modelled; the low ill-ventilated sheds, which incumbered the surface of the ground, have been removed; premises of a more permanent nature have been repaired, and greatly improved, and, in several instances, the whole of the former buildings have been razed, and edifices of a very superior character have been erected, insomuch, that persons who were familiar with Gibraltar before the epidemic of 1814 can now scarcely recognise many parts of it.

Among the best known of these situations is the extensive

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* See answers in full in Johnson on "Tropical Climates;" and in a small quarto pamphlet printed at the Gibraltar Garrison Library, 1815.

plot of ground formerly occupied by "Boyd's Buildings." These buildings have been pulled down, and a very handsome pile has been constructed on the spot. This pile was only finished in 1825. The extent is, for Gibraltar, very considerable. In the *Chronicle and Commercial Intelligencer*, the notices for the sale, which appeared in 1823, estimated the western part of the property at 12,000 superficial feet. The whole, I am informed by the gentleman who made out the estimate and plans, amounted to 29,200 feet. I will venture to assert, that so many thousand feet of crowded and filthy habitations, could not be found in any other garrison on the face of the globe. This spot is remarkable as being the point where the epidemic of 1804 first made its appearance. "Santos," who is reported by Sir James Fellows and Dr. Pym to have been the original importer of the fever, lived in a part of those buildings; and the Spanish smugglers, upon whom the suspicion of importation also fell, lived, and one of them was buried in the Library Garden, which is only separated from Boyd's Buildings by a narrow lane*. It is not a little remarkable that Dr. Nooth, who supported the cause of endemic origin, against the opinions of importation held by Messrs. Fellows and Pym, considered that a large lime-kiln in this neighbourhood was, to use his own expression, "art and part in the general mischief." This kiln is built at the upper part of a gully, at the embouchure of which Boyd's Buildings are situated.

In 1813, cases of the epidemic of that year were observed in Boyd's Buildings, early in the season, and, in fact, whenever fever was to be found in the garrison, this appeared to be its favourite residence: nor can this be wondered at, as it is acknowledged on all hands that Boyd's Buildings were the filthiest, among the many filthy buildings in Gibraltar. They were also very extensive and crowded with inhabitants, and the vegeto-animal matters which were allowed to accumulate in and around them, afforded, under a tropical temperature, an abundant supply of fibrific miasmata. Many most important changes

* See Fellows' Reports, pp. 103, 407; and Pym on Bulam Fever, pp. 20, 38.

The Library Garden was never a very clean neighbourhood, and even now it requires strict attention from the police, the back part especially.

have occurred in the vicinity since 1813; but there are some topographical features connected with the locality, which cannot be essentially altered by the agency of man, and which I conceive to be highly worthy of notice.

The old lime-kiln gully, the most southerly of the four which discharge their winter torrents through the town, is formed of four or five minor rills; the central branch runs, at first, through a narrow and precipitous channel, which in its descent very soon becomes wider, and the part of the rock down which it runs also becomes much more open and accessible. Still lower down, the face of the hill expands and assumes the character of a little valley, or *cul de sac*, so as to admit of extensive rows of houses. The most correct idea of this neighbourhood is to be formed by viewing it from the bay: from this point it appears as if a considerable portion of the hill side had been scooped out by the action of a large body of water, which flowed down upon it from the upper part of the rock. At the point where the gully commences, and immediately adjacent to it, the fall of the water was not gradual, but must have been precipitous, as a sort of perpendicular wall of rock rises immediately behind it; hence its action must have been more powerful at this point, and gradually decreased as it proceeded downwards. So low down as the Library Garden and Boyd's Buildings, which are about midway to the line wall, the distinction of valley is lost, but the original channel of the gully can still be traced for some way. When we examine the neighbourhood more closely, we find that the Library Gardens, Boyd's Buildings, and the Governor's Parade are built on a part of the ground through which the main stream would naturally flow, if it were unobstructed by buildings. Even as it is, the torrent, though directed into numerous other channels, still discharges a large volume of water through the neighbourhood in winter, and in all seasons, after a heavy shower, the Library, Ramp, and Governor's Parade, are marked by numerous rills flowing down them in their way to the sea. Before the sewers were constructed, the whole neighbourhood was in a most deplorable state, and even now, without the greatest attention on the part of the police, it would degenerate into a public nuisance.

Stables and sheds for the labouring cattle, and for some of

the poorer inhabitants, are scattered along the side of the hill; from these, and from several of the better habitations, offal is deposited in or upon the banks of the gully. This offal consists of the most offensive materials, the situation not being very accessible, and but little frequented by the inspectors of nuisances. These matters often lie where they are deposited, until the lighter parts are dispersed by the winds, and the more solid are hardened into an uniform mass. When the rains fall, the more soluble parts of this compost are carried down in a state of minute division, while the grosser are forced along "en masse," and are thrown into corners and hollows along the course of the stream, or hurried into the sewers, where they mingle with, and often obstruct the course of the waters.

It is, as I have already shewn, quite an erroneous supposition, that the whole surface of the Rock of Gibraltar is so precipitous and abrupt, that all the water that falls is *immediately* carried off; that part of the town, which runs from the main street to the Line-Wall, is naturally as level as most towns in England; besides which, many spots in other situations have been levelled by art, both in the solid rock and where there have existed either natural plateaux, or hollow portions of ground. On these spots, gardens, houses, parades, &c., have been constructed, by the erection of restraining walls, and the addition of various materials. The upper layers of these materials, in many instances, are composed of earthy substances peculiarly fertile, and consequently are of the nature of "made ground," not indeed to any great depth, but sufficient to absorb and to retain a considerable portion of rain, the effects of which, when it is saturated with putrid materials, such as are enumerated above, cannot but be influential on the salubrity of the neighbourhood. To what an extent this must have gone before a police was established and sewers constructed, can be easily imagined.

The same general character is applicable to the other gullies, as to that now described, though not to the same extent.

It has been stated, that water is not found within many feet of the surface in these gullies, and the buildings which adjoin them. The truth of the statement I by no means deny, but I assert that the British army never suffered so severely by

fever as when they encamped in winter courses, and beds of rivers, so dry in summer, that not a drop of fluid was to be observed, or procured by sinking. The retreat of Talavera has impressed this too strongly on the minds of those who are acquainted with its history, to allow the impression to be obliterated; and the paper of my excellent and liberal friend Dr. Fergusson will hand it down to posterity, in the records of the Royal Society of Edinburgh, when the petty interests of the present age are forgotten and merged in the unbiassed evidence of philosophical observation *.

4th. Mulberry Yard, Four Corners, South end of Irish Town, and other spots remarkable for their filth, want of proper ventilation, and the crowded state of the population, were also remarkable for their unhealthiness; but since the epidemic of 1814, they have all been more or less improved.

5th. The Blue Barracks, in the neighbourhood of the Old Moorish Castle, and the gully called after it, were very unhealthy during the epidemic of 1814: here also the poorer classes of inhabitants had congregated, and had rendered the purlieus of the barracks exceedingly filthy. At present these buildings form a most important establishment for the preservation of public health; they are entirely remodelled, the neighbourhood is cleared and drained, and the Civil Hospital is founded on their site.

I may here mention a circumstance which tends much to increase the filth of the buildings of Gibraltar; it is, that the poor, and even the higher orders, have their washing performed in their own houses, and the foul water, which is supersaturated with animal matter, is thrown into the house sewers, or the adjoining gutters, and, if we are to judge from the smell, must accelerate and augment the putrefactive process. The drying of clothes in the areas, and within the houses, must also tend to increase moisture, and be injurious to health.

6th. South Port Ditch, though a dry one, is sunk beneath the surface: it contains, as I have already stated, a burial ground on one side of the public road which runs through it, and a garden on the other. Two considerable wells are sunk

* See "Transactions of the Royal Society of Edinburgh" for 1821.

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in it, and at one end is a necessary. This spot was said to have emitted a disagreeable odour at times, during the epidemic period of 1813; but Sir Joseph Gilpin, to whom queries were put on the subject, has not confirmed the assertion *. I cannot say that I ever experienced any thing of the kind, and as neither the troops nor any of the inhabitants (except the gardeners) are exposed permanently to the effluvia, it does not appear that this ditch has been, or probably ever will be productive of any very serious effects on the health of the community in general. It is certain that the gardeners themselves were not affected by fever in 1813.

7th. The neighbourhood of the Dockyard, the Naval Gardens, and Rosia Bay, have already been considered as the situations most liable to emit miasmata, of any others in the garrison, not indeed *marsh* miasmata in the *literal sense* of the word, but such exhalations as arise from extensive gardens highly cultivated; from a beach which lies low, and which receives several common sewers; and from a neighbourhood on which such a quantity of rain falls, as to supply an extensive set of tanks, capable of holding upwards of one million three hundred thousand gallons of water. It has been asserted (contrary to what would naturally be supposed) that this neighbourhood was perfectly free from fever in the epidemic of 1813 †. The correctness of this assertion has been recently denied, in the most positive and unqualified manner, insomuch that to offer any opinion, would be at once to become identified with a party. The truth ought to be publickly investigated by those concerned, and that speedily; for myself, I shall not enter here into the question,—suffice it to say, that the general character of the neighbourhood is not in favour of its salubrity, and in fact, fever cases have been frequently noticed here since the epidemic of 1813.

In the years 1816, 1817, and 1820, in particular, several

* *Vide* "Medico-Chirurgical Transactions," vol. v. p. 309, and a paper by Dr. Robertson, "London Medical Repository for May, 1814."

† Gilpin, "Medico-Chirurgical Transactions," vol. v. p. 309. "O'Halloran's remarks on the Yellow Fever," 8vo., London, 1823, chap. x.—"Gibraltar Chronicle for September 24th, 1823."

severe cases occurred at the Naval Artificers' quarters at Rosia; the drains were at those periods very imperfect.

8th. In the epidemic of 1813, the South Pavilion was particularly unhealthy, as appears by the accounts of both Sir James Fellows and Dr. Burnett, physicians who have taken opposite sides of the question of endemic and contagious origin. Both, however, agree, as to the abominable state of filth of the barracks and kitchens, and the insufficiency of the sewers; and they are equally unanimous, as to the prevalence of fever in the tenements upon the ground floors nearest the sewers. It has been stated, that the vapours of sewers and cesspools were evidently not so pernicious as was apprehended, because the fever did not follow the line of sewer, *topographically*, and because several sewers were afterwards opened without generating fever in the immediate neighbourhood. But it is not the neighbourhood of a *good* sewer, or of one *fully opened* up, that is injurious to health; the injury is done by an *inefficient* sewer, the vapours of which are not diluted and neutralized by the free access of atmospheric air. A bad sewer, in a confined place, is worse than no sewer at all, because it serves to collect, accumulate, and retain filth; while a line of open drain, in a situation fully exposed to the air, will be comparatively innocuous as a source of febrific miasmata. Free ventilation makes all the difference; a partial rent in a sewer is always found to be more injurious than an opening of several yards, made for the purpose of repair. It should also be remembered, that a close sewer emits no vapours along its *topographical course:* they proceed from its mouth only, or from accidental rents.

9th. Windmill Hill has been considered an unhealthy quarter. This, however, has been generally attributed, not so much to exhalations, or other effects of the soil, as to the effects of currents of wind, felt with peculiar severity in that situation, and operating on over-heated subjects, especially if recently arrived from colder climates. What is called the Devil's Bellows on this hill, is a striking illustration of the effects of long drawn passages, or funnel-shaped chasms, in producing partial currents of wind; and in common with other exposed situations, is evi-

dently conducive to the production of all those pulmonary and bowel affections commonly referred to suppressed perspiration. Several severe cases of fever have occurred among the troops and their families quartered on this hill, which appear also to owe their origin to this cause.

With the exception of Windmill Hill, where the hand of man can effect no very material change on the locality, all the other situations described under this head have been so much improved since the last epidemic in 1814, as almost to have changed their natures.

VEGETABLE, ANIMAL, AND MINERAL PRODUCTS.

THERE is not, perhaps, in Europe a district of equal size, more rich in natural productions than Gibraltar. The botanist may here luxuriate in his favourite study; the zoologist may find ample sources of contemplation, especially in the interesting department of "Ichthyology;" and the mineralogist, if he cannot dive into the subterranean riches which abound in other parts of Spain, may study those fossil remains which Imrie, Buckland, and Cuvier have celebrated. This is not the proper place to enlarge upon such topics; I shall, however, give an outline of facts, and refer for catalogues of plants and animals, to the works of James and Drinkwater, and on mineralogical subjects, to Major Imrie's paper and the great work of Cuvier.

To begin with vegetables. Traditional accounts state, that Gibraltar, like many other rocky districts in Spain, was formerly covered with trees, and to such an extent, that invaders of the garrison found shelter among them. In the siege of 1727, many were cut down by the garrison for firewood, but before that period, it would appear, that the original stock had been much thinned. Tradition gives us to understand, that the trees occasioned sickness; but Colonel James, who records the assertion, considers it to be erroneous*. Of some of the vegetable products I have already spoken, and I may observe generally, that the fig and the vine flourish here with peculiar

* "History of the Straits," vol. ii. p. 294.

richness. The olive, almond, orange, and lemon, are also luxuriant, and, indeed, almost every species of tree, that is planted in an appropriate spot, thrives in Gibraltar. As a proof of the fertility of the soil, Dillon, at the end of a catalogue of plants of the Rock, which he copied from James, states, that some mallow trees, raised from seed procured from Spain, had, in two years, grown fourteen feet high. Many tropical plants are to be found in the governor's garden; and in the naval garden in the south, are some noble date-trees, the never-failing index of a copious supply of underground moisture.

The prickly pear, a plant which externally appears withered and dry, but the leaves of which are peculiarly succulent, runs wild almost over the whole surface of the rock; the aloe also abounds, and formerly the palmetto was very plentiful; at present the quantity is diminished*. Geraniums, of almost every species, grow in the utmost profusion, and form a beautiful boundary to the walks of the public gardens, formed by his Excellency Sir George Don,† while a vast variety of wild and cultivated flowers, aromatic plants, and herbs, are to be found all over the rock.

Among the native fruits brought to the market, are seven or eight kinds of grapes, including the muscadel, water, and black grapes, figs, oranges, lemons, pomegranates, almonds, apples, peaches, plums, and apricots (the latter better known by the vulgar name of "kill Johns," from their effects on new comers). Besides these, there are the common cherry, the Brazil cherry, strawberries, and a profusion of the fruit of the prickly pear, which is much in use among the poorer classes.

Potatoes, cabbages, onions, cucumbers, artichokes, tomates, kidneybeans, peas, spinage, lettuce, radishes, and a great variety of other esculent vegetables are produced in abundance.

Colonel James, in his catalogue, enumerates upwards of 300 vegetable productions of various kinds, and this catalogue is by

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* The *Chamærops humilis* of Linnæus. It is much used for making brooms, and bears a small fruit like a date; it grows in the hottest and most arid parts of the rock.

† These are called the New Alameda, from *Alamo*, the common name for the elm and poplar, which usually shade the public walks. All the public promenades of Spain are called Alamedas.

no means complete; indeed, a correct and scientific "Flora Calpensis" is yet a desideratum. Among the medicinal plants of Gibraltar, and its immediate vicinity, are the *Arum maculatum*, *Datura stramonium*, *Momordica elaterium*, *Papaver somniferum*, *Ricinus communis*, and *Scilla maritima*. I have no doubt that the researches of an experienced botanist would be amply repaid at this station.

The animals of Gibraltar do not differ essentially from those of the adjacent parts of Spain, with the exception of monkeys, several families of which are found on the rock. It is generally supposed that they are the produce of some individuals originally brought over from Barbary, who made their escape from their importers, and ran wild upon the mountain. They are so extremely wary, that I have never been able to get close enough to examine them minutely; they are rarely caught, and their residences are so inaccessible, that a skeleton has scarcely ever been found. It is said that a few have tails, though not prehensile; I presume, if there really are such, that they belong to the species *Simia cynomolgus*, which inhabit the African coast. The great majority are, however, most probably the Barbary ape of Pennant; magot of Buffon, *Simia inuus*. Bats, *Vespertilio murinus*, swarm in the caves, especially in St. Michael's; and the animals of the *Mus* genus, both rats and mice, overrun every inhabited part of the rock.

I know not whether hares, which abound in the neighbourhood, are natives of the rock; rabbits, *Lepus cuniculus*, breed in abundance: porcupine quills are stated by Mr. Carter to be occasionally found by the goat-herds; hence the existence of the animal is inferred, though it is never seen. It is by no means improbable, however, that porcupines are natives of Gibraltar, as they are numerous in other parts of Spain, and in Barbary.

Foxes are stated by James and Carter to abound in Gibraltar, and doubtless did so formerly; the breed, however, is now diminished. A subscription pack of ten or twelve couple of hounds is kept on the Neutral Ground by some of the merchants, and they search for their game in the neighbourhood, but the foxes are said to afford but little sport, as the country is broken, and the animals earth so readily, that they are sel-

dom killed. The wild cat is very common, and very injurious to young pigeons and poultry, especially in the south district, where the rocks and trees afford them shelter.

Horses, mules, and asses are brought into the garrison from all parts of Spain, and are of moderate price and good quality. In 1810, there was in Gibraltar a specimen of that singular mule, the *jumart:* it was employed as a beast of burden, and was, I believe, imported from Piedmont; it was said to be the production of a bull and a mare. I frequently examined it both at rest and in motion. It had decidedly the head of a calf, the body and limbs were those of a cross-formed ass, its motions were sluggish, and the *tout ensemble* was most disgusting.

The goats of Gibraltar are very valuable animals to the garrison, their milk is excellent, and the kid has been long celebrated as of a superior kind. Large flocks are fed upon the rock, where they always find supplies of herbs and shrubs to browse upon.

The wild boar, now extinct, existed so late as 1790.

Before closing this short outline of the mammalia class, I may mention, that of the *Cetacea*, the *Delphinus phocæna*, or porpoise, is frequently seen in the straits, the bay, and behind the rock.

Among the *Accipitres*, the vulture has been taken at Gibraltar, but it is not a native of the rock. Eagles, hawks, and kites build their nests on the summit of the rock, and are seen at an immense height in the air hovering about in quest of their prey. They abound principally at the north front and about Catalan Bay. The owl also is found among the old walls and clefts of the rock. Crows and rooks resort in the evening from Spain, in great flocks; Mr. Carter has ascertained that they destroy immense quantities of locusts and grasshoppers in the interior.

The birds of the order *Passeres*, as larks, starlings, thrushes, blackbirds, finches of various kinds, sparrows, swallows, &c., are exceedingly numerous, and much enliven the scene. The red-legged partridge is become a native of the rock; it was originally introduced from Barbary, and is strictly preserved.

Of the gallinaceous birds, pigeons, both wild and tame,

breed in great variety and abundance, and domestic poultry are reared by almost every individual who has a spot in which to shelter them. Among the *Anseres*, geese and ducks are reared in thousands upon the Neutral Ground for domestic purposes; and gulls, and other birds of the order, are found in great abundance in the bay, and on the Mediterranean shore of the isthmus.

In the class *Amphibia*, the *Testudo imbricata* or hawksbill turtle is found in the bay, but the principal habitat of this animal is at the island of Alboran, about forty leagues up the Mediterranean. If the flesh is parboiled and freed from all its fat before dressing, it becomes both a wholesome and an agreeable food. The shell furnishes the tortoise shell of the arts. The *Testudo Græca*, and *Testudo geometrica* are found in the gardens in considerable numbers. Of the *Lacerta* genus, we meet with a great variety of lizards in Gibraltar, among them the venomous *Lacerta Gecko;* there is little doubt that meat is rendered unwholesome by the gelatinous substance that exudes from the feet of this animal in passing over it, and it is said that mortal cholics have been produced by it.

Snakes are very frequently met with, chiefly of the genus *Anguis*, and are harmless: they have been known to grow to the length of five feet.

In the department of Ichthyology, Gibraltar is very rich, and its fish market produces a variety and abundance scarcely exceeded on the European coast. I find a list of fishes, by Hospital-Assistant Burt, in the Inspector's Office, which, as it is drawn up on the Linnæan plan, may form the basis of a catalogue for some future resident, who has leisure for prosecuting such subjects. Meantime, I shall give a sketch of the fishes which are of most importance.

The bay of Gibraltar, especially in the neighbourhood of Carteia, was so celebrated, in ancient times, for its fishery of tunny and salmonettas, that coins have been struck in which these fish are represented; several are to be seen in the possession of individuals at Gibraltar; but the most perfect are figured by Mr. Carter, (in the first volume of his "Journey to Malaga,") who also gives an interesting account of the ancient fishery.

Considerable quantities of the *Scomber Thynnus*, tunny

fish, are caught at the present day, and form a cheap, wholesome, and agreeable food, when properly dressed. In the season (which is in the winter months, from October to April), the market is abundantly supplied with the fresh fish; it is also prepared for exportation, by preserving it in oil, drying, or salting, and in these modes it is shipped for Genoa. The *Scomber Pelamis*, or bonito, is also taken in abundance, but is not so much prized either for home use or for exportation. The *Scomber*, or common mackerel, and the *Scomber trachurus*, or horse mackerel, are caught in large quantities. Poisonous effects have been traced to some of these fish, but the history of fish poison is so obscure, that but little light has hitherto been thrown upon it.

From April to August very large quantities of anchovies, *Clupea encrasicolus*, are taken; they abound in the market in their fresh state, and are also cured and exported to the Genoa market. The shad and sprat, of the same genus, are also abundant.

The fishes now enumerated, may be considered as the grand staple of the market for the poorer classes of society in Gibraltar, for ten-twelfths of the year, though by no means to the exclusion of other marine productions. The trade in tunny and anchovies is of ulterior importance to the garrison, as the returns are made, not only in money, but in cattle, macaroni, wheat, rice, &c., &c. An ingenious friend has observed to me, that the anchovies may tend to feed the garrison in a triple point of view; for, doubtless, many of them are sent to England by the circuitous route of Genoa, and pass for the real *Gorgona*, and are returned here in the form of preserved fish, fish-sauce, &c., &c.

Of the cartilaginous fishes, there are great varieties, the chief of which, are of the *Accipenseres*, including the sturgeon. There are two fishes of this order, which are much prized, viz., the emperor fish, and the lemon fish, but they are very rare. There are numerous species of the *Squalus* genus, including dog-fish, and of the *Raia*, among which are most excellent skate, and the well-known *Torpedo*. Of the *Syngnathus* genus, that pretty little cabinet fish, the *Hippocampus* or sea-horse, is frequently caught in the nets.

The fish of the order *Apodes* and *Muræna* genus, are easily recognized by their general resemblance to the serpent tribe; the variety in the market is great, and many of them are remarkable for the beauty of their colours. The *Muræna Helena*, so prized by the ancient Romans, that Crassus went into mourning for the death of a favourite one, is here within the reach of the poorest individuals; they are not much esteemed at present, and are in truth a very coarse fish, but the eels are delicate and much prized. The sword-fish is frequently brought to market, and when well dressed, is good.

Of the *Jugulares*, the numbers caught in the Bay are considerable; the principal are the dragonet, the star-gazer, the weever, and various species of the cod and blenny genus.

The *Thoracici* found at Gibraltar, include large quantities of the *Echeneis* or sucking-fish, the dolphin *Coryphæna Hippuris*, the miller's-thumb or rock-fish, the goby, the john dory, sole, and turbot, the gilt-head, various species of the *Labrus* or old-wife, salmonetta, and gurnard, of several kinds. Of the tunny and mackerel which belong to this order, I have already spoken.

The principal abdominal fishes, are the anchovy already spoken of, the shad, the smelt, the *Mugil Cephalus* or mullet, and the golden, silver, red, and mud bream. Mr. Burt's list, which is well worth consulting, gives the names of between ninety and one hundred fish of various kinds, which he has examined in the market. I have myself paid some attention to the subject, and I have no doubt that a person well acquainted with practical ichthyology would be able to detect a much larger number, did his other avocations admit of his dedicating his time to the study.

A number of *Mollusca* of various kinds, especially of the *Medusa*, or sea-nettle species, are daily found on the beach; and it is to feeding upon them, that the poisonous quality of some of the edible fish is attributed.

The *Sepia* or cuttle fish, is very abundant, and when well washed, deprived of its bone, and properly cooked, forms a rich article of diet.

The star-fish is found on the beach, and in the nets, in great

abundance. The *Echinus* or sea-egg, also abounds, and is employed as food by the poorer classes.

Although not in their proper place, according to the zoological system which I have adhered to in other parts of this article, I shall here enumerate some of the more important of the shell-fish of Gibraltar. In ancient times the *Murex*, according to Strabo, was produced in great abundance at Carteia *, from which the celebrated Tyrian purple dye was prepared; several shells of the species are still to be found in Gibraltar Bay, together with many others of the *Trochus*, *Turbo*, and *Dentalium* genera. The most important of the *Testacea*, however, are the *Pholas Dactylus*, found in large quantities in lime-stone rock near Algeciras, the *Solen* or razor fish, the *Cardium* or cockle, the *Spondylus Gæderopus* or thorny oyster, the *Ostrea Jacobæa* or scallop, the *Ostrea edulis* or common oyster, the *Mytilus edulis* or mussel, the *Patella* or limpet.

Of the *Crustaciæ*, there are a variety of crabs, properly so called, the *Cancer Gammarus* or lobster, the *Cancer Astacus* or craw-fish, and the *Cancer Crangon* or shrimp.

Of all these genera, there are many species and varieties.

With a fish-market so stocked, the prices are, generally speaking, moderate. The supply is always increased by any shift of wind which blows directly into the Bay. To ensure a constant supply of some of the shell fish, oysters and cockles are imported from Portugal, and laid down in beds between Waterport and Bayside.

As in all other warm climates, the insect tribes are extremely numerous. Those which most immediately affect our sensations, are the flies and musquitoes, which in the summer season swarm in myriads, and greatly increase the apparent heat of the atmosphere, by that state of irritation in which they constantly keep the skin. These troublesome creatures are more numerous in the Neutral Ground than in the town, possibly, because such quantities of offal and putrid matters are carried out there, and that the gardens and the wells contribute to their generation and support.

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* See "Carter," vol. i. p. 105; Strabo, lib. iii.

At certain periods, the Neutral Ground is overrun with great quantities of small grass-hoppers, intermixed now and then with locusts, which destroy every thing they approach. In the year 1819, they completely cut up all the crop of the Governor's farm, and of the adjacent gardens. In 1753, according to Colonel James, "a southerly wind brought from Africa, an immense swarm of large locusts, with brown-spotted wings, red legs, and bodies of a bright yellow; but being intercepted by a shower, the wind varying to the east, most of them were beat into the sea, and it was astonishing to see the drowned heaps along the Mediterranean shore, from the Devil's Tower to the Spanish Lines. This swarm, had they pitched at night in the garrison, would have devoured all the vegetables in the gardens."

At another time there was such another swarm of butterflies*.

The *Lepidoptera* or caterpillar tribe, are very numerous and prolific in Gibraltar. The varieties of butterflies, moths, and hawkmoths produced from them is immense, and embraces many of a very large size and very beautiful appearance.

Of the other Linnæan classes of insects, specimens of all that are found in the warmer parts of Europe are met with here. It would be quite uncalled for to enter, at present, into an enumeration of spiders, fleas, bugs, cockroaches, centipedes, quadrantipedes, &c., &c., but the scorpion may not be passed over. Though this animal has furnished an appellation to the natives, I have never observed any other species of it here than the "*Scorpeo Europæus*," some of them of considerable size, but none so large as those that are frequently seen in Malta and the Ionian Islands.

Of the *Vermes*, the leech is said by Colonel James to breed in the old Moorish Bath, commonly called the Nun's Well. He says the soldiers occasionally suffered from their adhering to the fauces and producing hæmorrhages, but I have not had any experience on this point.

No metals have been found in Gibraltar. "The mountain," as Major Imrie observes, "is more curious in its botanical than

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* "James," vol. ii.

in its mineralogical productions. In respect to the first, it connects, in some degree, the Flora of Africa and that of Europe: in respect of the latter, it produces little variety,—perhaps, a few substances and phenomena that are rare, but none that are peculiar." I owe the substance of the following remarks to this author :—

Testaceous bodies have occasionally been found imbedded in the body of the rock, but they do not form regular strata. Stalactites and stalagmites are to be found in great abundance in the numerous caves, especially in St. Michael's. The further removed from the external air, the brighter they become in colour ; near the surface, they are of a brownish yellow, and by degrees shade off to a whitish yellow.

In the pot-like cavities already mentioned under the article 'Soil,' Major Imrie found a breccia composed of red jaspers, yellowish-white flint, white quartz, and bluish-white agates, firmly combined by a yellowish-brown stalactitical calcareous spar.

Upon the western face of the hill, strata occur consisting of a number of thin beds of a blackish-brown, or ferruginous-coloured earth. The lowermost strata is about a foot and a half thick, and rests upon a rock of an argillaceous nature: this stratum consists of quartz of a blackish-blue colour, in the septa or cracks of which, are found fine quartz crystals, colourless and perfectly transparent. They are called "Gibraltar diamonds."

Not far from the stratum that yields the diamonds, but nearer the level of the sea, is a stratum of argillaceous matter, the septa or clefts through which, are covered with dendritical figures of a yellowish-brown colour resembling a landscape.

In some parts of the western face, towards the south, are found flints of a dirty, sap-green colour, embedded in a dark-red, shining clay.

Around Rosia Bay and the New Mole is found a beautiful breccia, composed of almost every fossil already enumerated, with the addition of two species of marble, the native beds of which have not been found in the mountain, one of them black, the other olive-green: the whole are combined by a calcareous cement of a yellowish colour, nearly approaching to orange. This breccia takes a high polish, and most houses in the gar-

rison are supplied with beautiful chimney ornaments composed of it.

But the most curious of all the fossil productions of Gibraltar are the bones. These are found in the perpendicular fissures and cavities of the rock, imbedded in a calcareous concretion of a reddish-brown ferruginous colour, with an earthy fracture, and considerably indurated. They consist of the bones of various animals; quadrupeds, and birds of different sizes, thrown together without order, and intermixed with the shells of snails, fragments of rock and bits of spar, which are still to be observed in an uncombined state on the surface. Major Imrie's opinion is, that these substances have been swept off the surface by heavy rains, and carried into the fissures and cavities, which formerly opened to the surface, and have there undergone the action of permeating water, from which, in the course of a long series of years, calcareous matters have been deposited. In some fissures below the King's Lines, he has found the concretions to consist of the pebbles of the prevailing calcareous rock, and in one instance, the bottom of a glass bottle, of uncommon shape and great thickness, was imbedded in it. From a consideration of all the facts, Major Imrie does not admit petrefaction to have had any share in the production of the osseous breccia. It was supposed that many of the bones were human, as skulls or parts of bones like those of man have been found; and the miners, in forming the excavations to the northward, conceived that they had fallen in with a petrified human skeleton; but the probability is, that these bones were the remains of monkeys. Cuvier, who denies the existence of human bones among these fossil remains, enumerates those of the ox, deer, sheep, rabbit, water-rat, mouse, horse, ass, snakes, and various birds. He found the bones of a ruminating animal of the order glires, which he conjectures may belong to the genus lagomys. All the shells contained in the Gibraltar conglomerate, he found to be of the fresh-water, or land species.

The chemical analysis of these bones, instituted by Mr. Hatchett, shows that they consist principally of the phosphate of lime, and that their cavities have been partly filled by the carbonate of lime, which agglutinates them together.

The spots where these fossil bones are found most commonly are about Rosia Bay in the south, and Prince's Lines at the north of the rock *.

No mineral waters have been discovered in Gibraltar. Near the base of the mountain on which stands the tower called the "Queen of Spain's Chair," about two miles from the garrison, there are two springs of a chalybeate nature, but the impregnation I found, on examination, to be exceedingly weak. About seven hours' journey eastward from Gibraltar, are the baths of Hedionda, situated in the district of Casares, which are much resorted to by the natives in cutaneous affections, chronic rheumatism, obstinate ulcers, and affections of the kidneys and bladder, and the diseases of females. These waters abound in sulphuretted hydrogen gas: their temperature is $18\frac{1}{2}°$ of Reaumur. By an analysis made by Dr. Colorado, of Casares, these waters are found to contain in fifty pounds by weight, six grains of muriate of lime, fifty-six sulphate of magnesia, thirty-five sulphate of lime, ten of magnesia, and four of siliceous earth, independent of a large quantity of sulphur, with which they so much abound, that the peasants make matches by simply dipping slips of linen in the stream. Baths and habitations are now erecting at this place, and it may hereafter prove highly beneficial to those who go there for their health.

AGRICULTURE AND HORTICULTURE.

Agriculture does not exist as a pursuit in Gibraltar, but horticulture is prosecuted with great industry by the residents, especially the Genoese. By constant cultivation and frequent watering, the vegetable crops, even within the garrison, are in considerable quantity, and on the neutral ground, where the supply of water is inexhaustible, they are very abundant. For a crowded population, such as exists in time of peace, there is a necessity for a supply of vegetables from the country; but were the garrison placed in a state of siege, and reduced in popula-

* See Cuvier's Essay on the Theory of the Earth, translated by Jameson, 8vo.; Hatchett, in Philosophical Transactions, 1799; and Buckland's Reliquiæ Diluvianæ, 4to., London, 1824, p. 148.

tion, I have little doubt that its interior resources would be found adequate to its wants.

The hoe is the instrument in general use among foreigners; the spade or shovel is never employed by them. The plough is inapplicable to Gibraltar, generally speaking: that used in the adjoining districts is of a very primitive fashion; it merely suffices to scratch the surface, and the ploughman will pass by a stone or bush rather than take the trouble of removing them; yet, such is the nature of the soil and climate, that the harvests are most luxuriant. The English plough and harrow may, however, be seen annually in operation on the Governor's meadow, on the Neutral Ground, and on the South Glacis, within the garrison.

ROADS AND COMMUNICATIONS.

By the unwearied exertions of Sir George Don, the roads and communications are now so improved and extended, that wheel-carriages can proceed to almost every point of the rock; and private vehicles of this description, for the purposes of luxury, which were scarcely known before 1814, now abound. Public carriages can also be hired, and even a stage-coach has been established, which plies between the south and the town regularly during the summer months. A great number of foot roads, ramps, and flights of steps have been constructed, by which the access to the habitations of the lower orders, on the hill side, has been greatly improved, and the facilities for removing filth increased to a very considerable degree.

The communications by water are very limited. Boat-hire is extravagant; and very few, except persons connected with the navy, ever move by water from the town to the south.

POPULATION.

The population has for many years been excessive in Gibraltar; and it has been composed of a mixed multitude, consisting of natives, Spaniards, Minorquins, Genoese, and other Italians, Portuguese, French, English, Germans, Americans, Moors,

Turks, &c. &c. insomuch, that there are few commercial nations that have not some individuals belonging to them residing in the fortress. About the middle of the last century (September 1754) the population did not exceed 1810 persons, including men, women, boys, and girls; and with the garrison (including their women and children) it only amounted to 6262 individuals. When the country barks arrived, the numbers increased, *pro tempore*, but the great tide of population did not set in until the commencement of the present century*.

In 1791, according to the earliest census of which I can find any account, the civil population amounted only to 2885.

In 1801	it increased to	5339
1807	„	7501
1811	„	11173
1813	„	12423
1814	„	10136
1816	„	11401
1817	„	10737

The population of 1813 was diminished in the November of that year to 7370 by the voluntary removal, or expulsion of many individuals, and by the ravages of the epidemic.

The population of 1826 was estimated at 15,480 civilians, of whom 5953 were males, 4917 females, and 4610 children.

Genoese and Minorquins make up the greater part of the foreigners included in this estimate: the former have been eminently successful in accumulating money, and for enterprise, both in trade and agriculture, have few equals anywhere. Of these two classes, very nearly all the fishermen of the garrison are composed: the principal part of the gardeners are Genoese.

Jews of various nations are numerous, and are principally engaged in trade.

The military population will be considered under another head. It amounted, at the end of 1826, to 5090, of whom 3744 were males, 513 females, and 833 children. The total of civilians and military amounted to 20,570 souls.

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* See James, vol. ii. p. 320.

THE DWELLINGS.

The town of Gibraltar extends, in length, from the Landport to the Southport Gate. One handsome main street, of about three-quarters of a mile in length, leads directly between the two gates. The houses do not differ much, in external appearance, from those of English towns. From the northern end of the town to the Commercial Square (or for about half the length of the main street) a parallel street runs on the western side; and on the eastern side, another parallel street runs for a somewhat shorter distance, at the southern end of the town, beginning a little beyond the line of the Commercial Square, and continuing to Charles the Fifth's Wall.

The annexed diagram will give an idea of the relative situation of these principal streets, which, on many accounts, it is desirable to be acquainted with.

Eastern parallel street, or Town Range.

N. Main Street. S.

Western parallel street, or Irish Town.

These three streets, and those which communicate between them, are as level as in the great majority of either foreign or English towns. To a stranger who has formed no other idea of Gibraltar, than that it is built on the sides of a steep hill, and that its streets are so precipitous, as at once to throw off all moisture with the rapidity of mountain torrents, this equality of the surface must be rather striking. He will be astonished to find the main street and many others of Gibraltar not more precipitous than Fleet-street or the Strand in London, and the Commercial Square (better known under the name of the Old Alameda) more level than Whitehall or Charing-cross.

This equality of surface is continued on the western part of the town, completely up to the Line-Wall. On the eastern side, the town, in its whole extent from north to south, is built on

the slope of the hill, with the exception of the eastern parallel street. Many of the streets in this district are difficult of ascent, and the water runs rapidly off their surface. Some of the houses are in situations so steep, as to be ascended only by means of narrow steps and ramps (as the broader steps are called); nevertheless, there are particular spots, even on the hill side, where the ground is so level as to retain the rains for hours; and in these and many other places, the houses rise one above another, as it were on a succession of terraces, affording a perfect facility of access.

In the principal streets, many of the houses are three or four stories high, and built in a very respectable style: the exterior possesses much of the English aspect; in the interior, they are constructed more after the Spanish manner, with a central court, into which the rooms open: the materials are the lime-stone of the rock, sandstone, imported chiefly from Minorca, and brick; and the roofs are principally of tiles. It is much to be lamented, that the roofs are not flat and terraced as in Malta; they would afford great facilities for airing clothes, for exercise, and for collecting water and conveying it by proper tubes to the wells or tanks.

Some of the higher classes of natives and merchants occupy entire houses; but by far the greater number of buildings are divided into suits of apartments, or single rooms tenanted by distinct families.

The poorer classes of society are crowded together in apartments of a very bad description; these are chiefly of four classes—either separate houses, divided into numerous tenements built round an area; or distinct tenements clustered together, with various narrow alleys winding among them; or straight rows (either single or double) of small houses; or, finally, scattered and insulated habitations, partly wood and partly stone, occupied by individual families. The floors are either of brick, or stone, or earth; rarely of wood. To say that all are bad, would be exceeding the bounds of truth, or even of probability; but I am justified in asserting, that the majority are strikingly deficient in size, ventilation, and the means of cleanliness, and that some are utterly unfit for human habitations. Mr. Amiel, in his answers to queries

relative to the Epidemic of 1814, has given a very correct view of the state of the habitations of that day:—"The inhabitants," says he, "being much limited for ground to build upon, have frequently placed the doors and windows of the apartments on the same side, and have, by that means, made it impossible to have the air of the rooms sufficiently renewed. The ground for building being very dear, and house-rent excessively high, cellars and stables have been converted, in many places, into dwelling-houses, to receive numerous families, without any regard to their health or accommodation; and in other places, a great number of sheds have been constructed, in such a manner, as to preclude access to ventilation, affording, besides, materials for putrefaction, by the decayed state in which they are frequently left. To overcome the excessive price of house-rent, the poor labouring classes of people have been compelled to crowd themselves in the same apartments, where it is not unusual to see three rows of beds one above another, while some are lying on the floor, which is, in general, badly paved, and always damp. These people, going out early in the morning to procure their livelihood, are in the habit of shutting up the door and windows of the apartment, which are not reopened until they come home in the evening, when they breathe an air deprived of its oxygen, or loaded with the noxious effluvia of their bed-clothes."

Although much improvement has taken place of late years, and many sheds, stables, cellars, and similar resorts of the lower orders, have been either rased altogether, or greatly improved, a few still remain of a similar character; and indeed, as long as houses are built against the side of the hill, or back to back, they must be deficient in thorough ventilation. So long as ground-rent is high, landlords will make the most of the space they possess, and when avarice is in full operation upon poverty, the wretched tenants will crowd together into small, dark and ill ventilated cellars, and corners of a similar character, which, so far from giving them accommodation, scarcely afford space for them to lie down. In fact, when the weather is fine, the open street is much more desirable than many of the lodgings of the lower orders of inhabitants of Gibraltar.

It would occupy a large volume, were I to go into minute details on this subject; I shall therefore merely give the summary of two or three reports I made in the spring of 1826, on the dwellings of the poor, and I may premise, that there are many infinitely worse off, in all respects, than the inhabitants of those places; the two first of which, it must be observed, are neither of them fifty yards from head-quarters, close to the public offices, on a surface almost perfectly level by nature, and with a fair exterior appearance. Were I to select specimens from the hill side, the details would be still more illustrative of the insalubrious nature of these confined abodes; and when it is stated that the thermometer stood no higher than 56° when my examination was instituted, some estimate may be formed of what the inhabitants would suffer in the summer, in a temperature of 80° and upwards.

In the premises of a Jew, in "Victualling-office-lane," I found, on a ground floor, seven occupied apartments—one store-room, and one necessary, built around an area of twenty-five feet by seventeen feet five inches; this area was encumbered with casks, baskets, and jars piled along the walls, and the upper part was curtailed by a projecting gallery, so that the space left for ventilation was reduced to eight feet five inches by five feet six.

The entrance was fortunately wider than usual. Of the occupied apartments, two only had windows to the street; two had small, irregular slits in the upper part of the wall, which admitted air from without, and the others had neither air nor light, except what they derived from the area; cross ventilation was therefore impossible. On this ground-floor, twenty-four individuals (including children) lived. In one of the apartments next the necessary, with no other means of ventilation than a door, three women and one dog slept. The cubic contents of this wretched kennel were short of 200 feet. Above, the rooms were of a better description, but they contained twenty permanent inhabitants, besides a day school, in which, when I visited it, there were fifteen children.

In another Jew's premises, in "Governor's-lane," the sheds, which were built round an area originally 28 feet by 24, at the time of inspection were not overcrowded with population,

but the cubic contents of the area were diminished nearly one half by the erection of a new shed in its centre*.

In another Jew's lodging-house, in the main street, near the court-house, three adults slept in a wooden shed of 6 feet long, 5 broad, and 6 high; the necessary wall formed one side of this commodious dwelling! But even this is ample accommodation, compared to what Mr. Fraser reports in 1816. In the beginning of August he says, "In the middle area of Boyd's-buildings, confined and choked up by lumber, 189 persons were crowded together, some of them sleeping and cooking, in places called rooms, not larger than two ordinary sentry-boxes."

Some of the areas are crowded with water-butts, old mats, oil-jars, and lumber of all descriptions, affording a nest for filth, and a fruitful source of putrescent exhalations, independent of their seriously diminishing the cubic mass of air, the circulation of which is still further obstructed, by lines and poles crossing the areas for the purpose of drying linen.

In many tenements there are no necessaries; in many others, one small hole serves to receive the ordure of twenty families. In the centre of the area, there is, in the best class of houses, a grating, which communicates with a drain; in several, this grating and drain are altogether wanting.

Upon the whole, although Gibraltar is improved to a degree scarcely to have been contemplated by those who knew it before his Excellency Sir George Don took the command, it is even now a town, in many parts of it, confined and ill ventilated, in which innumerable obstacles to cleanliness exist, and with a population, filthy in themselves, and over-crowded, perhaps, beyond any other community in the world.

The public edifices of Gibraltar are but few. The Governor resides in a building formerly a Franciscan Convent, and which still is known by that name. He has also a very delightful cottage at Europa. The Spanish church is a respectable erection, and an English church is in progress,

* The sleeping population, in the lower class of houses, greatly exceeds the number that appears in the day-time.

under the auspices of Sir George Don; to him also, Gibraltar owes an Exchange and Session-house. The Old Castle is of Moorish origin, and the walls, in many places, still remain entire; the consideration of this ancient building will fall under the head "Barracks." While under that of "Police," I shall speak of many other points connected with the town and its inhabitants.

An important measure has been adopted to thin the dense population of the garrison during the summer months. In 1813, the erection of a village on the neutral ground was commenced, and under the auspices of Sir George Don, it has become an extensive suburb, consisting of about 100 wooden houses, laid out in parallel and cross streets of ample width. The houses, or sheds, as they are called, are liable to be removed on the shortest notice, and they are occupied only between the 1st of June and 1st of December annually; after this period they are shut up, and no infringement of this regulation is permitted, except on medical recommendation, for change of air for the sick or convalescents of the garrison, to whom the change may be essentially necessary, and even then, it is for a limited period.

These houses occupy a piece of ground about half a mile in length, and nearly a furlong in its greatest breadth. They have either brick or wooden floors, which raise them about a foot from the soil. The foundations are of stone; the roofs are tiles or slates. The ventilation is good; every tenement having cross doors and windows, which admit of a thorough perflation, which is still further facilitated by their pointing either east or west in the direction of the prevailing current of wind. Each house has one or more wells, besides the several public ones already noticed. The number of inhabitants is fluctuating: in the summer of 1824 the number amounted to 365.

Besides the regular houses, encampments have been often formed on the neutral ground. In 1819 the prevalence of an epidemic in Spain, as well as the plague in Barbary, rendered it necessary to establish a cordon of troops across the isthmus, and the town was thinned of several of the poorer inhabitants,

consisting of Jews, Moors, &c. with their wives and families, to a number exceeding 500. They were encamped under the north front on raised platforms.

That part of the neutral ground on which the village is erected, has always been reckoned by far the most salubrious. When we reflect upon the numerous and permanent sources of vegetable and aqueous exhalations, and the great mass of rubbish and putrescent matters which are brought out daily from the garrison (averaging about sixty-five cart-loads every twenty-four hours), we naturally inquire into the causes of this salubrity. The solution of the question, I think, presents itself in the agency of the winds. A current of air constantly perflates the neutral ground, and is so powerful that when scarce a breath of wind is felt in the town, it blows a steady breeze outside, which sweeps off the nascent exhalations as they arise from the surface, and carries them either to the eastward or westward, as the existing wind may be. In this process, the miasmata are so diluted as to be rendered innocuous, or, if any noxious portion of them still remains, it is absorbed by the expanse of water over which it passes. In further elucidation of this point it is to be remembered, that experience has shown that spots *above* and to leeward of the sources of noxious exhalations are much more susceptible of their influence than the lower grounds from which they emanate. Did the town of Gibraltar *stand directly in the track* of the winds that blow across the neutral ground, the exhalations from it would be blown in upon the garrison, and most probably produce annual disease there; but this is not the case. The rock of Gibraltar is elevated upon the southern side of the neutral ground, and consequently stands upon the edge, instead of the course of the current of air. Now, as the most obnoxious winds blow from the eastward, they are effectually turned off from the garrison by the perpendicular northern elevation of the rock; and hence, by a providential balance of evil, the very circumstance of position which obstructs the thorough draught of air along the front of the town, prevents also the approximation of the noxious vapours.

The garrison, being retired from the line in which the current of wind blows across the neutral ground, cannot, under ordinary

circumstances, feel the force of this current, or the full effects of the exhalations which it carries along with it; but doubtless, many circumstances may occur in which these exhalations may be partially felt.

Of the fact with regard to heights to leeward of marshy or malarious flats, the proofs are numerous. For those which the West India Islands afford, I shall refer to the admirable paper of my friend Dr. Fergusson. There is, in the neighbourhood of Gibraltar, a farm-house on a hill between Campo and San Roque, so unhealthy as to be scarcely habitable; while a little villa below it, though built on the very edge of the rivulet which affords the malarious vapours in abundance, is perfectly salubrious.

Besides the village on the neutral ground, there is a butchery and stables for feeding the cattle of the contractor for the troops, with a few detached huts for those employed about that service. There is also a kennel for a set of subscription fox hounds. All these lie towards the eastern beach. Beyond these, is another village in Catalan Bay, which contains about fifty houses, and about five hundred inhabitants. The houses are of stone, and many of them consist of two stories. This village also acts as a drain to the overflowing population of the rock: it is inhabited principally by fishermen. The situation, though excessively hot, is dry and healthy.

Catalan Bay is situated on the east face of the rock, in a recess formed by two very high and projecting masses of sand. Though the village fronts the east, yet in the heaviest gales of wind from that quarter, scarce an additional breath of air is felt, while on the isthmus, over which we must pass to reach it, the power of the wind is very great. This effect is obviously produced by the height of the rock, preventing the direct passage of the current of air across the village, while it has an uninterrupted flow across the flat isthmus. The rock, also, screens Catalan Bay from the westerly breezes, so that the ventilation is effected principally by irregular puffs from the north-east or south-east winds.

Masses of the rock are often detached in this neighbourhood after heavy rains, to the injury of the property and lives of the inhabitants. The sea, also, frequently makes serious encroachments upon the houses.

There are no tanks in Catalan Bay: the water in the wells is generally good.

A small detachment of troops is quartered here, and in 1824 an ophthalmic ward was established, but it did not answer; the heat and reflection from the sand and bare rock obviated all the advantages derived from a change of air. Convalescents from other diseases, and weakly men, may enjoy here many advantages, if kept from the wine-house, and in all other respects, placed under strict discipline. The establishment is of great use, as it keeps out of the garrison and brings under due police a large body of fishermen, by whose labours, the town is principally supplied with a cheap and wholesome article of food.

Besides the regular villages now enumerated, the gardeners have sheds and huts thrown up in their grounds, where they reside the whole year. These sheds are of wood, and are covered over with tiles and tarpaulings on the roofs. Their number does not amount to twenty. The inhabitants have always been remarkable for remittent and intermittent fevers, which, indeed, they could scarcely escape, sleeping as they do on the ground, amid the ponds and depôts of manure used in the cultivation of their gardens, and residing in the vicinity of the lowest and most humid part of the isthmus.

I cannot deny myself the pleasure of adding to this head, the copy of a letter addressed by the venerable Dr. Jackson to his Excellency Sir George Don, on the subject of the habitations on the neutral ground:—

Gibraltar, February 26, 1820.

Sir,

I cannot leave Gibraltar, without taking the liberty to offer my sincere acknowledgments for the uncommon marks of kindness I have received from you, during my sojourn at this place. I am disappointed at not being able to execute my mission to Cadiz, but I have been gratified by my visit to Gibraltar, where I have seen effect given to the health concerns of troops, and even of the civil community, which I had myself only projected. Your Excellency fully comprehends that space and ventilation in quarters are essential to the preservation of health; and, that while the quarter is dry in itself, the ventilation be, not by thorough draught; jealouseed windows which

come down to the level of the floor, and which open as folding doors, are the obvious means of obtaining that object.

In order to make the Bomb-proof Barracks dry underneath, I take the liberty to suggest, though I do not know but that it is the practice, to lay the floor, whether terrace or pavement, with flag or pantile, on a bed of charred wood; and, as the neutral ground contains in its own nature the causes which produce intermitting and remitting fever, I presume, without, I hope, officiousness, to offer some suggestions which appear to myself to be calculated to diminish the ordinary effects of that cause. Moisture is everywhere near the surface; and on certain parts of the east, almost at the surface; it is injurious to health, as it rises from the ground, and to diminish the chances of its rising, it is necessary to endeavour to give it forward current. This can only be done by draining, and draining in this case can only be effected, by making ponds at the greatest depressions, of such depth that they may always present a surface of pure water; the western border of the pond being planted with low spreading trees, which not only consume, in their own nourishment, much of the matter which is injurious to human health, but also act as a protecting shield to the district which lies on their lee. If circumstances should render it necessary that troops be encamped on the neutral ground, I take the liberty to suggest that a terrace similar to that in the south, or, as more easily effected, a floor of painted canvas be provided for the tent, and that the side on the east, be generally closed during night.

I think I observed in passing through the town, that the houses or huts have generally wooden floors. The terrace floor is more secure against the ascent of vapour, but the erection of the building on pillars of two feet and a half in height, so that there be thorough ventilation underneath, would be still more desirable. It would be well also, that the houses were open only to the west: the noxious part of the neutral ground is towards the east.

I have taken the liberty to submit to your Excellency's consideration these hasty suggestions. The principle is true—it is not fully or well explained: I have not done it from officiousness, but from respect for a person who seems to give his heart to contrive means of diminishing the miseries and adding to the comforts of those who are fortunate enough to be placed under his command.

Your Excellency's
Most obedient and obliged Servant,
(Signed) ROBERT JACKSON.

His Excellency General Don.

FURNITURE, BEDDING, CLOTHING, AND FUEL.

The houses of the rich are furnished according to their fancy or wealth, and do not come within the legitimate bounds of the Medical Topographer's inquiry. The middling classes seldom want a sufficient supply of chairs and tables. They have bedsteads either of wood or iron, with mattresses, blankets, and sheets; or their beds and bedding are laid upon boards and tressels, so that they sleep at a sufficient height from the ground. The boxes in which they keep their clothing, are generally elevated a few inches from the surface by bricks set on their edges; many of them have, in addition, chests of drawers elevated on feet, and in several of their habitations the surface is covered with a carpet, a painted floor cloth, or mats. These precautions are of the utmost importance, as the ground floors are scarcely if ever boarded, but consist either of bricks, flat stones, or the surface of the rock smoothed and filled up with earth and mortar.

The poorer classes, especially the Moors and Barbary Jews, sleep, in general, on a mat laid down on the floor, with very deficient bedding, and often without any. Their rooms are destitute of what Englishmen consider the most ordinary articles of furniture. As the natives of Barbary uniformly squat on the ground to swallow their meals, tables and chairs are not necessary.

The clothing of the residents of Gibraltar, is as various, as the nations of the individuals who compose the population. The lower orders of Moors and Jews wear a sort of frock, with a hood and sleeves for wet weather; this frock is composed of a species of flimsy blanketing, and is laid aside in summer; they also wear loose cotton drawers, open at the knees; their legs are bare, and their feet are thrust into leather slippers; the head is covered with a skull-cap of wool. In this garb, many of them continue day and night, often without any other covering, except a filthy blanket or old mat, thrown over them while they sleep.

Coal is burnt by the English inhabitants, but charcoal is the usual fuel of foreigners; of both these there are sufficient supplies. Fire-places in the apartments are rare, except among the higher orders. The poor cook on portable stoves, placed

outside their doors, or stew-holes built in corners of the yard. Could chimnies be introduced into their dwellings, they would tend to the improvement of ventilation and the removal of the winter damps.

DIET.

Fish, especially salted and dried, pork in its fresh and salted state, maccaroni, rice, oil, bread, and a large proportion of leguminous and other vegetables, form the chief articles of diet among the lower orders of the population. In time of peace, when the communications between Spain and Barbary are uninterrupted, the supplies of all kinds of provisions are abundant, and not immoderate in price; under other circumstances, however, they become both scarce and exorbitant, as with the exception of fowls, eggs, vegetables, and goats' milk, scarcely any articles of provisions are raised on the rock, and the quantity of these is not adequate to the general consumption. Beef is chiefly procured from Barbary; mutton, lamb, and veal, are the produce of Spain, from which also a considerable quantity of beef is obtained, when the communication is open; Gallacia furnishes a large quantity, but supplies come in from Genoa, Leghorn, and even from the Canary Islands, according to the demands of the market.

The cookery varies according to the national taste of the individuals; oil and garlic, however, are very generally prevalent*.

A very common dish among the lower orders is an extemporaneous kind of soup, called *gespacho*, probably a corruption of *despacho*, in allusion to the rapidity with which it is made. This preparation consists of water, vinegar, common oil, coarse ground capsicum, garlic, and salt, mixed together in due proportion, in a large wooden bowl, with a quantity of bread broken down into it; the bowl is placed in the centre of a group, who all stand and help themselves with their wooden spoons. This meal is generally taken about twelve o'clock; and

* Spanish oil, from carelessness in the preparation, is generally mucilaginous and rancid.

English officers, who have tasted of it both here and in other parts of Spain, for it is not confined to Gibraltar, speak of it as being a very palatable and nourishing article of food.

The bread is good and of moderate price; the flour is the produce of America principally, and an assize is struck, regulated by the value of the barrel. Except pork, the meat procured at Gibraltar is generally speaking inferior. The beef and mutton, except for two or three months, are lean. Lamb is of good quality, and sells at as cheap a rate as mutton. Rabbits, for which Spain has ever been celebrated, are a very common article of diet, and are of moderate price. Fish, we have already seen, is abundant, in vast variety, and generally cheap. Partridges, and other articles of game, are to be procured without difficulty in the season.

I have given a specimen of their less operose cookery; in their more elaborate attempts, they mix a vast variety of articles. Beef, mutton, pork, ham, veal, lamb, fowl, rabbits, partridge, &c. &c. are all stewed together with onions, garlic, peas, beringena (*Solanum melongena* of Linnæus), tomates (*Solanum lycopersicum*), and various sweet herbs, so as to form the national dish "olla podrida," the perfection of which is, that each article is put in at such a period, that it may be sufficiently cooked at the end of the process, without losing any of its flavour or its native juices.

The beverage is Spanish wine in general, the produce of Malaga and Catalonia. The water of Gibraltar is proverbially good: it will keep for many years, and it is said, that formerly it was so highly valued, as to be considered quite a restorative for infirm constitutions. Colonel James has drunk it "as clear and as pure as when it first ran into the aqueduct, after fifteen years bottling*." It is suspected that hydrocele and disorders of the urinary passages have been produced or aggravated by the Gibraltar water, from its hardness and impregnation with lime, but I have not sufficient data to proceed upon, to offer any opinion on this subject.

The quantity of water is with care sufficient for all the uses of the garrison, and it is in contemplation to erect additional

* "History of the Straits," vol. ii., p. 346.

tanks, which will afford a superabundant supply, the sources, whether from rain or subterraneous springs and infiltration, being, as already remarked, inexhaustible.

EMPLOYMENTS, CUSTOMS, AND AMUSEMENTS.

Commercial pursuits are the principal occupation of the majority of the inhabitants of Gibraltar. A very extensive trade is carried on with England, North and South America, the coasts of Barbary, and the Mediterranean, Portugal and Spain. The flags of all nations are to be met with in the Bay, and the town presents every appearance of the most active mercantile operations. Trade is carried on very extensively with the interior of Spain, on the land side, chiefly by Spanish smugglers*.

Gibraltar possesses no extensive manufactories, and the employments of its inhabitants are carried on in their own habitations, or in the open air; so that we meet with none of the diseases which are so prevalent, where a large number of individuals work together, in buildings expressly erected for those purposes. There is, however, one branch of business carried on to a considerable extent, viz. rolling the tobacco leaf into cigars. There are few houses occupied by the lower orders, which have not some of their members employed for this purpose, and some of their premises occupied by persons thus employed. When the demand is brisk, the number of cigar-makers, within the garrison, may extend from 1000 to 1500.

There are no material amusements or customs which influence health, for each individual, or family, of the mixed multitude that composes the population, retains the habits of his own country, insomuch that a person might imagine himself at a vast theatre, or masquerade, where the dress and manners of all nations are represented, and where, it may be added, the actors are as frequently changed; for, with the exception of

* The Sardinian flag, from the security given to it by the victory of Algiers, may be said to cover a third of the trade of Gibraltar, as the imperial does that of the Greek Islands.

the Spanish, Genoese, and Jewish families, who have made Gibraltar their residence for many years, few persons view it as their established home. Comparatively few English families make this their permanent residence; even the natives regard England as their home.

The landed proprietors are estimated at about 500, nearly 300 of whom are Spaniards, Genoese, and other foreigners; there are about 100 Jews, and the other 100 are British; but while the former classes live on the rock, the majority of the latter are non-residents. The popular phrase for a person of English parentage born in Gibraltar, is a "Rock Scorpion," an epithet by no means considered as contemptuous, but so perfectly colloquial, that even children adopt it.

There is a theatre for the representation of Spanish, Italian, and English dramatic performances; and in Carnival time, there are masquerades, and groups of figures parade the streets.

The morals and mode of rearing and educating children, depend entirely upon the prevalent customs of the nations to which individuals or heads of families belong. As a general influential circumstance, the warmth of the climate may be mentioned, as disposing to sexual excesses, and to the laxity of morals in other respects; while the commercial character of the place, fosters in the lower order of Jews and other dealers and chapmen, their natural tendency to cheat, lie, and overreach in every possible way.

There is no respectable seminary of education for children of the better classes. Each regiment has its school for the children of the soldiers; and there are a few day-schools kept by Spanish, Italian, and English residents on a very small scale. Many of these latter are kept in crowded rooms, but as the hours of study are few, it is probable that no bad consequences of a general character have resulted from them.

POLICE.

The police of Gibraltar owes its present existence, exclusively to his Excellency Sir George Don. Previous to the year 1814, the garrison was infamous for its filth; without sufficient common sewers, without an efficient scavenging department,

without pavements on proper principles; in short, without everything that was requisite for the ordinary purposes of public cleanliness; it had obtained the bad pre-eminence of being the dirtiest garrison under the British Crown. When Sir George Don landed at the New Mole, in November, 1814, the first objects that struck the eye, were certain enclosures marked "Depot," in which all the filth of the neighbourhood was stored up to be removed at leisure. The fœtor from these collections was offensive in the extreme; the effluvia which arose from them, were diffused all around, and they were placed so close to each other, as to keep up a chain of putrescent exhalations, which tainted the whole atmosphere.

The work of reformation soon commenced,—the depots were emptied into the sea, and the necessary measures were taken for constructing common sewers through the principal streets. From the rocky nature of the ground, in most situations, this was a work of considerable labour and expense, but by judicious plans and patient perseverance, it was accomplished in a most effectual manner; much still, however, remains to be done; but of what has already been effected an estimate may be formed, when it is known, that many thousand running feet of new drains have been constructed up to the end of the year 1825; of these, 2199 feet were constructed in that year, and the work is still in full progress. Besides these public cuts, many minor ones have been constructed in communication with the main trunks, so that in a few years more, the stigma of want of drainage will be no longer applicable to Gibraltar.

The town-major is director of police, with a suitable proportion of town serjeants, &c. &c., and there are two sub-directors outside the garrison—officers in military charge of Catalan Bay, and the villages and buildings on the neutral ground and north front, whose duty it is, as much as possible, to regulate the health concerns of the mixed population which form the mass of the inhabitants of these places.

In speaking of the gullies, I have already given an account of the nature of the filth which was collected in them, from which an idea may be formed of its composition elsewhere; and I stated that it was a mistake to suppose, that the rain-water was

carried off as fast as it fell. When it arrives about the more level parts of the town adjacent to the main street and the Line Wall, the rapidity of the current ceases, and it flows with as much tranquillity as in the majority of English streams; its impregnations, however, are very essentially different, and the heat to which they are exposed is of a much higher degree. These rains were formerly the principal, and, in many places, the sole scavengers of Gibraltar. On the results, it is superfluous to enlarge; I shall therefore turn to the means adopted to obviate as much as possible the enormous collection of filth throughout the garrison.

There is a regular scavenging department, which not only attends the town, but every part of the garrison and neutral ground, where the animal matter is brought out, divided from the other rubbish, and buried on the eastern extremity of the beach. This branch is under the superintendence of the garrison quarter-master.

By the present police regulations all householders, principal inhabitants and occupiers of separate buildings, stores, or warehouses, are to be provided at all times, at their several premises, with a strong tub, or cask, for receiving the dirt and filth which may accumulate in the course of the twenty-four hours, to be in readiness for the carts of the scavenging department to remove the contents daily.

Dirty water, dust, dead animal and vegetable matter, or filth of any description, is forbidden to be thrown out of the windows or doors, or to be placed in the streets, passages, or gutters, under a penalty.

The butcheries and markets have been placed under excellent regulations. Formerly a piece of ground, below the Line Wall to the northward of the King's bastion, was occupied as a butchery, or zoca, and as a landing-place for the cattle; this place had often been a source of complaint, and was indeed a very great nuisance. Nothing of this kind now exists near the town, and the butchery has been removed to the eastern part of the neutral ground.

A further improvement might be made here, the frequent shifting of the sands having been found to obstruct all the drains hitherto constructed.

No cattle are permitted to be slaughtered in any other place than the zoca on the neutral ground, (with the exception of calves under particular restrictions). The hours of slaughtering are limited to between three o'clock, P. M. and sun-set; and the meat is not allowed to be brought into the garrison before the next morning; so that abundant time is given it to cool and to be thoroughly cleansed; the time for conveying it into the garrison is limited to two hours after sun-rise. The cleansed offal—as head, heart, suet, and tallow, is permitted to be brought into the garrison in the evening that the animal is killed, for the purpose of immediate sale, but no garbage of any description is admitted at any time. In the neighbourhood of the zoca, sheds for the cattle are erected; between four and five hundred head can be accommodated, and sheds for two or three hundred more are in progress. Their food consists of about ten pounds of chopped straw, four of beans bruised, and a proportion of barley per diem, with water once a-day *ad libitum*. The Barbary cattle fatten rapidly, the others fall off, for the simple reason, that the first are put on comparatively full diet, and the latter on low.

The cattle for the troops are chiefly procured from Barbary, under a treaty by which 2000 head are annually permitted to be exported from that country, for the use of the garrison: whatever surplus remains after the supply of the troops, is sold by the contractor for his own benefit. The breed is very small.

The meat is conveyed in covered carts, crates, or baskets, and the filthy practice of blowing by the mouth is forbidden. With regard to the place of sale, the regulations are equally judicious; no unwholesome or tainted meat is permitted to be sold; no live cattle of any description are permitted to enter the market; nor are hides, wool, or lumber allowed to remain in the stalls. No beds are permitted within the market-place. All the stalls are washed every evening throughout the year, and no individuals are allowed to remain in them at night. They are whitewashed twice a month. The cleanliness and regularity of the slaughter-houses, cattle-stalls, &c. is a branch of the police under the town adjutant. The stalls are let out, and the product forms part of an orphan-fund.

The practice of erecting stalls and benches in the public

streets, for the sale of goods, is entirely prohibited. Temporary benches are permitted to be placed in certain situations during the early part of the day, for general convenience.

Taverns, wine-houses and eating-houses are placed under strict regulations: the admission and lodging of strangers is directed to be attended to in the most rigid manner, and the whole are placed under the immediate surveillance of the police.

The burial-places of Gibraltar were suspected of being very efficient agents in the production of the epidemic of 1813*. The smell issuing from the principal one, is described by Dr. Robertson as having been extremely offensive, and he expresses his astonishment that with such a source of fever existing within it, the garrison was ever free from that disease. I have already mentioned the old burial-ground in South Port Ditch as being suspected of similar ill effects. Whether these suspicions were well or ill founded, the main causes of complaint have been removed, and the principal burying-ground is now on the neutral ground. Charnel-house effluvia occasionally arise from it, and in some instances water has flowed into the graves, which might have afforded similar exhalations on evaporation, but the perpetual current of air, the grand neutralizer of all insalubrious miasmata, renders them innocuous to the inhabitants of the town.

The Red Sands, between the Grand Parade and the South Pavilion, was formerly the principal receptacle for the dead. The greater part of these sands is now converted into gardens, and only a very small spot remains, which is occasionally used for officers. The Jews, also, have a burial-ground on Windmill Hill, in a very airy and elevated situation. An old burial-ground, now no longer used, is situated on the side of the hill, above the red sands, and another of a similar description lies within South Port. Upon the whole, the places of sepulture for Gibraltar afford little cause for suspicion at present. The depositing of bodies within the Spanish church, which was so common a practice fifty years ago, that Colonel James says "all

* See "Medico-Chirurgical Transactions," vol. v. p. 311; and "London Medical Repository," vol. i. p. 369.

the Roman Catholics were buried there," is now discontinued. Nothing but the quantity of lime thrown over the bodies, could have prevented the most dangerous consequences resulting from this practice. It is now so rare to deposit a body in the church, that I understand a thousand dollars were lately paid by the family of a Spanish gentleman for permission to do so.

The streets of Gibraltar, which were formerly in a most deplorable state, are now well paved, lighted and cleansed, and extensive improvements are daily going on. Many of the narrow streets have been widened, several alleys entirely removed, and free ventilation promoted by all possible means.

The construction of necessaries, both public and private, has been steadily persevered in, but the nature of the subsoil is not favourable to sinking them deep, as in all fortified towns there exist many military difficulties to carrying them out upon the line walls. Gibraltar, too, presents the additional obstacle to the construction of good public necessaries, that the small height to which the tide rises is insufficient for the daily washing away of the soil, except when assisted by a strong sea breeze.

Although great laxity of morals exists, yet prostitution is not carried on so openly in the streets as in English towns, nor are the diseases which proceed from sexual intercourse by any means so frequent. Street beggars are not so obtrusive as in the generality of commercial towns.

The debtors' prison of Gibraltar was at one time a disgrace to humanity. It is situated near the Moorish Castle, and was crowded, ill ventilated, and without any ground for the purpose of exercise, or any screen to protect the unfortunate inmates from the public gaze. Derangement of intellect is mentioned by Mr. Frazer as a frequent occurrence in this wretched place. Sir George Don has ameliorated this institution: an enclosed yard has been annexed to the prison, into which the cells open; these cells are about nine feet square, and are perforated by a loophole on the side opposite the door, for the purposes of ventilation. The debtors diet themselves: the poorer class have an allowance of about $4\frac{1}{4}d.$ per diem from their creditors. The average number of prisoners is about eight; they are generally of different nations, and therefore can but rarely amalgamate

into similar modes of diet, or other social arrangements of life. Much as it has been improved, it would be desirable that this place of confinement were removed from the town to the southern side of the fortress, where there is abundance of space for its construction.

The criminal and military prisons are within the area of the old castle: they consist of separate cells, capable of being thoroughly ventilated, but, like the former, they would be much better placed at the south. I have not traced any febrile disorders to these prisons. A medical officer of the staff is in charge of them, for which duty he receives half a dollar a day.

The prison allowance is as follows:—

Civil prisoners, before trial at the sessions, are on a general diet of meat, soup, bread, tea, vegetables, &c., furnished at the discretion of the provost-marshal, at the charge of three reals 8 quarts per diem, or about 1*s.* 5*d.* British.

After trial, such as are sentenced to bread and water only, are supplied with those articles *ad libitum*, at a real and a half per diem, or about 7*d.* British.

Military prisoners are, for the most part, under a sentence of bread and water only for diet. Those soldiers not so sentenced, receive their full ration of meat ready cooked.

No wine or fermented liquor is allowed into the Provost, for either civil or military prisoners.

The merchants have a charitable fund among themselves, which is supported by liberal subscription, and many objects are relieved by it. The Jews have a fund among themselves, for the support of the poor and decayed members of their own persuasion. There is also a British Military Widows' and Orphans' Fund, established about forty years since, which is supported by the rent of the stalls in the meat market, and the fines paid on all trespassing and impounded animals, under the administration of the garrison quartermaster.

The Quarantine Establishment of Gibraltar is separated from the general police of the town, but it differs in no respect from similar establishments elsewhere. There is no Lazaretto, but ships ride out their quarantine in a particular part of the bay appropriated for that purpose.

The poorer classes of society have every encouragement to

report their diseases at the earliest possible opportunity. For this greatest of all improvements, Gibraltar is indebted, solely, to the humanity and judgment of Sir George Don; but great as have been the benefits conferred by him on this garrison, they are all merged in the still greater one of the erection of the Civil Hospital, to the consideration of which I shall next proceed.

THE CIVIL HOSPITAL.

The earliest mention of the town of Gibraltar is in the year 1309. It remained in the possession of the Moors till 1462, when the Spaniards retook it, and from them it fell into the hands of the English in 1704. During the whole of these periods I cannot discover a trace of any foundation for hospital purposes until about the middle of the second (or that between 1462 and 1704), when a rich Spanish innkeeper of the name of Juan Mateos, erected one in the year 1587. This hospital was called St. Juan de Dios, and was principally intended for the cure of the venereal disease. In 1591, it fell into the hands of the clergy, who took upon themselves the administration of its funds, and increased its accommodation, so as to admit of four hundred patients annually*. I presume that it was from this original foundation that a wretched ward, which existed until 1815 at the Spanish church, took its rise.

Another hospital is mentioned by Colonel James, under the name of "Notre Dame des Remèdes." It stood where the Naval Hospital is now erected.

I can find no details of either of these establishments. The Jews had a wretched ward for six or eight beds, and the leases of some houses were assigned to the support of the British poor.

The want of a civil hospital was long universally acknowledged; and at length, to use the words of an official document dated August 1815, "the extreme inconvenience and distress which had hitherto been experienced for want of a proper place

* See Mariana, "Historia de Espana," book xv. chap. 4; James, vol. ii. pp. 93 and 101.

for the reception and care of sick civilians in the garrison, rendered the establishment of an hospital indispensable."

A range of buildings were given up for this purpose, which had formerly been known by the name of the "Blue Barracks." In 1810 they were remarkable for the prevalence of fever in them, but by judicious arrangements, they have now become acknowledged among the airiest, most cleanly, and most salubrious buildings in the garrison.

The Civil Hospital stands on the hill side, at the northern end of the town. It is situated upon an open parade, and presents a neat front looking directly upon the bay. It is completely insulated from all other buildings on its flanks: upon the east, or rear, it is separated from the adjacent houses and tenements by sufficient walls. In this hospital there is accommodation for one hundred patients, with ample offices, and a house for the surgeon and dispenser.

The hospital is divided into three branches, for patients of the Catholic, Protestant, and Hebrew persuasions; each has a separate establishment for itself. The wards are upon two floors of easy access, and are extremely well ventilated; they consist of four for the Catholics, four for the Protestants, and two for the Jews. Besides these regular wards, there are three or four small rooms that, on an emergency, may be appropriated to hospital purposes.

The wards contain from two to sixteen beds each. The floors are of wood, the bedsteads are of iron, and the bedding is of a very superior quality, consisting of an excellent hair mattress, sheets, blankets, and cotton coverlet; each bedstead is furnished with a frame for supporting a musquito net; and upon the whole, the inmates of this hospital are as well accommodated, in these particulars, as any individuals in the garrison.

There are two large tanks within the walls of the hospital building, capable of containing between 4000 and 5000 gallons of water, with force-pumps to distribute it through all the wards of the hospital.

The sexes are properly divided. The sewers and drains throughout are well constructed; unfortunately, the privies, from the nature of the ground, have not the drainage that is so desirable in establishments of this nature.

Behind the hospital is an airing-ground, sufficient, on an emergency, to contain two or three convalescent marquees.

Within the body of the hospital is a well fitted-up dispensary, a surgery, and a room for specimens of natural history and morbid anatomy; and at one end, in a detached situation, is a chemical laboratory.

The officers of the hospital are, one surgeon, and a dispenser, who acts also as purveyor; both these gentlemen are half-pay British medical officers.

The servants are, one steward for the whole establishment, one cook for the Protestants and Catholics, the Jews cooking for themselves, one orderly for each division, one nurse for each division, one dispensary servant and barber for the whole, and washerwomen hired at discretion.

The salaries are as follows:—

The Surgeon	90	dollars	per mensem.
Purveyor and Dispenser .	45	do.	do.
Steward	25	do.	do.
Cook	8	do.	do.
Orderlies	8	do.	do.
Nurses	8	do.	do.
Dispensary Servant and Barber	10	do.	do.

Washerwomen and extra nurses are paid at discretion, and the steward, cook, and orderlies, are allowed rations.

The dietary and extras, as well as the books and regulations, are quite assimilated to the plan of the British Regimental Hospitals. On an average, the diet for each patient costs from 10*d.* to 1*s.* sterling per diem.

The funds are supplied from a contribution of three reals, or about one shilling on each cask of flour used by the town bakers; the Quarantine fees, which average annually about 3000 dollars; fines imposed by the Civil Court, private subscriptions, legacies, and a sum of 2*s.* 2*d.* paid by such patients as are able to contribute to their own support. The Consuls of the different nations pay for sailors, &c. at a similar rate, but payment is not necessary in all cases, the only claim for admission being distress. A legacy of 3000 dollars per annum was left to the Catholic part of the hospital, by the late Mr. Gavino, a charitable inhabitant.

The Dispensary is daily open to out-patients; advice and medicines are liberally administered, and vaccination regularly performed. For a period of ten years, namely, from its first establishment in 1815, to 20th December, 1825, there have been treated in this hospital 2333 cases; and for the same period, 13,182 out-patients have been treated by the officers of this establishment.

Upon the whole, the civil hospital of Gibraltar reflects the highest credit on all concerned in it. Whenever circumstances will admit of the enlargement of the accommodation for lunatics, and the formation of a distinct hospital for lying-in women, all will have been effected, of which the establishment seems capable.

The merits of the military medical officers on duty in the garrison, should not be overlooked in this place: they have always co-operated with the civil officers in visiting the sick poor, and have thus materially promoted the design of the institution, while they have very essentially aided in preserving the health of those more immediately under their official care; for in a locality like Gibraltar, the health of the troops must ever be intimately connected with, and in a great degree dependent on, that of the inhabitants. This is a fact which experience has placed beyond a doubt in this garrison, and which the inquiries of both the contagionists and non-contagionists equally confirm.

ENDEMIC AND EPIDEMIC DISEASES.

I now come to the description of the Diseases of Gibraltar; in my published sketch on the Heads of Medical Topography, I have recommended that the Endemic and Epidemic Diseases should be treated under distinct heads. I now avail myself of the license.

Not having been an eye-witness to the scenes I am about to describe, I do not consider myself qualified to pronounce decisively on a question so complicated, that even those who were on the spot, formed very different opinions upon it; I have, therefore, determined to become the partisan of neither

class of those controversialists, whose reports have agitated the medical world, on the endemic or imported nature, the contagious or non-contagious properties of the fevers which prevailed in the unfortunate eras of 1804, 1810, 1813, and 1814. The professional characters of the supporters of the opposite theories stand high, and I neither question the fidelity of their reports, (to the best of their knowledge,) nor the uprightness of their intentions; but it has been long allowed by the more dispassionate part of the profession, that much is assumed on defective evidence; that much special pleading has been entered into, and that there is often room to suppose, that the opposite parties have contended more for victory than truth.

I shall confine myself to a brief summary of the more important febrile diseases which have appeared in the garrison, drawn from the most authentic documents I can procure, without distinguishing them by any other denomination or classification, than that which chronological order naturally points out. In treating of the fevers of the periods above alluded to, I shall reject as extraneous, all speculations or arguments entered into by the controversialists, except they evidently spring from the ascertained facts of the case; not that I would deny the value of some of these observations, but there are many of them, which, however applicable to other places, do not quadrate with the circumstances, either local or incidental, of this garrison; they therefore often tend to embarrass rather than illustrate the history of its diseases.

Before entering upon the inquiry it will be necessary to state briefly, the general acknowledged character of the prevalent diseases of the garrison. We do not possess in this office, any official returns of diseases previous to the year 1815, for the civil population, and of 1816 for the military; we must therefore trust, for antecedent periods, (and I feel certain that we may do so with perfect confidence,) to the account published by Dr. Donald Monro, in his book "On the Health of Soldiers." This account, he says, he received among other reports which were made relative to the proper season for landing troops in various situations, from gentlemen well acquainted with those parts of the world. "From the middle of November to the end of March is the most proper time for

landing troops in Gibraltar, the soldiers then arriving at a time when the climate differs in nothing essential from the one they left. At this place, June, July, August, and September are constantly hot—the two last, sultry,—and in these months, the garrison and inhabitants are subject to bilious and putrid disorders, but new-comers seldom escape, and have them in a violent degree. In October and November are the autumnal rains, and fluxes and inflammatory complaints then take place. December and January are commonly dry, and the inflammatory complaints continue, but the number of sick decrease considerably. February and March continue cold, and then the vernal rains fall, which are often intermixed with hail, and accompanied with high winds, and the disorders are much the same as in the preceding months. April and May are temperate and pleasant, and the diseases of the four preceding months abate considerably in frequency and violence."

This statement is so faithful, that it would be superfluous to enlarge on the subject of diseases in general; I shall therefore proceed to specify eras in which deviations have taken place from the ordinary course of health.

The earliest account I find of any serious disease in Gibraltar, is in the year 1649, when the plague broke out within the walls. This disease had raged on the outside of the fortifications, when the Spanish army besieged the town in 1350. Not a trace of medical information remains on the subject; the disease of 1649 may or may not have been the genuine plague; that of 1350 was most probably so, for Ayala states, that it was attended with morbid swellings of the glands*. In 1704, the fortress fell into our hands, but we hear of no sickness until May 1727, when fluxes prevailed in the garrison, which was then besieged.

After the siege of 1727 the mortality was excessive; it carried off, out of a garrison of 5481, no less than 500 souls, or very nearly one in eleven, within three months. Of the history of the disease I can give no account. Colonel James, from whose work I derive my information, says, (p. 147,) "The garrison

* Ayala; "Historia de Gibraltar," pp. 164, 270.—Mariana, quoted by James, vol. ii. p. 101.

lost very few men during the siege, and fewer afterwards; but soon after, the soldiers, through excess of drinking and want of exercise, died in vast numbers, for it is computed that 500 were buried in three months." The siege was raised the 11th July, 1727: the three fatal months, therefore, were those in which, according to Dr. Monro already quoted, "bilious and putrid disorders are most prevalent." Was the disease of this nature or not? It is certain, that 1727 was a very unhealthy year in England, Ireland, Holland, and Switzerland. Whether Spain was equally affected I know not, nor have I the means of ascertaining the nature of the prevalent diseases in the countries enumerated, with the exception of Switzerland, where it was malignant dysentery, and London, where the prevalent disease was fever of a malignant type *.

In the last siege, during the year 1780, scurvy made its appearance. It seems to have been very severe, for, according to a report by Mr. Cairncross, a medical man and an eye-witness, consolidated fractures became disunited, and old sores and wounds opened anew. It became almost general at the commencement of the winter season, owing to the cold and moisture, and in the beginning of spring, when vegetables were rarely to be procured. This disease can scarcely be wondered at, for soldiers' rations, I find, at this period consisted of two pounds eight ounces of salt beef, one pound of salt pork, ten ounces of salt butter, with seven pounds of bread, half a gallon of dried peas, and three pints of groats per week. In the cure, vitriolic acid, sour crout, extract of malt, essence of spruce, &c. all failed, and the great specific was the juice of lemons or oranges, prepared by adding sixty gallons of the expressed juice to from five to ten gallons of brandy, and administering from one to four ounces daily†.

The catarrhal fever, or influenza, which spread over Europe, was also experienced in Gibraltar during the siege in the year 1782 ‡.

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* Webster's History of Epidemic and Pestilential Diseases, vol. ii. p. 229.

† Drinkwater's History of the Siege, 4to. London, 1793, p. 114.

‡ Idem, p. 253.

In the autumn of 1799 a fever resembling the bilious remittent or yellow fever of the West Indies, prevailed to a considerable extent in Gibraltar, as recorded by Dr. Trotter in his "Medicina Nautica," vol. iii. p. 420, *et seq.*

In 1800, I first visited this fortress, as an assistant-surgeon in the army under Sir Ralph Abercrombie. The period was so unhealthy, that the deaths amounted to a sixteenth of the whole garrison. No less than 217 men died out of a force of about 4500. Many women and children were likewise carried off. Of the deaths of the inhabitants I have no accurate account, but it is generally stated that they were not very high. It was in this year that Cadiz suffered so severely from yellow fever. Of the nature of the complaints at Gibraltar, though generally stated to have been febrile, I have no certain or official information, but the mortality was comparatively enormous, for in no preceding year, from June 1796, had it ever exceeded eighty-five, and the average was about fifty-seven. The deaths of 1800 nearly quadrupled the average, and considerably more than doubled the maximum.

From January 1801, to June 1804, the annual deaths decreased in a most unusual manner: they were successively eighty-three, fifty-two, twenty-two, thirteen, twenty-five, thirty-seven, twenty-three, or, on an average of seven years, about thirty-eight annually, the garrison still amounting to about 4500 men.

It was in the month of August 1804, that the first official alarm was given of that tremendous visitation which fell upon Gibraltar. Dr. Pym, then Inspector of Health and Medical Superintendent of Quarantine, reports that he saw one case, of a person who died in the preceding year, under very suspicious circumstances, on the third day of his disease. He had had hæmorrhage from different parts of his body, with great irritability of stomach, which was at last attended with vomiting of a matter, resembling coffee-grounds. This patient was not seen by Dr. Pym until after death: the body was of a pale yellow tinge, and covered with petechiæ*. At this period a similar disease prevailed at Cadiz and Malaga, cities, about

* Observations on the Bulam Fever, 8vo. London, 1815, p. 16.

equidistant from Gibraltar to the eastward and to the westward, but no other case is on record as having appeared in this garrison, and no room for doubt exists that it was an unfrequent and alarming occurrence, although we have no authority for asserting, that it was the only instance which occurred in the garrison; for however cautious the constituted authorities may have been, we are authorized in the supposition, that many attempts were made to impose upon or keep them in ignorance, some of which may have succeeded, in the highly crowded and filthy state of the garrison, at that period.

Dr. Nooth, Superintendent-General of Hospitals, reported officially on the 20th September, 1804, that in consequence of long continued drought, and the excessive hot weather experienced for months, an epidemic fever of the *inflammatory* kind raged with some violence in the garrison. The lower class of inhabitants seemed to suffer most, and many persons of both sexes had then fallen victims to it. Dr. Nooth attributed the losses, in some regiments of the garrison, to mistake as to the real nature of the disease, on the part of the medical officers of these corps, who were of opinion that it was of a putrid and contagious nature. Dr. Nooth, to obviate the above alarm consequent on this opinion, visited the worst cases himself, resisted as much as possible the idea of the disease being spread by personal contact, and ordered blood-letting to be generally adopted in its treatment. By the 10th of October, the disease was not confined to the artillery and De Rolle's, the corps in which it first appeared, but began to manifest itself in all the other regiments in the town, and very generally among the inhabitants. The south still continued free from the disease, although, at a subsequent period, it suffered from it. "Thinking," says Dr. Nooth, in his letters of that date, "that this disease arose from a combination of causes, such as long-continued heat and drought, a crowded state of the lower class of inhabitants, a want of proper attention to individual and domestic cleanliness amongst them, I immediately proposed that the troops should be all withdrawn from the town, and encamped in the most airy situations on the rock. Unfortunately, however, there were too many predisposed to the disease for us to feel the good effects immediately, that might have

been expected from such a plan. Numbers daily fell sick, and I am sorry to tell you that our loss in De Rolle's and the artillery corps, has been within this month enormous.

"The loss in other corps is comparatively small, but amongst the inhabitants, the ravages which the disease has made is beyond description terrible.

"To lessen the number of inhabitants in the town, an encampment was formed for them on the neutral ground, where from three to five hundred sick have been accommodated at the public expense."

Dr. Nooth, in another part of the same letter, observes that "the disease by no means seems to be *infectious*, but the whole atmosphere on the rock is *pestiferous*;" and then goes on to state his idea that the lime-kiln already mentioned was art and part in the general mischief*.

By the return of the 20th October, it appears that no less than 1124 cases were admitted into the military hospitals for thirty preceding days, which, with 224 remaining on the 20th of September, gave the enormous number of 1348 patients. All other diseases seem to have been completely merged in the prevalent fever, for, on closing the return, out of a total remaining of 565, there were only eight dysenteries, eight wounds and ulcers, two venereal, one pulmonic, and one hepatic complaint; the rest were fevers, of which 272 were convalescent.

After this period the disease declined fast; there were very few cases in December, and as soon as the weather became moderately cool, the convalescents recovered rapidly, and all febrile diseases had disappeared by the end of January 1805. On the 20th of that month there remained in the military hospitals only seventy-four sick, twenty-two of whom were convalescents. The cases were, scurvy, seventeen; wounds and ulcers, twelve; pulmonic complaints, six; rheumatism, six; hepatitis, four; dysentery, three; venereal, two; fracture, one; and intermittent fever, one.

The ravages of the fever will be best seen by the following observations taken from Dr. Pym's work.

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* See the Letters, from which I have condensed the account, in Dr. Pym's work already quoted, pp. 33, 38.

"Having said this much concerning this disease, as it prevailed at Gibraltar during the last four months of 1804, which was the centenary of that garrison being in possession of the British Crown, and the only time that any such disease had ever prevailed there, and which, until this period, was reckoned one of the healthiest quarters for troops out of England, I shall here insert the total number of deaths during this deadly calamity:—

Officers	54
Soldiers	864
Soldiers' Wives and Children	164
Civilians	4864
Total	5946

Compare these four months' mortality with the total number of deaths among the military during the whole of the two preceding years, viz.:—

Year 1802, deaths	35
„ 1803, „	56
Total of deaths in two years	91

Sir James Fellowes, then a physician to the forces, but who did not arrive at Gibraltar until the 23rd of November, concurs with Dr. Pym (who was himself absent until the 18th of October), in asserting that this disease was contagious, and had been introduced into the garrison; while Dr. Nooth, the principal medical officer, Mr. Burd at the head of the medical department of the navy, and all the medical officers doing duty from the first, in the garrison, with the exception of the surgeon of the artillery, were decided in their opinion that it proceeded from the great heat and unfavourable state of the weather, and was not contagious, but of local origin *.

The opinions, conjectures, and assertions in support of the two theories, were numerous, undetermined, and fluctuating, even at the time, among eye-witnesses; and it is not in the least surprising to find serious discrepancies among writers, at a subsequent period. To attempt to investigate the truth of each particular assertion, would be a task of Herculean diffi-

* Fellowes' "Reports," p. 116. Pym, p. 23.

culty; but those who wish to have the arguments at full length, I would refer to the work of the two respectable authors already quoted, and to those of two equally respectable medical officers, Dr. Bancroft, physician to the forces, and Dr. Burnett, physician to the fleet; neither of whom, however, was present during any part of the period when the fever prevailed in 1804 *. In a summary like the present, the principal assertions on both sides, may be condensed under the following heads.

The *Contagionists* assert—1st. That for more than a century, no such disease as the fever of 1804 ever existed in Gibraltar. If atmospheric causes had produced the complaint, it must, they assert, have been carried to Gibraltar in 1800 and 1803, when it prevailed at Cadiz and Malaga, neither of which places were more than fifty miles distant in a direct line.

2nd. That if it were not contagious, a good police and quarantine regulations could not have had any influence in altering its nature, or obviating its entrance into the garrison.

3rd. That its importation was traced to certain individuals arriving from places affected with a similar disorder.

4th. That its communication was satisfactorily traced from one particular spot at first, and from persons frequenting that spot; and that its progress was continued through families, when once introduced.

5th. That persons who once had the disease, were not affected a second time, analogous to the exemptions in plague, small-pox, and other diseases of that class.

Or, to sum up all in one—

6th. That the disease was one "sui generis," highly contagious, attacking the human frame but once, of foreign origin, capable of being propagated in countries enjoying a certain degree of heat, and which may at all times be prevented in Europe, by quarantine laws and a well regulated police.

The name applied to the disease by Dr. Pym, is "Bulam Fever."

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* Bancroft's "Essay on Yellow Fever," 8vo., London, 1811. Do. "Sequel to Do." 8vo., London, 1817. Burnett on "Mediterranean Fever," 8vo., 1816, 2nd ed.

The *Anti-Contagionists* assert—1st. That fevers of this description have always existed more or less on the coast of Spain, and that the non-appearance at Gibraltar to the violent extent they did in 1804, proceeded from local and atmospheric causes.

2nd. That quarantine with foreign countries, has not had any share in the exclusion of the disease, and that police only operated on local circumstances.

3rd. That the proofs of importation have altogether failed.

4th. That the supposed communication among individuals frequenting one particular spot, is fully explained by these persons having all been exposed to the operation of the local causes.

5th. That the non-liability to a second attack is not a universal law, although a very frequent result; that this result is not confined to this fever alone, but is common to every continued fever of hot climates, and depends upon certain peculiarities of constitution produced by residence in them.

Or, to sum up all in one—

6th. That the fever of Gibraltar, in 1804, was not *sui generis*, was not contagious, did not come under the universal law of attacking but once, was of domestic origin, and was not capable of being imported, and consequently not an object of quarantine; and lastly, that no such distinct disease as "Bulam Fever" ever existed.

It cannot be supposed, that in making a report upon the diseases of Gibraltar, I am called upon to identify myself with either party, or to descend into the arena of disputation in defence of one or other of their opinions. This is the less necessary, because the great practical fact is universally admitted, that, on emergencies of this description, removal of the troops from all communication with the town, is the grand measure for ensuring the preservation of their health. I shall select from the great mass of facts before me, some of those which I conceive most valuable, in a practical point of view, whether they have been brought forward by the one party, or by the other; and on observing on these facts, I shall offer such remarks as strike me, without reference to the peculiar opinions of either. By following this plan, I am confident

that we adopt the best measures for attaining the truth, as it regards the past, and collecting a stock of correct data to guide us for the future.

General Fox, who commanded in Gibraltar towards the close of the sickness of 1804, ordered the commanding officers and surgeons of corps to transmit to him such facts as they were acquainted with, illustrative of the first appearance of the disease in their corps. From these reports *, the following, among other circumstances, appear.

The surgeon of the artillery, Mr. Kenning, stated, that on the 12th September, the total number of sick in the town was fifty, all residing in the neighbourhood of Boyd's-buildings, where the disease first appeared, and that in ten families he found it had attacked more than one person. A bombardier and his wife, who lived next door to the house of one of the first patients, (indeed, the person who, it had been asserted, imported the disease from Cadiz,) were themselves the first individuals attacked in the artillery; those who visited the bombardier and his wife, were the first taken ill in that corps, and that part of the corps quartered nearest their residence, was remarkably more unhealthy than any other portion of it, insomuch, that out of 178 men quartered in barracks on the Governor's parade, distant twelve yards from the houses where the patients first affected resided, forty-six died, while of 368 quartered in Orange bastion on the Line-Wall, and in the Moorish castle, each about a quarter of a mile distant, only thirty-five deaths occurred.

Each party may extract from these facts, proofs of their own theory; but whether we attribute the disease to contagion or locality, no practical man can doubt that the removal of the troops from the unhealthy buildings, and the prevention of communication with them, was a precaution imperatively called for; it was, however, fatally neglected.

The facts which occurred both among the troops and the inhabitants, in proof not only of the unhealthiness of Boyd's-buildings, but in illustration of the danger of individuals ex-

* "Folio Report Book," by Mr. Fraser in the Inspector's Office, p. 27, *et seq.* Fellowes and Pym, *passim.*—General Fox arrived 18th December, 1804.

posing themselves to communication with them, are numerous, but I shall content myself with referring for them to the works already quoted. After reading these facts, however they may be explained, one practical deduction appears to me quite evident, viz., that the buildings ought to have been abandoned by their inhabitants, and that all communication with them ought to have been interdicted to the troops.

It was more than three weeks before fever appeared in the south, although it had been progressively spreading in the town, and that there was a daily communication, for military and domestic purposes, between the two districts. The first death, as far as can be ascertained, occurred in a young man, who kept a wine-house in town, exactly opposite Boyd's-buildings, and who had thence removed to his mother's house on Sand Hill, in the south. Sir James Fellowes, who appears to have taken much pains on the subject, states (p. 136), that he was never able to trace the progress of the malady from this man's house, nor could it ever be ascertained whether other sick persons fled from the town about this period: be that as it may, the disease in the south first spread in the neighbourhood of Sterico's-buildings, among the sheds and other confined houses; it then extended to the Agent of Transports, and other large and comfortable houses, between Sand Hill and Rosia Bay, and at last the troops in the South barracks were affected.

The commanding officer of the 13th regiment, then quartered in the South barracks, states in his report, that the disease was for some days confined to the outliers and others, where more communication with the people out of barracks could be traced, than the generality of soldiers have.

The first seized, were the married men, living in huts, immediately over or adjoining a sewer, which was horribly offensive. The next seized, was an officer's groom, who slept in a yard of the officers' pavilion, close to these huts; all the officers' servants were seized in succession, with the exception of one. The officers were the next affected, and the disease spread to the whole of them. In short, every individual in the pavilion was attacked, with the exception of the man just mentioned, but his wife died of the disease.

Can the most decided supporters of either side of the question doubt, that proper attention, to segregation and police regulations, would not have materially altered the face of affairs in this instance?

To pursue the progress of the disease, through all its ramifications, would be tedious and unprofitable; what has been already said, may serve to illustrate some of the arguments under the heads already laid down. It is obvious, that little good could arise from insulating each fact that occurred, or endeavouring, by rigid classification, to bring it to bear solely upon one particular head, for, from the very nature of the facts, they are of a mixed character (generally speaking) as refers to this question; some of them, however, are less so than others, and among them the following, which may be said to come purely under the question of police and quarantine.

The 10th regiment, 748 strong, were quartered in the town, and up to the 25th of September, had only one man taken ill. The system adopted in this regiment was, to hold no communication whatever with the inhabitants, on pain of a drum-head court-martial, and to ensure segregation, the rolls were repeatedly called. Two of the servants, however, who lived in Irish Town, where the disease raged, did *not* attend the roll-callings, and could not be prevented from intercourse, and they caught the disease. Many of the men of this corps, it should be remembered, had served in India*.

Mr. Redmond, assistant-surgeon, 54th regiment, was decidedly of opinion, that the disease was contagious. He traced it from man to man, for, whenever a man was admitted into hospital, his comrade and bed-fellow soon followed. When the officer was affected, the servant was affected also; the same may be observed of husband and wife; but above all, of twenty-six persons employed as hospital servants, not one escaped. When officers and families in his corps avoided communication, no disease appeared; the moment they neglected this precaution, they were no longer safe. The Colonel's family, the Paymaster's, and several others, afforded incontestable proof of this

* During the whole of the epidemic, the deaths in this corps amounted only to twenty-two.

fact. Colonel Darby's and Paymaster Wilkinson's family lived in quarantine at Europa, and escaped. On the setting in of the rains, in the early part of November, they returned to town, and the whole were affected with the fever, except Colonel Darby, who had been in the West Indies.

There have been doubts as to the utility of the quarantine maintained by SOME individuals and families upon the Rock during the fever of 1804, as well as upon the real strictness of it. I shall not discuss these points, but shall state facts which I believe to be of indisputable certainty*.

1st. On the 1st of October the deaths in the garrison were upwards of 130, among them Mr. Frome, the garrison chaplain; this gentleman was attacked three days after having attended the master-blacksmith's wife in her last moments. The five blacksmiths, who carried the corpse to the grave, were attacked on the fourth day, together with eight others who attended the funeral. This circumstance was stated to the commanding engineer, Colonel Fyers, who had originally considered the disease not contagious; he, however, was induced, from this fact occurring in his own department, to establish a strict quarantine at Europa, to which place he moved with his family, fourteen in number. The whole family escaped, while De Rolle's Regiment, who were encamped on one side within forty yards of them, but not prevented from communication with the inhabitants and the rest of the troops, had no less than 442 cases of fever out of a strength of 635. The mortality in this corps amounted to 197.

2nd. Captain Dodd's family, seven in number, and Mrs. Straith's, three in number, lived in detached houses, and avoided all communication. The distance between the houses was 300 yards. On the intermediate space the 54th regiment was encamped. This corps was affected in a proportion of 456 out of 747, and the deaths were 100; but the families of Dodd and Straith, on each side of them, had no instance of disease.

On the other side of the question, it is certain, that a lady of rank, who shut herself up in the Moorish castle, caught the

* From Colonel "Wright's Manuscript Journal, Folio Report Book," p. 35; see also "Fellowes," p. 51.

fever and died of it. Her husband, who constantly attended her, escaped, as did many other persons, who were in close contact with the sick, in various parts of the town and south district*.

Even when sick have been embarked on board ship, they have not, in many instances, communicated the disease. Fifty were placed on board the Leyden, a crowded troop-ship, without infecting any others of the crew†. While the contagionists explain this, by their superior ventilation on board ship destroying the contagious property of the disease, the non-contagionists consider it as an absolute proof in favour of their views of the question. I conceive that their opinions may be reconciled upon the supposition, that the original crew, never having been ashore, were perfectly free from the "seminium" of the disease, while the sick, on their passage on board, and in their airy berths, had the communicable property of their complaints neutralized. In a similar manner, men, who enjoyed perfect health on the airy neutral ground, caught the fever on going into the town; but when confined to the neutral ground, though they had communications with persons coming from town, they remained free from all disease.

Much, certainly, must be attributed to atmospheric influence; but unquestionably many concomitant circumstances are to be taken into account; the following fact is highly illustrative of this subject. In one company of the artillery, of eighty-eight men, there were fourteen deaths up to the 2d October, while of 2500 men of the 2nd, 10th, 15th, and 54th regiments, there were not so many febrile cases all together at the same date, although they were all component parts of the same garrison‡. At this period, the proportion of deaths was upwards of one-tenth of the *inhabitants* weekly. That the sole cause, therefore, could not have existed in an atmosphere breathed *in common by all*, whether soldier or civilian, is, I conceive, rendered

* "Edinburgh Medical and Surgical Journal," vol. xii. p. 177. Mr. Amiel's Report, *passim*.

† "Burnett, Appendix," second edition, p. 437, and Playfair's Thesis "De Febre Flava Calpense." Edinburgh, 1819.

‡ "Wright's Manuscript Journal, Folio Report Book," p. 38.

highly probable by this fact. The following circumstances bear powerfully upon the same point.

The Spanish troops doing duty at the Lines, within one mile and a quarter of the garrison, had no sick; a fact which shews, that whatever atmospheric causes may have had to do with the disease, within the garrison, they did not extend to any great distance on the outside. The Spanish force was about 3000.

At San Roque, five miles distant, with a population of 6000 souls, no sickness appeared, during this epidemic period at Gibraltar.

At Algesiras, ten or eleven miles distant by land, and five or six across the bay, where the late General Castanos commanded, the disease appeared on the 7th October 1804. The population of this town is estimated variously, from 9000 to 14,000 souls; the prevalent opinion in the place was, that the disease was imported from Malaga or Cadiz. General Castanos instituted a rigorous but humane police, which was followed up for six weeks, and the disease ceased by the middle of November, with the loss of no more than about 100 persons.

At Los Barios, four or five miles from Algesiras, no precautions were used; the fever carried off 150 patients in a population of 1500; and at Smeras, another small town, twenty miles distant, it carried off ten or twelve persons daily. At San Roque, and the lines opposite Gibraltar, where the disease never appeared, and where, on the contrary, the season was remarkably healthy, all communication between Gibraltar on the one side, and Algesiras on the other, was completely cut off.

In addition to these facts, it is to be observed, that the first appearance of the fever at Algesiras was when the disease at Gibraltar was at its height: the weather was then excessively sultry and calm, what little wind there was being from the eastward; and it was observed, that the attendants on the sick were much more liable to be taken ill in that state of the weather, than when it was cooler and the wind at west*.

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* "Folio Report Book" in Inspector's Office, page 47, from Colonel Wright's Manuscript.

If these facts are not in favour of segregation and moderate quarantine, I know not what can be deemed so; at least, to my own mind they convey the most perfect conviction upon these points.

The family of the agent for transports at Gibraltar, was attacked with the prevalent disease; and Mr. Benyon, the surgeon of the 10th regiment, reported officially, "that every master of a transport who had business at his house, was affected with fever, while all those vessels in the Mole which had no communication with the shore, escaped." Sir James Fellowes corroborates this report, and adds some valuable information, for which I refer to his book (p. 141).

The facts in this case may be differently explained: the contagionists may say that the disease spread from personal intercourse; the non-contagionists, that it was from the masters of transports quitting their clean airy vessels, exposing themselves to the sun and to the exhalations in Rosia bay, and the damp of a ground-floor office; but, in either case, it is clear that segregation and pure air were the most certain preventives.

Assertions, and even oaths, have been proffered in proof of the importation of the fever into Gibraltar in 1804. Those who are curious in the investigation of evidence upon oath, in medical matters, must consult the works of Sir James Fellowes and Dr. Bancroft. This species of evidence I dislike, especially when it merely bears upon a *matter of opinion:* a clever special pleader can dilute the strength of an affidavit even in *matters of fact.* Dr. Bancroft takes up a position which I conceive to be untenable. He endeavours to hinge his chief argument against the contagious nature of the Gibraltar fever, on the deficiency of the proofs of *actual importation.* A denial, he observes, of the importation of a specific contagion as the cause of this fever, involves a denial of its contagious property. Now, although I admit that it is very desirable to have complete evidence upon the subject of the importation of a disease, I absolutely oppose the assertion of Dr. Bancroft. Would Dr. Bancroft doubt that small-pox, or plague, or typhus existed in his parish, because he could not place his finger upon the person who introduced them? Or would he deny that syphilis was contagious, because we have not satisfactory evidence that Columbus

imported it from the trans-Atlantic shores into Spain? In fact, nothing can be more difficult to ascertain with precision, than the introduction of an invisible source of contagion: from the very nature of things, the proof is inferential, and must ever be more a subject of investigation for a philosopher than for a special pleader; and the public officer who would suspend his precautionary measures, in the case of an epidemic, until he should have proof positive of its importation, would, to say the least of it, incur the character of foolhardiness.

But let it be admitted that the fever was not imported into Gibraltar: surely there are few practical physicians now-a-days, notwithstanding Dr. Bancroft's dogmas, who doubt that diseases not originally capable of propagating themselves, may acquire that property, by crowding many sick in filthy and ill-ventilated habitations, under a tropical heat; or, that febrile affections, originally possessed of but a very trifling power of propagating themselves, have had that power exalted to the most malignant degree by similar circumstances.

But to proceed with the fever of Gibraltar. By the 22d of October, the strength of the garrison was so much reduced, that a surprise from the Spaniards was dreaded. By the 31st of the month, the deaths among the military, notwithstanding that they had at length been encamped in various places, amounted to 34 officers and 671 non-commissioned officers and privates, while many others were sick and unfit for duty. "Neither wind nor rain," says Colonel Wright, "seemed to have the smallest effect in checking the disease amongst the troops, nor lessening its malignity; as, excepting in the 10th regiment, which had been some years in the East Indies, the other regiments lost fully one-third of those seized; and what seems extraordinary is, that it was peculiarly fatal on Windmill Hill, which is so many feet above the level of the sea, and where the air is pure and cool; but no change of weather or situation appeared to have any effect on the symptoms of the disease, which ran its course with astonishing uniformity *."

The precaution of encamping the troops, did not take place before the 27th of September, a period at which the disease

* "Manuscript Journal in the Inspector's Office," folio 49, 50.

raged with such violence among the inhabitants that it was necessary to force them to assist in the removal of the bodies, which were piled in carts, so soon as life was extinct, as coffins could not be procured for a fourth part of them.

Discharges of artillery and bonfires in the streets were had recourse to with decided ill effects. These measures were adopted to purify the atmosphere, but the great heat they occasioned, and the terror they inspired, turned out to be most detrimental. The ill effects of lighting fires in the streets of a town labouring under pestilential disorders, are familiar to those who have read the history of the Plague of London in 1666; and even in our own times they were tried in America with bad success. The history of this and similar measures may be seen detailed at full length in Dr. Russel's Treatise on the Plague *. We may now reflect coolly on what our predecessors hastily adopted in the moment of terror, sickness, and hesitation; but we should consider how much easier it is, at all times, to find fault, than to correct.

The rain, which began about the end of October, and occasioned the breaking up of the encampments, did not in any way check the progress of the disease. It continued, at intervals, until the 20th of November, on which day no death occurred among the troops. About this period some shops in the town began to do business: the disease, however, still continued, and fresh cases, relapses, and deaths occurred until the last days of December, when, to use the words of Colonel Wright, "it seemed extinguished, rather from want of subjects, than from any degree of cold or change in the atmosphere. All the troops who had not had the disease were kept in rigid quarantine, and in the whole town, extraordinary as it may appear, after making the most diligent inquiry, *twenty-eight adults* only could be discovered, who resided within the walls, who escaped the malady †."

Relapses were frequent about the end of October and beginning of November, principally among intemperate subjects; but either no instance of second attack occurred, or, if it did, it formed an exception to a rule, admitted on all hands to be

* Book VI. of the "Police in Times of Plague," p. 568.

† "Folio Report Book," p. 56.

general. The same was observed of persons who had had the yellow fever in the West Indies, and advantage was taken of the circumstance in conducting the duties, both in the hospitals and in the barracks. A quarantine encampment, of those who had not passed through the fever, was formed on the 9th of November. These men, with the exception of the 13th regiment, took their bedding with them; the 13th, by the precaution of their Colonel, left their old dirty bedding behind, and brought two clean blankets in lieu: not a man of this corps was attacked with disease, whilst, on the 12th of this month, five men of other corps were seized, and within the three following days every regiment, except the 13th, had men taken ill. The bedding was then taken from them all, and fresh and clean articles supplied. I cannot discover whether any others were attacked after this change. In whatever light it may be taken by either the contagionists or non-contagionists, this fact suggests a useful precaution, which indeed it is astonishing could have been overlooked by the most careless observer.

The last death among the troops took place on the 28th December, and on the 31st the sick in hospital were reduced to one. The thermometer at this time, and for several preceding days, had seldom risen to 60°. By the 2d January, it sunk to 51° at noon, and on that day the last person taken ill of the prevalent disease was attacked.

Immediately after this, the garrison became remarkably healthy, and continued so without any unusual or alarming disease until 1810.

In July and August, 1810, by the accounts of Mr. Amiel, garrison assistant-surgeon, bilious remittent fever became more than usually prevalent; and in September, several cases of uncommon malignancy appeared, two of which proved fatal. On the 19th of September, four transports from Carthagena (two of them with deserters from the French army) arrived in the bay. At the time they sailed, yellow fever prevailed at Carthagena, and they were placed in quarantine, not only on this account, but because several persons were ill of a similar disease on board each of the vessels.

About the 20th of October, a disease similar to that on board the transports appeared among the inhabitants, in the

neighbourhood of the dock yard in the south, and in a few days more, among the soldiers of the Fourth Veteran Battalion, quartered at the Cooperage barracks, at the northern extremity of the town. Its attack was confined to thirteen men of the Veterans; of these six died; all of whom were taken ill in the same barrack-room. Measures of a very prompt and decisive nature were taken to prevent communication between the sick and those in health. A cordon of troops was formed round the infected part of the south district, the houses were purified, and the whole of the Veteran corps, in which the disease appeared, (including the hospital establishment,) was encamped on the neutral ground. After their arrival in camp, very few were attacked; and of these, three were from the same tent.

Within the town of Gibraltar, only two persons were attacked during this period.

This is a summary of the facts; but to enter into an investigation, or even an enumeration of the controversies to which they have given rise, would be a very laborious and a very useless task. One party asserts, that the arrivals from Carthagena, and the appearance of fever in the garrison, stood to each other in the relation of cause and effect. The other party insists, that these occurrences were perfectly independent of each other, and that the diseases, in neither case, were contagious. I shall here merely refer to the works of Drs. Pym and Burnett, and to their various papers in the periodical publications, for information on the points in question.

A disease, productive of much more serious consequences, appeared in the garrison of Gibraltar in the year 1813. This disease, it is agreed on all sides, was similar to, if not identical with, that of 1804 and 1810; but on the important question of its being contagious, the opinions of eye-witnesses are as much at variance, as they were at either of these periods, and controversies as violent, have arisen in support of these contradictory opinions.

Mr. Gardner, the surgeon of the Naval Hospital, met with cases of bilious remittent so early as February, 1813, and by the 11th of June, the number among the vessels of war in the bay, had amounted to 113. The neighbourhood of "Boyd's-buildings" was, as usual, the theatre in which the disease

made its early appearance in the town; and on the 6th of July, Mr. Fraser met a case of highly suspicious fever which proved rapidly fatal; there is little doubt that it was a genuine instance of the fever which afterwards committed such ravages; Bulam, bilious remittent, or yellow fever: whichever the contending parties may choose to denominate it.

On the 15th of July, the flag-ship at the mole, which had furnished most of the cases to the Naval Hospital, was put in quarantine. On the 21st, measures were taken for diminishing the population of the garrison. On the 31st, sickness ceased on board the San Juan, but great alarm and suspense arose, and continued among the inhabitants until the 7th of September, when the disease, which afterwards committed such ravages, was so evidently making its way in the town, that all attempts to deny or modify the facts were unavailable, and it was officially reported to the Lieutenant Governor, that cases of fever, of a very serious type, had, within a few days, become prevalent in town; that people exposed to hard labour had been those principally attacked, and that the malady was attributable to the crowded state of the garrison. The population was soon thinned; a lazaretto was formed for the sick, and quarantine regulations were established; but all precautions proved useless in checking the progress of the disease. Inhabitants, troops, and navy, were involved in one common calamity, the tracing of which through its numerous ramifications would in this place be superfluous.

The medical men, as usual, differed in their views of this disease, and on the 17th of September, the opinions of the seniors were officially laid before a board of health. Dr. Gilpin, the principal medical officer, reported the disease to be the bilious autumnal remittent. Mr. Fraser, the surgeon-major, stated it to differ from autumnal remittent, and to be a bad typhus of a contagious nature. Mr. Gardner, of the navy, concurred in the opinion of Mr. Fraser; and Mr. Glasse, surgeon to the forces, differed in some degree from all, and he did not conceive the disease contagious.

It has been positively asserted, that seclusion was effectual in preventing the disease of 1813; and it has been as positively denied. It is incontrovertible, that "Boyd's-buildings" were

cleared of their inhabitants in the early part of October, as the residents and persons resorting to them were peculiarly liable to the fever. It is also certain, that prisoners confined in the provost in the Moorish castle, remained unaffected during the whole of the epidemic.

The troops were encamped in October, and all communication between them and the town was, as far as possible, interdicted. These measures were followed by the most decided good effects; it was thought unnecessary, however, to pursue measures of strict quarantine with those who had the disease in 1804, and I have never heard it denied, that, as a general rule, such persons might be considered as ensured from any attack.

By the 3rd of December, the epidemic was extinct, after having occasioned a mortality of 883 inhabitants, and 441 military, including officers, or 1324 individuals*.

The public health of 1814 is so closely connected with that of 1813, that a very few observations will suffice in this outline. The public mind was in a state of considerable and natural excitation after the events of the preceding year, and a few cases of fever, which occurred in the early part of August, gave great alarm. These cases first appeared on the hill side, considerably above the old nidus of fever ("Boyd's-buildings"). Many of them occurred at Cavallero's-buildings, situated close to Arengo's gully; they lie about the highest of any houses on the rock, but are now in a very different state from what they were in 1814. At that period, Cavallero's rivalled Boyd's for filth; there were neither drains nor necessaries, and the inhabitants consisted of nearly 300 of the lowest order of Portuguese. Every precaution was taken to check the progress of disease, by thinning the inhabitants, and forming a lazaretto for the destitute poor; employing in the town, as much as possible, troops who had passed through the disease, and encamping the others. The epidemic was subdued by the month of October, with a loss of about 400 lives. It is generally allowed

* As there exists some variation in the returns, we may, perhaps, state the mortality at 1400.

that it occurred solely among those who had not been affected the preceding year.

The efficacy of removal from the town was so striking, that (even at the hazard of repetition) I shall state some of the facts in proof of it, which occurred in 1814.

1st. Dillon's regiment was quartered in the Blue barracks, near the Moorish castle; a great number of the men took the fever, and several died; in consequence of which, the regiment was sent to the neutral ground, and encamped, and immediately the fever stopped.

2d. The 8th battalion, 60th regiment, arrived from Cadiz in a healthy state, and were encamped on the Governor's meadow; shortly afterwards they went into town to the Cooperage barracks, the fever instantly raged amongst them, and both officers and men suffered severely. They were then sent back to the encampment, and the disease, as in Dillon's, immediately ceased, as if by magic*.

3d. But the most striking fact of all, is that mentioned by my friend, Dr. Playfair, of Edinburgh, who was then surgeon of Dillon's regiment, and who has given an excellent account of the fever in his Inaugural Dissertation, "De Febre Calpense." In speaking of the encampment on the neutral ground, he says, "In prato, sola nimirum hujus isthmi plaga virescente, paucis tantum pedibus supra mare ubique loci sublato, castra metata sunt. Primo et secundo die milites viginti septem febricitare cœperunt; sed hos vel ante situm mutatum, vel dum oppidum cibum quærentes intrâssent, morbo implicitos fuisse judicavimus, fiduciæque igitur nihil amisimus. Præfectus rei cibariæ commeatum castris adferre jubetur, et militibus oppido omnino interdictum est. Ex hoc die, milites, etiamsi liberrime oppidanorum commercio usi, oppido tamen ipso prohibiti, incolumes manserunt. Hoc modo, septembris die vigesimo secundo dum numerus indies ægrotantium maximus esset, et post spatium dierum viginti sex, militibus jam centum et viginti morbo implicitis, febris interrupta est."

During this period, the troops on board ships in the bay,

* Burnett, p. 436, second edition.

according to Dr. Playfair's account, enjoyed perfect health, and the south remained altogether free from disease, although the communication with the town was open. After the rains had fallen, the disease ceased, and to use Dr. Playfair's words—"locum ejus usurpavit febris remittens biliosa communis."

It now only remains for me to give a view of the opinions of the medical officers who witnessed the epidemic of 1813 and 1814. These opinions were given in the form of answers to official queries, and are now matters of history. One of these documents (the replies of Mr. Amiel) is printed at large in the second edition of Dr. Johnson's valuable work on "Tropical Climates," and the analysis of those of another (Mr. Humphrey) is given in the same work. A summary of the whole is given by Dr. Burnett, in the seventh Appendix of his work. Of seventeen medical gentlemen who gave their opinions on the subject, twelve stated, that the disease was of local origin, two that it was imported, and three were neutral. On the subject of the disease being contagious—eight were of opinion, that it *was not* contagious, seven that *it was* contagious, and two were neutral.

This is not the proper place to touch on the treatment of the epidemic of Gibraltar, on which none are qualified to speak, but those who practised there at the time; and I shall, therefore, proceed, candidly, to state what the impression on my own mind is, on the subject of its origin and progress.

I believe, that without any reference to the question of importation, (which I neither deny nor assert,) Gibraltar, at all times, possesses within itself, many local causes of fevers, which, though not generally contagious, are capable of assuming the most malignant type; that these causes were in full and uncontrolled operation, upon a densely crowded and filthy population at the periods of epidemic fever, is perfectly obvious, from the preceding narrative. I at the same time believe, that the existence of these internal sources of disease, was by no means incompatible with the simultaneous importation of a contagious disease from without.

I am satisfied that the prevailing disease was, in various instances, propagated by contagion, though by no means universally so; for there are well-authenticated instances of the

hospital attendants and medical officers being affected by contact with the sick; while there are equally authenticated cases of perfect immunity from attack, notwithstanding close and intimate contact; a fact equally true in plague itself. The contagious qualities of the Gibraltar fever, it is quite clear, were very much under control; they were evidently diminished, and, in many instances, totally destroyed by removal to a pure and fresh air, although, in other cases, these effects were not so evident.

I perfectly agree in one opinion expressed by a stanch anti-contagionist, who states, that the history of the Gibraltar fever is extremely embarrassed, and so obscured by what has been said and written upon it, that it is difficult to form a distinct idea on the subject*. He therefore offers no positive opinion. As principal medical officer, I am called upon to deliver my sentiments; as successor to an actor upon the scene, it may be supposed by those, who know all the peculiarities of that scene, that I may be biassed; but with those to whom I am known, solely by laborious exertions in the cause of military medicine and surgery, for so many years, I may claim the meed of impartiality, when I say, that to me it appears, that *both* parties have adhered too exclusively to their own theories, and attached too little importance to the facts produced by their antagonists. Even words and modes of expression have been tenaciously contested. That it is very injudicious to maintain the existence of "marshes" or "swamps" at Gibraltar is quite clear, but it is equally clear that febrific miasmata may arise, where neither of these sources of disease are to be found. The anti-contagionists have assumed, that the cause of disease was *marsh* miasmata; they were technically wrong in the expression, but that error ought not to have invalidated the *facts* they brought forward. The contagionists asserted, that there were no sources whatever of moisture; that the whole rock was so precipitous, and threw off the moisture so fast, that the soil was impenetrably dry; they were evidently wrong, but this

* "Jackson's Sketch of the History and Cure of Febrile Diseases," p. 30; see also p. 25, on the subject of fevers becoming contagious, which were not so originally: a great concession from such an author.

error ought not to have destroyed the importance of their authenticated facts. Above all, a mistake in topographical description, in symptomatology, or even in practice, should never be assumed as an incontestable proof that the person who made it, (whatever his theory may have been,) was either ignorant, interested, or unworthy of credit.

I cannot express my own medical opinions better than in quoting from an author, who has compared the evidences on contagious diseases with very great ability, and whose work exhibits the strongest testimony of his desire to be impartial. He is speaking of the late epidemic of the British isles, but his principles are, I conceive, strictly applicable to the case before us. "The conclusions," says Dr. Hancock, "to which I have referred, are these; that our continued fever, (whether called typhus, or synochus, appears to me quite immaterial,) often arises from small beginnings; that it has a power, under certain circumstances, of generating a contagious '*seminium de novo*,' which is sometimes more, sometimes less easily disseminated; that the symptoms of the disease are liable to be aggravated to a considerable height by local causes, chiefly in the autumnal season, and still more remarkably, if it has prevailed as an epidemic in pestilential seasons; and that it declines in winter to give place to its milder form, or to some other disease in the ensuing summer*."

To these conclusions, I would add one more quotation from the same indefatigable author—"He that, exclusively believing in a contagious virus, asserts medicine and police regulations can do all, and attributes the removal of pestilence *solely* to their means, may be as much in error as he who, convinced of a general contamination in the air, denies contagion, and believes a crowded or scattered population would make no difference in the mortality, or that a filthy habitation would add nothing to the malignity of the distemper; and that, as the disease is from the air, it matters not whether he stands idly gazing on it, till it shall cease, or assists to remove a local nuisance out of the way."

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* "Hancock's Researches into the Laws and Phenomena of Pestilence. 8vo. London, 1821."—pp. 341 and 179.

Hence it is clear, there must be a proper medium between these opposite views, which the cautious observer and wise physician can alone pursue with safety*.

Having now given an impartial summary of the more severe fevers of this garrison, I shall advert to subjects upon which the rancour of controversy has not hitherto been publickly excited.

Although vaccination is in general use, Gibraltar has been visited by some very severe small-pox epidemics. In the year 1824, several cases occurred.

Measles and scarlatina are also of frequent occurrence; the former generally appears every year about spring, increases in severity as the season advances, and disappears in summer. In the year 1821 both rubeola and scarlatina were very prevalent.

The ordinary diseases among the inhabitants may advantage-

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* It must ever be deeply regretted, that the author of this masterly analysis should himself have fallen a victim to that terrible scourge, which committed such ravages in Gibraltar in the autumn of 1828. From his long previous study of the subject, his intimate acquaintance with everything that had been done by his predecessors, and his perfect freedom from the trammels of party, what might not have been expected! Had he been spared, there can be little doubt that he would have thrown much light upon this long agitated and important question. I have not been able, on examining the notes which he took upon this disease, to discover whether he had come to any positive conclusion on some of the most important points connected with the enquiry; but on one point, I believe, he had satisfied himself, and that was, that the disease was not imported, but was of local origin. From his constant arduous engagements at this period, he had but little time to commit his ideas to paper, and the greater number of the memoranda which he then made, could only have been intelligible to himself.

He laboured incessantly day and night from the first appearance of the epidemic, and there never was, perhaps, an instance of a medical officer so completely gaining, as he did, the entire confidence of a community, in a time of such awful distress. A monument has been erected to his memory by public subscription, in the garrison of Gibraltar, which will hand down to posterity this honourable testimony, that it was raised to the memory of "*A man who, in the day of general calamity, sacrificed all considerations of his own safety for the public weal.*"

To complete this part of the subject, I have prevailed upon my friend, Mr. Peter Wilson, late of the Civil Hospital of Gibraltar, to furnish me with a history of the late epidemic, in which he was a conspicuous actor. This document will appear in its proper place in the Appendix.—EDITOR.

ously be reduced to three—fevers, pulmonary affections, and that degree of elephantiasis known by the name of the Barbadoes Leg, or, according to the nomenclature of the learned Dr. Good, "Bucnemia."

On examining the tables of the Civil Hospital, I find that fevers have been the most frequent of the numerous diseases treated there; and from a review of the written documents of which I am in possession, as well as from oral communications with the best-informed practitioners, both civil and military, I have no hesitation in asserting that remittent fevers are of frequent occurrence; that the bilious autumnal remittent is annually met with; and that cases of genuine yellow fever (as described by writers on the diseases of the West Indies), accompanied with the true black vomit, occur, both in the Civil Hospital and in private habitations every season. The inference is inevitable, that, in a hot climate, where the existence of intermittents is acknowledged beyond the possibility of cavil, remittents must exist also. It has, indeed, been asserted that these fevers are solely the produce of the neutral ground and the lighters in the bay; but annual proofs, subversive of this hypothesis are not only familiar, but on record. A resident in the town of Gibraltar, next door to the principal medical officer's quarters, died in 1825 of genuine yellow fever; and I have witnessed, in 1826, several cases where the patients never had been out of the garrison during the entire season.

Differences of opinion may arise on the types of fevers, but none can exist on the subject of pulmonary affections, which are so frequent in Gibraltar, that they have been styled the "true endemic" of the rock. The effects of climate in aggravating them, were most lamentably evidenced in the year 1817, in the four West India regiments which had recently arrived from the Caribean islands. Genuine phthisical cases are very frequent, and run rapidly to their inevitably fatal termination; but it is a very curious fact, that on the opposite coast of Barbary they are almost unknown.

Bucnemia is of such frequent occurrence in Gibraltar, especially amongst the lower classes of Jews, that, except it arrives to such a degree as to impede motion, it is scarcely looked upon as a disease. The cause is enveloped in great obscurity. It is

not to be met with at Algesiras, on the opposite side of the bay, nor are the Jews of the interior of Barbary afflicted with it, although it is frequently met with in the seaports. By Hillary's account of this disease, as it appears at Barbadoes, we should suppose that it was always preceded by a regularly formed fever*: but in Gibraltar it generally comes on without any previous febrile attack, and proceeds almost insensibly in its course. In some cases a thickening of the skin of the scrotum takes place, similar to that on the leg; and in a few, the ears, the alæ nasi, &c. are affected as we read of in genuine elephantiasis. With regard to the cure, nothing satisfactory has hitherto been ascertained. Excision of the distended skin of the scrotum, has partially remedied the inconvenience attending the enlargement of that part; but a remedy for the reduction of the size of the leg is still a desideratum, which, indeed, appears less anxiously sought for by the patients than by their attendants, for those people, generally speaking, bear their infirmity with the most perfect apathy.

Chronic hepatitis is by no means so common as the heat of the climate would lead us to suppose. Splenitis is seldom observed, and nephritis is rare.

Cholera and dysentery are frequent among new-comers, but cannot be considered among the prevalent diseases of the natives. The former is often severe, but not often fatal; the latter, if not properly treated, often turns out unfavourably. Errors in diet are the principal causes.

A disease may here be noticed, if disease it can be called, of which I have seen a large number of cases spreading through whole families; viz. small boils, occupying the fingers, legs, arms, and, in several cases, all the other parts of the body, which run rapidly into suppuration. They occur about the close of summer: they are extremely troublesome, but are considered very salutary.

Convalescence from disease is slow at Gibraltar; the medical man who detains his patient to gain strength here will have often to lament his confidence. I do not hesitate in recom-

* "Observations on the Change of the Air and concomitant Epidemic Diseases in the Island of Barbadoes, by W. Hillary, M.D. 8vo. London. 1759," page 304.

mending to valetudinarians an immediate removal from the garrison to St. Roque, or some adjoining town, if circumstances permit; and, if it can be effected, a voyage to England.

MARRIAGES, BIRTHS, DISEASES, AND MORTALITY.

There are no very accurate accounts of marriages, births, and deaths for the period preceding the epidemic of 1813 to be procured. The population of Gibraltar has at all times been a fluctuating one, and the account of these contingencies would not materially tend to illustrate the progressive rate of increase or decrease among the native and fixed residents.

It is extremely difficult, if not impracticable, to obtain regular returns, even of deaths: they are made separately, by each of the three religious persuasions that compose the community; and sometimes the necessary data on which to found these documents are wanting. Thus the mortality in the great epidemic season of 1813 has never been accurately stated.

The returns of diseases treated in the Civil Hospital are by no means so accurate as could be wished, in a medical point of view, though sufficient to shew to the community the number of individuals relieved by their charitable contributions.

EPIZOOTIES AND DISEASES OF PLANTS.

A confined station, like Gibraltar, does not admit of much experience on these subjects. The cattle brought to market are rigorously examined, so that none affected with disease are allowed to be offered for food to man.

Dogs are as difficult to breed in Gibraltar as in the Ionian islands. The disease which is most productive of mortality amongst them is the "distemper," and other pulmonary affections,—hydrophobia is not frequent.

Horses are frequently attacked with cholic, enteritis, and other bowel affections.

Fish are conjectured to owe the poisonous effects occasion-

ally observed after eating them, to some morbid alteration in their own systems.

The plants of Gibraltar are liable to blight and to the depredations of insects, as in all other countries; but it is not probable that the public health has ever been influenced by these occurrences: it is only in districts where large quantities of grain and other provision for human food are raised, that such consequences are directly experienced. In an indirect mode, however, the public health of Gibraltar may, and I believe has suffered from grain and vegetables which have undergone morbid changes. Potatoes are frequently kept in large masses; they heat, ferment and putrefy, and in this state are often brought to market. Unsound or damaged grain and flour are also often met with; they are never used by the troops or more respectable classes; the lower orders, doubtless, occasionally employ them, but they are still more frequently purchased for the purpose of exportation, especially to Barbary, whenever a scarcity takes place in that country. Considerable quantities of damaged grain and unsound potatoes were sent from Gibraltar to Tangier in the spring of the year 1826, through the commercial operations of the Jews.

POPULAR MEDICINE AND STATE OF PHYSIC AND SURGERY.

I AM not aware of any practices in domestic or popular medicine peculiar to Gibraltar: the various classes of inhabitants adopt those to which, by national habits, they are accustomed. Of the Civil Hospital I have already spoken: the practice there is conducted on the principles of the British schools.

Examinations are ordered to be held of all foreign practitioners, who receive a license under the sanction of this examination, and the recommendation of the principal medical officer. The police regulations guard, in a certain degree, against the evils attendant on the employment of empyrics and interlopers. On the last investigation on this subject, a labourer and a blacksmith were among the list of practitioners of physic and surgery.

LONGEVITY.

GIBRALTAR is not particularly remarkable for the longevity of its inhabitants, although an ordinary proportion of old people are to be met with. In all hot climates, however, the eye is a very bad guide on this point, authentic registers are the only testimonies to be depended on. In the convent chapel, there is an inscription commemorative of an English merchant named Holroyd, who died in the year 1758, aged ninety-six, after a residence of fifty-three years and six months in the garrison; and a man, a native of the rock, died in the Civil Hospital in 1826, in his one hundred and first year. While I write, an old woman, said to be one hundred and five years of age, lives in the garrison. I was called to see her, as affording an instance of senile dentition. I doubt this being a fact; but that she is beyond an hundred, appears to be clearly established.

WORKS CONNECTED WITH THE TOPOGRAPHY, NATURAL HISTORY, DISEASES, &c., OF GIBRALTAR.

THE earliest work with which I am acquainted, connected with the Topography, Natural History, and Diseases of Gibraltar, is, "The History of the Herculean Straits, now called the Straits of Gibraltar, including those parts of Spain and Barbary that lie contiguous thereto," published at London in 1771, in two vols. quarto. The author, Lieutenant-Colonel Thomas James, was an officer of artillery, who had been long quartered in the garrison. This work is rathar a clumsy compilation, abounding in irrelevant matter, repetitions, and errors of the press. Antiquities, especially those of Carteia, and the Moorish castle within the fortress, seem to have been the principal object of the author's study. With all its imperfections, this book contains much useful information on the topography, climate, and productions of Gibraltar.

In 1777, was published the first edition of "A Journey from Gibraltar to Malaga, taken in the year 1772, by Francis

Carter, F. S. A." Antiquities, especially coins and Roman inscriptions, are the principal subjects of this work; but many interesting observations on the topography and productions of the rock are to be found in it.

In 1781, there was published an octavo volume, entitled "The History of Gibraltar," by Mr. Dodd, a surgeon in the Royal Navy, and is as impudent a production as ever appeared upon such an important subject. The principal part consists of a translation of a Spanish journal of the siege before the last, detailing the names of the officers who mounted the daily duties in the trenches, &c.

In 1782, a small quarto was published at Madrid, entitled "Historia de Gibraltar," by Don Ignacio Lopez de Ayala: this work is principally devoted to the civil and ecclesiastical history of the garrison, ancient and modern. It contains also a few notices on the climate, plants, and animals; the author draws largely upon Carter's work already mentioned.

In 1793, was published in London in quarto, "The History of the Siege of Gibraltar," by Captain Drinkwater of the 72nd regiment. This highly interesting work consists principally of a detail of military events, in the form of a journal, but it contains also, some very important introductory remarks upon the soil, climate, and productions of Gibraltar.

The excellent paper of Major Imrie, already so fully quoted, was read before the Royal Society of Edinburgh in 1797, and published in the fourth volume of their Transactions, under the title of "A Short Mineralogical Description of the Mountain of Gibraltar."

I have not been so fortunate as to meet with any other works, except those now enumerated, which treat expressly of Gibraltar. Almost all travellers and voyagers in the Mediterranean mention it incidentally, though some of them, as Laborde and Galt, afford very inadequate and erroneous descriptions.

The epidemic of 1804, and subsequent years, has furnished a considerable number of detached papers, in the various periodical publications of the day, and some works expressly on the subject. The former are principally to be found in the "Medico-Chirurgical Transactions," the "Edinburgh Medical and Surgical Journal," the "London Medical and Physical

Journal," the "London Medical Repository," "Johnson's Journal," and other respectable works; it is to be lamented, however, that many of them teem with violent personal invective, a line of conduct which is invariably injurious to the cause of science, and the development of truth.

Of the larger works, the following are the whole that have come to my knowledge. I shall enumerate them in the order of publication.

"Observations on the Epidemic Diseases which lately prevailed at Gibraltar," by Seguin Henry Jackson, M. D. 8vo., London, 1806. This is apparently an unfinished publication; at page 104 is announced "End of the First Part;" and whether a second has ever appeared, I know not. It does not appear that the author was ever at Gibraltar, nor does his first part contain a single syllable on the epidemic, being merely occupied with a string of preliminary truisms "On a Proper Course of Medical Studies," "On the Use of Anatomy," and similar novelties.

In 1811, Dr. Bancroft's well known "Essay on Yellow Fever" appeared. Towards the end of this elaborate work, many observations on the epidemics of Gibraltar will be found, and still more in the sequel published in 1817.

In 1814, Dr. Burnett published his practical account of the "Bilious Remittent Fever," as it appeared in the ships and hospitals of the Mediterranean fleet, comprehending the history of the Gibraltar fever. The second edition of this work appeared in 1816, and contains a considerable accumulation of matter on the subject of the Gibraltar epidemics.

In 1815, Sir James Fellowes published his report of "the Pestilential Disorders of Andalusia." The second of these reports contains a detailed account of the Gibraltar epidemic of 1804.

In 1815, also, Dr. Pym published his "Observations upon the Bulam Fever," including a very detailed account of the epidemics of Gibraltar in 1804 and 1810.

In 1823, appeared "Remarks on the Yellow Fever of the South and East Coasts of Spain," by Thomas O'Halloran, M.D., 8vo. Some important points in the medical topography of Gibraltar, are touched upon in this little volume.

In the "Elements of Medical Logic," by Sir Gilbert Blane, an examination of the opinions of some of the above-named writers may be advantageously consulted.

MEDICAL INSTRUCTION, MUSEUM, LIBRARIES.

The Civil Hospital affords the only means for medical instruction; on its institution, a museum was founded, which has been increased by various private donations to about 300 specimens of various minerals, and about as many of natural history and morbid anatomy.

The Garrison Library is a noble institution, originally commenced in the year 1793, by the officers then quartered on the rock. With so much spirit were the subscriptions advanced, that between 400 and 500 volumes were put into circulation immediately. By the beginning of 1799, the apartment in which the books were contained, was found insufficient for their proper arrangement, and between 400*l.* and 500*l.* sterling were immediately subscribed to procure better accommodation; but, to use the words of the Committee who drew up the printed catalogue, "the deep interest which his Royal Highness the Duke of York took in the welfare of the institution, seconded by the liberal and enlightened policy of Mr. Pitt, rendered the subscription unnecessary," and a noble building was erected at the public expense, in which is now deposited the Gibraltar Garrison Library," an institution, which is certainly not exceeded, and possibly not equalled, in any other part of Europe.

The classification embraces works on theology, government and politics, sciences and arts, history and belles lettres; and these again are subdivided into sections, which comprise many of the most valuable standard publications. The sections of physics, chemistry, medicine and natural history, especially the latter, are furnished with several books of a very superior character. The numbers of all classes are increasing every month, so that to attempt a distinct enumeration would be useless.

There is also a library founded by the merchants, which contains several good books, and excellent accommodation to study them.

The Medical Department Library is of recent origin, and is far from contemptible; its catalogue comprises upwards of 500 volumes. The value of these, as well as of the Garrison Library, is greatly enhanced by the moderate rate of the subscriptions, which renders them accessible to the youngest officers with the greatest facility.

I am not aware that Gibraltar has given birth to any individuals pre-eminent in medicine, surgery, or the collateral sciences.

Having thus far offered such information as I possess, upon the subjects of the respective heads of inquiry, I shall now proceed to the subject of the barracks and the mode of living of the soldiers, and conclude with an account of the hospitals.

BARRACKS.

The most striking circumstance in the barracks of Gibraltar, and especially in those occupied by officers, is, that the estimate of space and of domestic convenience has been altogether too confined for the climate; the remedy is now in course of application, and several new buildings have been erected; but to effect a complete reformation on this point, will require a very material departure from the strictness of the rules laid down by the Board of Ordnance at home; which, however well calculated for the climate of Great Britain, are entirely inapplicable to that of Gibraltar.

The barracks occupied by the soldiers, in this fortress, have been progressively improving for several years. Those at present tenanted are of two classes, casemates and detached buildings. To the first belong the new casemates at Landport, and those at Orange bastion, and at the King's bastion. To the second, the Moorish castle, Gunners' barracks, Town range and Hargrave's parade within the town; and South barracks, Rosia, Windmill Hill, and Europa in the southern district; to these may be added a few detached wooden buildings about Buena Vista, occupied principally by married people, and other outliers.

The new casemates are substantially built of stone on two

stories; they are the nearest barracks to the inundation and neutral ground, and the ground floor lies about four feet above the level of the sea. On their southern aspect, there is an extensive opening or parade, bounded by the Cooperage barracks (which afford excellent bomb-proof accommodation both for officers and men). The northern aspect of the new casemates, is not so favourably circumstanced, as it lies close behind the works which protect the land-approach, and is therefore less airy; upon the whole, however, they are well ventilated and dry.

Orange bastion, occupied by the Ordnance, lies a little to the southward of the new casemates, towards the sea line; it consists of casemates of one story; its floor is upon the same level; but it is by no means so well ventilated as the former barrack. It labours under the character of having been the seat of contagious ophthalmia after the Egyptian expedition.

The King's bastion is a casemate barrack of one story; it lies about the middle of the town, and projects towards the sea; but except in very high tides and with strong westerly winds, the sea does not reach the walls. It has always been considered a very healthy barrack; and its inhabitants, during the year 1813, are reported by Mr. Fraser to have escaped the epidemic*. Its ground-floor, like that of the two preceding bastions, is four feet above the level of the sea.

The Moorish castle is an extensive enclosure of about eleven acres, within which are several houses occupied by officers and soldiers, together with many old sheds and one pavilion for the troops. The provost is also situated in an ancient tower within the enclosure. The castle lies immediately above and to the eastward of the new casemates, and its northern part looks towards the inundation; the elevation of the barracks above the sea is 190 feet. It is in winter airy, as it is swept by every wind, except the east, from which it is partially sheltered by the northern pinnacle of the rock, but in summer the heat is intense.

Several patches of garden ground are attached to the officers' quarters, where vegetation is luxuriant. One of these spots has been long in cultivation; it consists of a very fertile soil,

* "Folio Report Book," in Prin. Med. Officer's Office, p. 78.

principally generated by an accumulation of manure, and produces abundance of vegetables. In the epidemic of 1813 and 1814, many severe cases of fever occurred within the castle walls, and I believe it was in the quarter to which the garden just alluded to is attached, that the death of a lady of rank, as formerly noticed, took place*.

The Gunners' Barracks consist of a house of two stories, built of stone; it is occupied by the Royal Artillery, and is celebrated in the annals of Gibraltar epidemics, as a spot where fever raged in 1804. These barracks lie thirty-five feet above the level of the sea, close to the Governor's Parade, the Library, Boyd's-buildings, and the natural course of the Lime-kiln gully, as already noticed in another part of this report.

Town Range Barracks are the largest and the best within the town; they lie to the southward of the last mentioned, at forty-five feet above the level of the sea, and out of the line of direction of the Lime-kiln gully. They are of two stories, built of stone, and form one side of a level street, parallel to the main street. Their general character is healthy, although many cases of ophthalmia occurred in them during 1826.

Hargrave's Parade Barrack is occupied by the Sappers and Miners; it is a stone building of two stories high, in the vicinity of the Southport Ditch, sixty-five feet above the level of the sea. It is dry, airy, and healthy.

Rosia Barracks were formerly stores for the Commissariat, and were fitted up in 1817 for a West India regiment, which suffered much in this garrison from pneumonia, from causes, however, which appear to have been totally unconnected with the building. These barracks are as healthy as any in the garrison. They consist of one stone building of two stories, and one of wood of the same height, and although they lie low, in comparison with other barracks in the south, are dry, and tolerably well ventilated. They are forty feet above the leve of the sea.

The South Barracks are a conspicuous range of stone buildings of three stories, situated on a plateau of the southern division of the rock, at the level of about 130 feet above the sea.

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* See "Edinburgh Medical and Surgical Journal," vol. xii., p. 178.

They are built on the plan of open alcoves, on each side of a central corridor. These barracks are certainly very good, dry, and well ventilated. I have already stated the progress of epidemic disease in them in 1813, and it is an observation of Mr. Fraser's, verified by almost general consent, that fever has always shown itself at a later period in these barracks than in any other on the rock, while at the same time, it has continued to a later period of the season. The drainage has of late years been greatly improved, and the fall to the sea is sufficiently rapid to admit of the sewers being always kept in good order, at a trifling expense.

Windmill Hill Barracks consist of two buildings, some hundred yards distance from each other, on a long range of two stories built of stone, situated under the southern pinnacle of the rock, and having a southern aspect. The other, a small stone building of one story upon the western side of the flats. Both are airy and well ventilated, but immediately in front of the latter, is a level space, on which the rain stagnates after heavy falls. The last visit I paid to this barrack, I noticed a spot of fifty paces in circumference, where the mud was not yet perfectly dry, although the rain which occasioned it had fallen ten days before. This is an additional fact, if any were wanting, to show, that the rains do not run off as rapidly as they fall.

Pulmonary complaints have always been observed among the men quartered on Windmill Hill, and next in frequency, febrile and bowel affections. I have already spoken on this subject under the head " Unhealthy Situations." The height of these barracks is about 350 feet above the level of the sea; the ascent from the town is laborious, especially for soldiers fully accoutred, and for those not accustomed to it.

The Brewery Barracks are the most southerly on the rock: they are occupied by the Ordnance, and consist of a mass of stone buildings of one story; they are dry and airy, but cold in the winter months. These barracks lie on the eastern side of that part of the rock called Europa Flats, 110 feet above the level of the sea. The roads laid out on these flats, by Sir George Don, have rendered them of very easy access, and the cool breezes which constantly perflate them, together with the

expansive prospect, have rendered Europa quite the summer promenade. A walk among the rocks, on each side of the main road, from these flats to Buena Vista, will afford the Medical Topographer numerous opportunities of estimating the correctness of my observations, on some of the sources of aqueous exhalations. The whole surface is a confused mixture of what are aptly called by Major Imrie "pot-like cavities," with chasms, rents, and large masses of insulated rocks, in the interstices of which, a quantity of rich vegetable mould is to be found, where, for centuries, bulbous roots and wild plants have flourished and decayed.

Besides the established barracks, now mentioned, there are numerous wooden sheds interspersed in various directions. The diseases which attack the inhabitants of these sheds, as far as my observation goes, have uniformly been what was to be expected in places affording little protection from the vicissitudes of heat and cold, viz. pulmonary and bowel affections, with occasional fevers.

The troops have been frequently encamped, since the epidemic years, in various situations,—the Neutral Ground, Europa Flats, Windmill Hill, and Buena Vista, &c. Many severe cases of bowel complaints and fevers have succeeded to each encampment, especially on the Neutral Ground, although every precaution appears to have been taken in building elevated platforms of masonry for the tents, whenever circumstances rendered encampment advisable in the eyes of the General in command. For my own part, except in cases of epidemic fever, I should rarely advise such a measure to be generally adopted, upon the simple principle that the soldiers are evidently more exposed to heat in summer, cold in winter, and exhalations from the ground at all seasons, while they sleep under canvass, than when in good barracks and on elevated bedsteads.

MODE OF LIVING OF THE TROOPS.

The ration of the soldiers has been considerably improved in Gibraltar of late years; the fresh meat is of better quality, a

change effected by the system of stall-feeding the contractor's cattle. The salt rations are also of superior quality, not only because the supplies are more frequent, but that proper storage is now found for them. The state of peace with Spain must obviously affect the supplies in general of the garrison of Gibraltar; and the particular state of the cattle must depend, in no small degree, on the abundance of food procured for them from that country. The bread, served to the troops, is baked in the garrison, at the Commissariat Bakehouse, and is of excellent quality. The wine is sound and good; but the soldiers rarely confine themselves to its use. The facility of procuring wine and spirits too often tempts to the abuse of these liquors, especially among the men employed in the King's Works, who are paid extra for their labour.

Although there are necessarily many duties of fatigue always occurring in this fortress, yet, I have remarked, with great pleasure, the striking diminution of the soldier's personal labour. This has been effected by the organization of a well-regulated commissariat transport, for the conveyance of provisions and heavy stores to and from the various regiments; by improving the garrison Quarter-master's means of conveying water to the various persons entitled to receive it; and by the introduction of covered carts into every regiment, for the carriage of provisions. The water is still continued to be carried on donkies, in small barrels, to the barracks and hospitals; a mode which, perhaps, from the elevated site of several of these buildings, can never fully be obviated, until tanks are erected in their neighbourhoods.

The times of parade and exercise, as well as the dress of the troops, are regulated by the season. The troops are exercised, principally, on the Neutral Ground.

Corporal punishment is universally on the decline: many less severe and equally effectual substitutes are now employed; but I apprehend that it would be worthy of consideration, whether some of our military punishments might not be made more subservient to the public good. Might not the knapsack drill, for instance, be replaced by some fatigue duty within the barracks, and two or three hours, which are thus absolutely wasted, be employed in promoting the cleanliness or comfort of the

better sort of soldiers? In Malta, the Provost prisoners are made to repair the streets leading to the barracks; might not something of this kind be advantageously adopted in Gibraltar, at proper hours?

HOSPITALS.

Little can be said on the military hospitals of Gibraltar. One stone building of two stories was erected on Europa Flats in 1818, but has since been evacuated, and is now an officers' barrack and mess-room. It lies about 130 feet above the level of the sea. It does not appear to be a desirable building for hospital purposes, especially in the winter months.

An hospital appropriated to the Ordnance has been constructed, within a few years, on the pinnacle of Buena Vista, 230 feet above the level of the sea. It is composed of two wooden temporary hospitals which were used on the Peninsula, connected together by walls, so as to form a sort of oblong square enclosure; since its original construction, the wood work has been cased with stone, but nothing can ever make it a good or convenient edifice for the sick.

Until the last peace, the sick of the different corps were accommodated, at an enormous expense, in hired houses in the town, and in the south district. There were many inconveniences attending this plan, but afterwards an arrangement was made with the Admiralty, and the Naval Hospital was handed over, *pro tempore*, to the military authorities; and the whole of the sick of the garrison, with the exception of the Ordnance, are now accommodated in it.

The Naval Hospital is situated in the southern part of the garrison, on an open level space below Buena Vista, and at 130 feet above the level of the sea. It is completely insulated, by walls and buildings attached to it, from all communication with the inhabitants. It lies open to the west, and commands an extensive view of the bay, the opposite coast of Spain and the Straits. In the rear, but at such a distance as not materially to affect due ventilation, rise the heights of Buena Vista and Windmill Hill, which screen it from the easterly winds; in fine, the locality is admirably adapted for an hospital, which should

always be placed in a sheltered situation, defended as much as possible from the winds and currents of air which are known to be injurious to the sick and convalescents, and near an abundant supply of water.

The hospital is a stone building, the body of which is of two stories, and the pavilions at each end of three. It occupies a front of about 325 feet: its depth, from front to rear, is 162 feet. In the centre is an open area 145 long by 70 broad, exclusive of an arcade running round it on all sides, which affords, in one point or other, complete shelter to the convalescents from the sun and wind: above this arcade, a covered gallery extends all round: from this arcade and gallery are the entrances into the different wards. Four double flights of stone steps (one on each face of the area) lead to the upper gallery, and afford such easy access, that the largest number of sick or wounded, that the hospital could accommodate, may be carried up and down with the greatest facility.

The wards were originally twenty-eight in number, fifteen on the ground and thirteen on the upper floor. Some few divisions have lately been made, for the accommodation of an increased number of regimental hospitals.

The wards are all spacious, and, with one or two exceptions, they are well ventilated. They are furnished with glazed and jalousied windows, so as to exclude the wind and sun at all points when deemed necessary. Each ward has an ample fire-place, and those on the upper floor have ventilators in the roof, which are not so necessary for the lower, as they are by far the coolest wards for summer. The greatest defect of these lower wards is, that the floors are of terrass, and that in addition to their dark appearance, the feet of the iron bedsteads constantly occasion holes and irregularities in them. The upper wards are boarded.

The accommodation has been variously stated. James has made a very exaggerated estimate; he says it would accommodate 1000*. I should say, at the very outside, 500 might be accommodated, but this would tax the capability of the *present* wards to the utmost: 450 I should estimate as the safer

* Vol. ii., p. 343.

number. Convalescent marquees might, indeed, be erected in front, for which there is ample space.

There are good quarters for officers in the pavilions at each end of the principal building, and in a detached pavilion and adjacent house at the entrance. The stores for the apothecary are ample. Four very good kitchens are situated in a small area within the north end of the building: the increase of regimental hospitals has occasioned the erection of two others, in a house, which was formerly a purveyor's store. The bathing establishment might be improved, and a few minor improvements might also be suggested, but, upon the whole, the Naval Hospital of Gibraltar may be pronounced as among the first of its kind. I am ignorant of the date of its erection *, but the expense was so enormous, that it was long known under the name of the Cobb (or Dollar) Hospital.

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* A Plan in Sir George Don's possession states 1771, and estimates the accommodation at 1000 men.

END OF THE TOPOGRAPHY OF GIBRALTAR.

SKETCHES

OF THE

MEDICAL TOPOGRAPHY

OF THE

IONIAN ISLANDS.

PREFACE.

To Dr. Benza, Mr. Muir, Mr. Staff-surgeon Thomas, and Dr. Cartan, I feel myself much indebted for the oral and written communications I have received on the subject of these reports, and I hope, as I proceed, to have the satisfaction of acknowledging similar obligations to many other gentlemen. It is but candid to observe, that my visits to the Ionian Islands would have failed considerably in their object, had not my attention been awakened to many most important points, by a perusal of the reports of my predecessors, already extant in the records of the department. From the various papers of Mr. Warren, Inspector of Hospitals, Mr. Porteus, Deputy Inspector, Dr. Skey, Physician to the Forces, Dr. Bulkeley, 32nd Regiment, Dr. O'Donnel, and Assistant-Surgeon Baird, 10th Regiment, Mr. Goodison, Assistant-Surgeon, 75th Regiment, Mr. Blake, Hospital Assistant, &c., &c., I have derived information on a variety of points, and had my attention awakened to many others to an extent which I am proud to own, which, while it gives me an opportunity of confessing my obligations, it may serve to corroborate the statements in my reports.

In collecting materials for these sketches, I can safely aver that my time has been assiduously employed, and, perhaps, I may be permitted to say, that the man who has previously endeavoured to qualify himself for forming an opinion, by a faithful and conscientious study of every thing connected with the object he has in view, may fairly claim a right to offer the results of his inquiries and speculations. To my report I have added all the Topographical information I could derive from

such limited literary means as were within my power, and when I relate or state any thing upon the authority of published Works, I refer to them.

From his late Excellency, Lieutenant-General Sir Thomas Maitland, Lord High Commissioner of the Ionian Islands, I have derived advantages which seldom fall to the lot of individuals. He opened to me the rich sources of information which he possessed, and facilitated my movements from island to island. From Major-General Sir Frederick Adam, I derived much information, and received from him the kindest encouragement and support.

To Colonel Robinson, Receiver-General of the Ionian Islands, I am infinitely obliged. He most liberally furnished me with Statistical Tables, absolutely unattainable without his sanction.

In fact, if these Reports are not of some use, a very small portion of blame can fall on any person but the Author.

THE

MEDICAL TOPOGRAPHY OF CORFU.

"Hail to the mountains! round whose sacred head
Their early pride the vernal hours have shed:
Hail to the dryads of each hallow'd shade!
Whose waving foliage crowns the shelter'd glade;
Where Scheria's rocks the northern wave divide,
And old Cassopo greets the straiten'd tide:
Hail, blest Phæacia!"

HORÆ IONICÆ, *p.* 4.

SECTION THE FIRST.

NAME, SITUATION, DIVISIONS.

THIS island, the present seat of government of the Septinsular Union, is mentioned by the most celebrated poets and historians of antiquity. Homer has immortalized it in the sixth book of the Odyssey, under the names Scheria and Phæacia. It was known, also, by the appellation "Drepane," or the Scythe,—an epithet bestowed upon it from a fancied resemblance to that instrument, and connected with some mythological dreams which I shall hereafter refer to. Its most authentic designation, among the ancient writers, was Corcyra. By this name, it was well known among the Greeks and Romans. Its inhabitants bore a remarkable share in many of the insurrectionary movements of Greece, and from them was derived the epithet "Corcyrean," which we so often meet with in the records of ancient history.

The present name of Corfu is said to be derived from Κορυφη, the hill on which the modern citadel is built; but in this, as in many other instances, the name has probably been assigned long before the derivation was sought for; while to some distant after-thought is due, the apparent felicity of the original epithet.

Corfu lies a little to the eastward of the mouth of the Adriatic Sea: the capital is distant from Cape Otranto about 30 leagues, and about 200 from Venice. There are some little variations among geographers as to its exact latitude and longitude, but, I cannot be far in error, if I state it, after the ordinary books of geography, to be in latitude 39° 36′ north, and in longitude 19° 50′ east.

On the south and west it is bounded by the Mediterranean, and on the north and east by the channel which separates it from Albania, or the ancient Epirus. This channel, which runs nearly south-east and north-west, is about twenty-one geographical miles in length; at its narrowest or northerly entrance, it is not two miles across; at the southerly, it is about six miles broad, and at its widest part, in the neighbourhood of the town of Corfu, it does not much exceed ten miles in breadth. The depth of the water, in the deepest parts, varies from forty to fifty fathoms.

The length of the island of Corfu is about thirty-five geographical miles; its breadth, at the north-eastern extremity, about twelve, from whence it gradually lessens until it terminates in its most southerly point, or Cape Bianco. The number of square leagues are about eighty, of twenty-five to a degree*.

The island is divided into four districts or bailiwicks: 1st, *Oros*, the mountainous district, which lies to the north-west, and contains Cassopo, the ancient Cassiope, famous for a temple of Jupiter.

2d, *Agiru*, the beautiful district, situated between the western and southern parts of the island, remarkable for its fertility.

3rd, *Mezzo*, or the midland district, in which is situated the city of Corfu.

And 4th, *Alefchimo*, which lies to the south-east, and is so called from the ancient Cape Leucimna, now Cape Bianco. The plague of 1815 first appeared here; and hence it is gene-

* These and the majority of the following measurements are, except when stated otherwise, derived from the Bureau of the French engineers, as given by Theotoky.

rally known among medical men by the appellation of the Plague District.

MOUNTAINS.

Corfu is decidedly of a mountainous character; the back part of the island, or that part of it washed by the Mediterranean Sea, is particularly so. Towards the coast of Albania, the elevations possess less of the mountainous character, and come more under the denomination of hills and slopes.

The mountains, in many places, rise abruptly from the surface of the water, to a considerable height. In a few spots, however, there are little bays, with a beach surrounded by less lofty elevations. One range runs from north to south along the whole length of the island: its highest point is Santa Decca, said to be 2000 feet above the level of the sea, but I believe that it has never been accurately measured. Another range of mountains runs directly across the northern extremity of the island, in a direction from east to west. To a stranger who was not aware of the existence of the north channel which divides the island from the main, these mountains would appear to be a continuation of the Albanian or Acroceraunian range, prolonged across Corfu to the Mediterranean shore. Many minor collateral offsets run from this range, in a northerly and north-westerly direction. The highest point of this cross-chain is now called St. Salvador, or Παντοκρατωρ, the Phæacia according to some, or, according to others, the Isthone of antiquity.

I am not aware that any exact measurement has recently been made of this very striking mountain. The British officers who have drawn up reports on the medical topography of the island, vary in the estimates; some stating them at 2800, others at 3000 feet; but Baron Theotoky*, who takes his measurements avowedly from the official papers of the French engineers, states it at "pres de 1100 pas de mille de hauteur." Be this as it may, a vast extent of the Acroceraunian, and, according to some reports, even of the Macedonian mountains,

* Mémoire des Isles Ioniennes, 4to. Corfu, 1815.

is seen from its summit; the eye, at the same time, being able to embrace a view of the islands still further to the southward of the Mediterranean and the Adriatic Seas, and, in clear weather, of the continent of Italy itself.

The whole of the mountains of Corfu are of limestone formation, occasionally interspersed with silex. Viewed from the shore or from a vessel in the mid-channel, they appear to form an amphitheatrical boundary around the bay, on which the city of Corfu is built. The cross-chain is rugged in its character, and rises abruptly from the north-western side of the bay: here and there it is dotted with olive groves, and wild straggling villages, whose sites have been selected, apparently, for seclusion or defence. The long chain is of a different character; it descends gradually from lofty heights, thickly covered with the olive and the cypress, to hills which, though still clothed with trees of various kinds, exhibit intervening traces of cultivation, and are richly interspersed with villages, convents, and country houses. The town and citadel of Corfu lie immediately before the eye; while on the opposite side of the bay the snow-capped mountains of Albania, with the ancient Buthrotum at their feet, rise in towering magnificence. The scene is perfectly panoramic, and irresistibly brings to the mind the voyage of Æneas, and the often-quoted lines—

> " Protinus aerias Phæacum abscondimus arces,
> Litoraque Epiri legimus, portuque subimus
> Chaonio, et celsam Buthroti ascendimus urbem.
>
> *Æneid*, lib. iii. 291.

This combination of forest, lake, and mountain has the most powerful effect on the health of the inhabitants, as will more fully appear, as I proceed in the analysis of its various component parts, in the course of this topographical survey.

RIVERS.

THERE are only three or four streams in the island which deserve the name of rivers. Potamos, " the River," so called by way of pre-eminence, is the nearest to the city: it arises in that chain of mountains which runs from north to south,

near a point called "Sinarades," and it discharges itself into the harbour, at about two miles north-west of the city: from its origin to its mouth, not including its windings, by Dr. Benza's measurement, it is five miles: its depth, at its mouth, is four feet, in the deepest part; its width fifty. From its proximity to the city, the exhalations from its sluggish stream may, in some degree, tend to affect the health of the troops in autumn.

Stavro Potamos is a sort of water-course, of about the same length as "Potamos." It commences in the marshy valley of Gaiderana, and opens into the bay near Ipso, at about ten or twelve miles from the city, in a north-westerly direction. It can scarcely affect the health of the troops. It is rarely a running stream, except after heavy rains.

A river, considerably larger than either, but which, from its situation, cannot have any influence on the garrison, discharges itself into the Mediterranean, near Sidari. It is called Tifflo Potamos.

In the southern part of the island, about twelve miles from the city, is situated the river Mesongi, which rises in the mountains of Matia, near Gardichi, and discharges itself into the channel which separates the island from Albania. Its rapidity and its distance obviate any ill effects on the health of the troops in Corfu.

Besides these, many streams run from the marshy vallies, round the whole circumference of the island.

FOUNTAINS.

THERE are in Corfu some remarkable fountains. The two most classical and most copious are now called the Fountains of Crissida, supposed to be nearly upon the spot where Homer places the scene of the interview between Nausicaa and Ulysses. At thirty paces from its source one of these streams turns a mill.

At the distance of about two miles, in an easterly direction from the town, is the usual watering-place for the shipping, called Cardachio; and at about six miles still further to the

east, is Benizze, where so copious is the stream and so precipitous the descent, that many mills have been erected on its banks. Besides these, many minor springs of excellent water are dispersed over the island.

FRESH-WATER LAKES AND MARSHES.

A NUMBER of fresh-water lakes, or rather marshy ponds, are to be found in all directions in the environs of the harbour, and amid the vallies of the more distant hills. Some of them have their sluggish and miry outlets, which are more or less choked with reeds and other aquatic plants. The majority of these are capable of being drained at a very small expense, and becoming fertile soil. Where the slightest attention is paid to them their edges become dry and solid; and, even while left in a state of nature, they are, by the annual process of vegetable growth and decay, aided by alluvial depositions, gradually undergoing a change, so that they are in various states of progress, from navigable lakes, to solid ground capable of cultivation, and of throwing up the richest crops.

Of the larger class of lakes or marshes, the Val di Roppa is the most remarkable. It lies about seven miles from Corfu, in a north-west direction. Its extent has been variously estimated, some stating it to be five miles long by one broad, and others at eight miles long and three broad. Perhaps the difference may be reconciled by supposing the former measurement to refer solely to the marshy part of the valley, and the latter to its whole circumference. The size of the marsh of course varies according to the season.

The Val di Roppa bears marks of cultivation, except in its very centre, and, in fact, it yields rich crops of corn, rice, and grapes; but in the depth of winter it is almost an entire sheet of water. It discharges its contents, by a small stream, into a little bay on the Mediterranean side, named Ermones. The situation is extremely beautiful, and the irregularity of the surrounding rocks, in some places, renders it even picturesque.

It is the great resort of the garrison sportsmen, on account of the immense quantity of snipe and other water fowl with

which it abounds. Among these casual visiters, smart fevers, both continued and remittent, have often been produced at all seasons of the year; but by the account of the local practitioners, collected by Dr. Benza, intermittents of the most obstinate kind affect the inhabitants of all the country round, in the autumnal months particularly.

There is another small marsh at the north end of the Val di Roppa, named the Val di Gaiderana. It is of the same general character; but it empties its waters by a small water-course, or fiumare, called Stavro Potamos, into the bay of Chiefalo Ipso, as already stated.

In all the bays of Corfu, as well as of the other Greek islands, the adjacent vallies are more or less swampy, and so continue until they approach the mountains which form their back-ground. It is a fact, which I can state on the authority of the late Sir Thomas Maitland, that the troops which were encamped, during the period of the plague, between the beach and the swamp, were invariably less healthy than those which were encamped between the swamp and the mountain. Did the admixture of the fresh and salt water, render the exhalations from the beach more unhealthy?

SALT-WATER LAKES AND MARSHES.

The principal salt-water lake is at Govino, the old Venetian harbour, which is screened by surrounding hills from almost every wind. It lies about five miles to the north-west of the citadel. It is rapidly filling up with sand and mud, and a number of marshy spots are found along its banks. The entrance is very narrow, and is growing narrower annually, so that large ships can no longer enter. In 1779, when the Ionian republic was under the protection of the two nations, a Russian and an Ottoman squadron anchored there. In February 1822, I made a survey of it, in a small pleasure yacht of less than fifty tons burthen, and we frequently came in close contact with the mud. It is from three to four miles in circumference, not including its muddy banks. The Venetians had their docks here, and the ditches and some traces of these works are

still to be seen. The neighbourhood is reckoned extremely unhealthy.

At the north-westerly extremity of Lefchimo district, there is a large salt-water lake called Corissia: the outlet is narrow through which it discharges its waters into the Mediterranean, and the banks are very marshy, and overgrown with reeds and other aquatic plants. But the principal lake, as it affects the health of the troops, is that of Calachiopulo. Its nearest point is not more than a mile in a direct line from the works. I am not aware that its extent has been measured; but I should suppose that the water in its centre may be estimated at from three to four miles in circuit, while, if we take the marshy spots about its edges, I should think the circumference might be fairly stated at from eight to nine miles*.

This lake is celebrated by Homer as the harbour of the ancient Phæacians, and the little island at its entrance is the ship which, on its return from Ithaca, after having conveyed Ulysses thither, was turned into a rock. On its banks were situated the Gardens of Alcinous; such is the poet's tale. In latter times, the lake, its fishery and salt pans, were the property of Government; but, in the time of the French, they exchanged it for the island of Vido, the key of the harbour on which they wished to erect some works. Having passed into the hands of a Corfiot noble, it has since been called by his name, Calachiopulo. It is also occasionally called the Pesciera, on account of its fishery, of which I shall hereafter speak. This lake is filling up rapidly: it is only navigable by a monoxylan (or boat composed of one piece of wood, and capable of conveying only one person comfortably) throughout the greater part of its extent. At its mouth, however, there is a large ferry boat, which is polled and rowed across for the conveyance of passengers. On its edges there were formerly extensive salt pans, which were worked so recently as 1805, although gradually diminishing in profit; but so little did they yield that year,

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* A late measurement by Dr. Benza confirms my calculation, very nearly. The water, without calculating the muddy banks, covers a space of 3¼ miles.

that they have been let for agricultural purposes, and are now in a rapid state of drainage and cultivation.

SALINES.

Besides the salt-pans just noticed, there is a very extensive one in the Lefchimo district, at the Pianura di Lefchimo, near the southern extremity of the island, and opening upon the channel about thirteen or fourteen miles from the Citadel.

To the north-west, at not more than two miles distant, are the salt-pans of Potamo; and there are some smaller to the south of the town, on the opposite side of the Bay of Castrades.

I have never considered *pure* salt water ponds as strikingly deleterious; and the opinion, as far as regards those of Corfu, seems to be strengthened by the fact, that a Sicilian and an English family, who long resided near the salt-pans of Potamo, had not suffered from fever. I am acquainted with similar facts with regard to the salt-pans of other countries.

CANALS.

There are no navigable canals in the island; but there is a work which was cut by the French, with the view of strengthening their position in the town of Corfu, by forming a fortified communication from the lake of Calachiopulo to the bay of Castrades, which may be ranked under the head of "Canals," and which, obviously, must have a considerable effect on the health of the inhabitants.

When this work was commenced, I do not exactly know; it was some time in 1810; but when the French evacuated the island on the 14th of July, 1814, it was not half finished, although fatigue parties of 2000 men daily, furnished by an army of upwards of 10,000, had been at work on it for such a considerable time.

This ditch is cut with salient and re-entering angles, &c., after the manner of a regular fortified line, along the bottom of the promontory of Monte Ascensione, the eastern boundary of

Calachiopulo; it communicated with the Lake of Calachiopulo; but the communication was never so opened, as to allow of a free flow of the waters from one to the other; at present it is nearly cut off, especially in summer. The French did not remain long enough to achieve the communication with the sea at Castrades. The whole extent of the ditch, as it was left by them, beginning from Castrades, at the distance of 375 English yards from the sea side, and following it along its whole line to the end behind Fort St. Salvador, was 996 French toises of 9 feet each. Its breadth, at present, varies from 28 to 60 English feet; in some of the intermediate points it is 34 feet broad; in others, 45½ feet. Its depth of water varies from 3 to 9 English feet.

The banks slope in an acute angle, and as the soil is very loose and covered with rank vegetation, materials for putrefaction are constantly falling down their sides, but more particularly in rainy weather. Myriads of insects and animalculæ live and perish in the ditch; and in addition, the inhabitants throw all their filth and carrion into it; so that it becomes, in the autumnal season, highly offensive. In every favourable spot in the neighbourhood, the peasants who supply the city with vegetables, have patches of garden ground, and the neighbourhood of Castrades, especially, is covered with them. This village lies low; the adjacent grounds are naturally swampy, and they are intersected by numerous ditches, while the shore of the bay is covered with marine exuviæ, which have accumulated for years; so that, from a combination of causes, the vicinity of the French work must be most insalubrious, especially to the poor inhabitants*.

I record it for the honour of human nature, that when the French gave over Corfu to the English, their commander, General Denzelot, forewarned the British General (the late Sir James Campbell) of the unhealthiness of the spot, which happened to be the very first our troops occupied. The truth of this representation was found but too evident; for the troops, as Staff Surgeon Tully, who was then principal medical

* The French lost 2000 men in cutting this ditch; they were quartered in wooden barracks in the neighbourhood.

officer, stated to me, " were almost immediately attacked with remittent and intermittent fevers, the latter type being conspicuous among the foreigners in our service, while the former seized almost exclusively the British soldier." Hence these lines were soon abandoned, and Mr. Tully reported them in 1816 as most unhealthy.

An official report was called for by the government, and made to Sir Frederick Adam by Dr. Gangardi in 1819, in which he pointed out, with much accuracy, all the mischief which had long arisen from this great extent of stagnant water; and he was enabled, from his long residence, and from an examination of the medical records of the suburbs near these excavations, to establish satisfactorily, that the " periodical fevers which usually went through a regular and benignant course, had given place to bilious remittent fevers and synochus with petechial eruptions," an effect which he chiefly attributed to this ditch.

In consequence of the acknowledged unhealthiness of these ditches, the government came to a determination to fill them up if possible, and on the 16th of July, 1819, a proclamation was issued to the following effect, viz.—" That the whole of the inhabitants, *en masse*, of the districts to the south, east, west and north, residing within the distance of ten miles of the suburb of Castrades, with exception of the aged, the infirm, the poor, women and children, should give one day's labour weekly, within their respective districts, in such rotation as should be fixed upon by the municipal council; for the purpose of filling with earth, all and every part of the suburb which was found actually covered with water, including the whole of the ditches and canals upon which the French engineers erected fortifications." The proprietors of these grounds were authorized to be repossessed of them, upon producing their lawful claims before the competent authorities.

In consequence, nearly the whole of that branch which extended from the back of St. Salvador to its communication with Calachiopulo, (or 456 French toises,) was filled up, though not completely, for it still contains much mud and water. The work of filling lasted forty days, during which 9368 peasants were employed, or 234 daily.

Although not strictly belonging to the medical topography of Corfu, I must here speak of the great Lake of Bucintro, which is supposed materially to affect the health of the inhabitants of the town, and decidedly influences that of the residents of the part of the island immediately opposite it. The surrounding district was anciently called Chaonia, and the immediate neighbourhood of the fort was named Paleo-Castro, and Paleo-Polis.

LAKE OF BUCINTRO.

The political state of the dominions of Ali Pacha did not admit of my landing at Bucintro; I therefore merely reconnoitred it, so that I derive my information from others, and principally from M. St. Sauveur.

This lake lies on the continent of Albania, and disgorges itself into the channel of Corfu, almost at the very narrowest northern point. Its mouth is formed by a small river running from the north, so narrow as only to admit of one galliot at a time. The lake is between three and four leagues in circumference; the centre is deep, but the edges are everywhere overgrown with rushes and other aquatic plants. The surrounding territory is almost entirely deserted and uncultivated, so that the wild fowl which swarm upon the lake, are seldom disturbed, except by casual visiters; indeed, it is not to the native birds alone (and they are, by all account, innumerable) that this lake gives shelter. I have often watched the lengthened train of emigrants from the African coast, and the higher parts of the Mediterranean, which flock over daily, and give corroboration to the accounts that represent this spot as one of the most pestiferous marshes in Greece. When M. St. Sauveur wrote, Bucintro was a dependency of Corfu, and the garrison was lodged in a triangular fort, on a narrow neck of land, projecting into the river Bucintro, at the distance of about one mile from the ancient city of Buthrotum. The strength of the garrison was, at that time, one subaltern and thirty men; but so much were they annoyed by the exhalations from the marsh, that they were changed every two days in summer, and every week in winter*.

* "Voyage Historique," p. 235. tom. 2d.

On the opposite point at Corfu, both the French and Russians had small garrisons of observation; but no man ever resided there who did not undergo an attack of remittent or intermittent fever, and it is now abandoned; not even the Albanians in our service, during the late war, could breathe the air with impunity after sunset.

TRIBUTARY ISLANDS IN THE HARBOUR OF CORFU.

THERE are many small islands scattered round Corfu, especially Fano, of which I shall speak hereafter; but it is proper here, to mention the islands in the harbour. They are three; Vido (the Ptichia of the ancients) is the largest—it is two miles and a half in circumference, and nearly a mile distant from the town; it is fortified and garrisoned by a company: Candilonissos, which is a mere rock within cannon shot of Vido: and St. Demetrius, or Quarantine Island, about two miles to the eastward of Vido, and a mile and a half from the mouth of Govino harbour. Vido was formerly covered with olives, which the French cut down: it is said to be malarious, not from native sources, but from importations from Bucintro. I shall have occasion to speak further on this subject in the course of this memoir.

It is very difficult, in words, to convey an idea of all the localities which have been now mentioned; and, although there are in my possession many valuable maps and plans, and I have had the unreserved use of all which the government could command, the great expense precludes me from giving the illustrations I could wish.

I shall now turn to points which may be better understood by verbal description.

CLIMATE.

THE climate of Corfu is far from good, especially in summer and autumn; it is extremely variable at all times, and at the best, infinitely inferior to that of the healthy parts of the continent of Italy. It is not from the variations of the thermo-

meter and barometer that this climate can be at all appreciated. The most minute registers must fail in accounting for the sensations which are communicated to the feelings by the various winds, and a person must have resided here, to be at all able to describe or even imagine them.

From the very accurate registers kept by Mr. Starkie, Apothecary to the Forces, it appears, that on an average of four years, the thermometer ranged from 44° to 91°; the general annual average of rainy days for the four years was $96\frac{3}{4}$. The rainy season at Corfu is not so regular as in tropical climates. It appears there is not a month in the year in which rain does not fall for a greater or less number of days. November and December, February and March, are the most rainy, and I have witnessed, in the two last months, an unintermitting fall of twenty-four hours duration. But although the fall was violent, it was much less so than the rains of Spain and Portugal.

Snow very seldom falls in the island of Corfu, and when it does, it soon melts. In February 1822, however, the summit of St. Salvador was covered in patches, and so continued for ten or twelve days. On the Albanian mountains the snow begins to fall, generally speaking, about the end of November, and continues till May.

Botta* asserts, that in his time the maximum of heat of different years did not vary more than 3° or 4°, but that the minimum of cold often varied 6°, 8°, or 10°. Our tables contradict this. In four years the lowest degree of cold stood 45°, 46°, 46°, 44°, or only 2° in difference, while the highest degrees of heat were, for the same four years, 89°, 90°, 91°, 85°, or 5° of difference. To my own feelings, the heat of Corfu is more oppressive than I ever felt elsewhere at the same period of the year, and its cold less bracing; while the mutability of the winds has occasioned more frequent and excessive changes of sensation in the course of the twenty-four hours, than I have ever experienced.

Whoever decides on the point from which the wind actually

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* "Storia Naturale e Medica dell' Isola di Corfu," Milano, Anno, vii. 12mo.

blows at Corfu, will, in ten cases out of twenty, be in error, if he merely judges from the effects on the immediately surrounding objects. This is a fact so notorious, that no sailor acquainted with the place ever tells you the state of the wind without prefacing it by observing, "I cannot say what it is outside." Perhaps the best indications are to be drawn from the appearance of St. Salvador; when a cloud rises from its summit, it is generally succeeded by a north-west wind. It is to appearances such as these that the Prince of poets alludes when he says—

> "The low hung vapours, motionless and still,
> Rest on the summit of the shaded hill;
> Till the mass scatters as the winds arise,
> Dispersed and broken through the ruffled skies."
>
> ILIAD, *5th Book.*

These peculiarities of the winds of Corfu depend upon the local situation of the island. The usual remark of the Corfiots is, that their country forms one side of a funnel, very narrow and winding at the mouth, dilated in the middle, and again contracted at the extremity. If we consult any map of southern Italy and the adjacent parts, we shall find that two somewhat transverse funnels lie at the extremities of the longitudinal one formed by the channel which divides Corfu from the main land of Greece. The first and largest of these is that extremity of the Adriatic which runs from Durazzo to the straits of Otranto, and lies to the northward; violent eddy winds blow along the coast of this great inland sea, but without observing any fixed or regular periods. The second is formed by the more distant gulfs of Arta and Prevesa *, which lie to the southward. An easterly breeze commences in them, with daily regularity, soon after sunrise, and continues till near noon. At about three in the afternoon it is succeeded by a westerly wind, which continues till night; and so regular is this alternation, that it requires a strong gale in the Mediterranean high seas to interrupt it: the current also follows this change of the winds, and both are sensibly felt as far down as to the

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* The gulf of Prevesa is that portion of sea which lies between Santa Maura and Paxo.

westward of Paxo, and far beyond the southern extremity of Corfu. The eastern boundary of the channel of Corfu is formed of lofty and precipitous mountains, covered for more than half the year with snow; the breaks and gullies in these mountains give a direction to the winds corresponding to that particular point upon which they strike. This, of course, must vary as the angle of incidence may vary, and the effect is uniform only in one particular, viz., the cold communicated by the snow to the passing column of air.

From all these peculiar inflections of the wind, nothing is more common than to see vessels steering different courses in the channel, with the breeze "right aft" for each. Thus it often happens that a ship is coming through the north channel, and another through the south, both before the wind, while in mid-channel it is either a perfect calm, or the wind is veering all round the compass. These currents of wind do not appear to extend to any great height, for the shipping often feel the breeze, while the flag at the Citadel, at about 120 feet above the level of the sea, is lying motionless on the flag-staff.

It is not to be supposed that these phenomena are permanent, but they are more frequent than I have ever witnessed in any other part of the world.

The most frequent winds of winter and autumn, as felt in the town of Corfu, are east, east-south-east, south, and south-east. In spring and summer they are most prevalent from the north, north-north-east, north-east, and east-north-east. They rarely blow with violence for more than three or four days; but they often continue in the same point for a longer period: all those from a northerly point, sweeping over the mountains of Epirus, are cold; all those from a southerly point are oppressively hot, accompanied with mist and rain*.

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* The particular characters of each wind will be found in the Appendix, translated from a Memoir of the Baron Theotoky, a philosophical observer of the winds for several years; the Memoir is unfortunately not quite complete, but it is very nearly so, and I look upon it as a fragment of much value. The truth of the observations contained in it, is confirmed by those of the late Dr. Lascaris of Corfu, and by the present venerable Jewish Rabbi, Dr. Lazaro Mordo, an accurate observer of nature for more than half a century.

I shall, before dismissing this subject, make a few observations on the far-famed sirocco wind of the Mediterranean.

Every one who has read the lively work published by Mr. Brydone on Sicily and Malta, will recollect his striking description of the effects of the sirocco. It is but too true, that this production, in part, deserves the name of a romance, which has been applied to it by very respectable authority *; but after examining that part of Mr. Brydone's book, which describes the sirocco, I can only find that incontestable facts have been portrayed by the author in glowing language. The great increase of thermometrical heat is the only point not consistent with general experience, though this by no means proves, that, on particular occasions, the fact may not have been, as stated by this author.

All winds blowing between south and east, have more or less of the sirocco character; but the genuine or black sirocco (as it is called) blows from a point a little to the southward of south-east.

Without affecting the thermometer or barometer in any remarkable degree, the sirocco almost invariably gives the sensation of burning heat and oppression at the chest, accompanied with languor and a propensity to perspire with the slightest exertion. I have scarcely ever met an individual who was not more or less sensible to these effects; some, who have felt them but slightly on their first arrival, have become exquisitely sensible to them after some time; many can foretell the approach of a sirocco some hours before it begins to blow, by the peculiarities of their feelings, and there are few indeed who cannot at once decide, that this wind has commenced, without making any reference to external objects; but it is by the sick and the weakly convalescent that its depressing effects are most severely experienced.

It is a remarkable fact, that wounds and ulcers, and the discharge from mucous surfaces, generally deteriorate during the prevalence of a sirocco; and it is equally certain, that if vaccination, or small-pox inoculations, are performed at this period, they are extremely liable to fail; and if they succeed, the pro-

* See "Irvin's Letters on Sicily."

gress of the pustule is often suspended, and it is frequently ten or twelve days in reaching the state usually attained in six or eight *.

That the southerly wind in general, and the modifications of it in particular, is unfavourable to the health and spirits of man, is an opinion upon which all classes of persons with whom I have conversed throughout the Mediterranean, are unanimous. All the ancient physicians, who have written upon Mediterranean diseases, from Hippocrates downwards, give their testimony to the same effect, and speak of the pestilential nature of the southerly winds as perfectly familiar. Homer himself, a most accurate observer of nature, when describing the wound inflicted upon Mars by Minerva, a description in which he puts forth all his powers both of imagery and language, represents the god of war as ascending to Olympus in a cloud of

> "Vapours blown by Auster's sultry breath,
> Pregnant with plagues, and shedding seeds of death."
>
> ILIAD, *5th Book.*

Whether all the lower animals feel the relaxing effect of the sirocco wind, I know not: horses certainly do, for they sweat sooner, and are more languid than at other times; but on inanimate nature its effects are very obvious, and have repeatedly come under my notice in various parts of the Mediterranean.

The walls of houses, stone floors, and pavements, invariably become moist when the sirocco blows. I have seen the stone floors at Corfu absolutely wet without any rain having fallen; and gentlemen, who have made hygrometrical experiments, state to me, that the instrument has frequently fallen from ten to twenty degrees during the prevalence of this wind.

Although the sirocco is so charged with moisture, vegetables, especially that part of them exposed to it for any length of time, appear quite shrivelled and burnt up, and very frequently they are destroyed altogether. Wine bottled in a sirocco is greatly injured and often destroyed. Meat taints astonishingly soon during its prevalence. No prudent housekeeper

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* See "Philosophical Transactions," vol. lxxi.

ever salts meat at this time; for it either taints at once, not taking the salt, or else it keeps very badly.

Drains and necessaries emit more putrid smells in a sirocco, than at any other period.

No carpenter uses glue in the sirocco, for it does not adhere.

No painter willingly works during its prevalence, for his paint will not dry. I have myself specimens proving this fact, which are now, at the end of three months, nearly in the same state as when painted. The natives assert, that if paint, applied during a sirocco, does happen to dry by intense heat, and a change of wind, it always oozes again on the return of the sirocco: for the correctness of this statement I cannot vouch.

Bakers diminish the quantity of their leaven during the sirocco, as dough is found to ferment sufficiently without it.

It may, perhaps, be difficult completely to account for these peculiarities. The Father of Physic, acute in every thing, is peculiarly so on this subject, and his observations are worthy, not only of attention, but of deep study, because they apply in a peculiar manner to Greece. "The south wind," says he, "blows from places of a like nature with the north: for, coming from the south pole, and breaking through much snow, ice, and hard frosts, or hail, it must needs affect those that live nearest it in the same manner as the north wind; but not the whole country alike that it passes through. For, as it passes through the course of the sun, and under the equator, the moisture is exhaled by the sun, and being dried, becomes rarefied, so that it cannot but be hot and dry when it arrives there. In the places, therefore, that are nearest, this hot and dry quality must be imparted, as it is, in fact, in Africa, where the vegetables are dried up, and the inhabitants dried insensibly. For, having neither sea nor river to attract moisture from, it attracts that of animals and vegetables; but when it crosses the sea in this hot and rarefied state, it fills the country it falls upon, with much humidity; and therefore, when the situation of a place does not hinder, the south wind must needs be hot and moist."—*Clifton's Hippocrates*, p. 39.

However we may speculate on the causes, it is fortunate that we can mitigate the effects, in some degree, by shutting our

doors and windows, and confining ourselves to the house*. I felt much relief by keeping a large wood fire constantly in my room on those occasions, though to others it appeared insupportable in consequence. In the Appendix will be found an ingenious paper on this wind, by Dr. Benza. It principally refers to the sirocco, as it blows in Sicily.

EARTHQUAKES.

These are far from uncommon at Corfu; they run generally in a direction from north-west to south-east, and are supposed rather to be earthquakes originating in the island itself, than earthquakes of relation. I felt one very slight in February 1822, and, generally speaking, all the shocks lately felt, have been slight; but in 1745 one so severe was experienced, as to destroy the palace, the bishop's house, and many other buildings. Dr. Benza informs me, that the great earthquake, which damaged Santa Maura and Zante within the last few years, was not felt at all in Corfu. In May 1819, a very severe shock was felt in the interior of the island; in consequence of it, a copious spring, which used to turn a mill, was completely lost; for the first two winters after the shock the water re-appeared, but it is at present entirely dry.

SOIL.

The soil of Corfu is, generally speaking, very rich. It is principally a stiff tenacious clay, extremely retentive of moisture. Arable land bears a very small proportion indeed, to the woodland and pasture: it is calculated that two-thirds of the island are covered with trees of various sorts, but principally olives.

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* Varro, after having defeated the Ionian pirates, landed at Corfu, where he found a pestilential disease raging. By opening the windows of the house towards the north, closing the others, and changing the entrances, he preserved the health of his family.—"Marius Terentius Varro de Re Rustica," lib. i. cap. 4. See also "Pliny," book vii and xvi.

EXHALATIONS.

From what has already been said, it will at once appear, that Corfu abounds in the sources of malarious exhalations. There is scarcely a square mile in the island free from them, either, as they proceed from decaying vegetation, from underground moisture, or from the more open swamp. Every shower of rain that falls, if succeeded by heat, at whatever season of the year, is productive of miasmata; but August and the beginning of September are the periods in which these exhalations are produced in the greatest abundance; during those months, the town and its environs are constantly covered with fog in the mornings, but to a much less extent than the more distant villages; hence the town is, beyond comparison, more healthy than the country. A wet summer is invariably followed by an unhealthy autumn, which is felt by all classes of inhabitants throughout the island; but especially by those who expose themselves after sun-set.

The spots peculiarly remarkable for malaria are Govino, Ipso, Crissida, Perama, Figaretto, Episcopiana, Benitze, Lefchimo, Argirades, Armiro, Messongi, Val de Roppa, and the whole of the neighbourhood of Castrades and Calachiopulo; but the most malarious of all places throughout the island is that district immediately opposite Bucintro. The effects of malaria are different on the natives and on the less seasoned troops; it only produces intermittent in the former, but severe remittents in the latter; at least this is generally the case.

VEGETABLE AND ANIMAL PRODUCTIONS, &c.

Practical botanists report, that this island is inexhaustibly rich in botanical treasures; as my knowledge of the subject is limited, I shall not attempt to enter deeply into it.

The principal production of Corfu is the olive, which forms the chief source of profit to the landed proprietors. The island is said to yield in favourable years 500,000 Venetian barrels of oil, or upwards of 9,000,000 gallons, although the olive yields fruit only every second year.

No wood, fit for the purpose of building, is found on the island, although in the mountains there are said to be various species of oak, particularly the Balania or Valania (*Quercus ægilops*) the acorn of which affords an useful dye stuff. Cypress and palm trees are common, and the plains are covered in many places with *Cactus Indicus*, *Agnus castus*, *Salvia pomifera*, myrtle, rosemary, and other odoriferous plants.

The grape is abundant, but the growth of the currant has not been encouraged, lest the market of Zante should suffer.

Wine is produced in some quantity in Corfu, but, from bad manufacture, it is of a very inferior quality.

The grain produced on the island is not adequate to more than three or four months' consumption; it chiefly consists of Indian corn, although there is also wheat, barley, and oats*. Flax is also produced in considerable quantities.

Fruits are produced in tolerable abundance; they are principally oranges, figs, pomegranates, apricots, almonds, plums, peaches, melons, and other ordinary productions of the Mediterranean.

Mordo† assures us, that the fruits have, in many instances, degenerated since his early days; whether this is a matter of fact or matter of opinion I know not, but assuredly, neither the fruit nor the vegetables possess the flavour of those to be met with in the British isles.

The potatoe has been introduced into the island, and is of good quality, though not cultivated in very large quantity. There are also abundance of lentils, vetches, and various kinds of peas and beans.

Several medicinal plants flourish here. The *Colchicum*, *Hyoscyamus*, the *Momordica elaterium*, the *Scilla maritima*, and especially the *Ricinus* and *Smilax aspera*. Castor oil could, with a little encouragement, be produced here in quantity sufficient to serve the whole British army, and of excellent quality. The *Smilax aspera* is in general use for the same purposes as the *Smilax sarsaparilla*. With regard to vegetation

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* The wheat flour of Calamos, an island near Santa Maura, is sold as a luxury at Corfu, and is said to be the finest in Europe.

† "Nozioni Miscellanie intorno a Corcira," 12mo. Corfu, 1808.

in general, Baron Theotoky observes, that the sap begins sensibly to circulate about the end of December. The flowering of the apricot, the almond, plum, peach, and other fruits takes place about the end of January. The fig begins to ripen about the same period, and a variety of flowers, as the rose, hyacinth, jonquille, &c. are in full bloom. By the middle of February the spring is completely advanced, and in March the air is perfumed by the blossoms of the pear, apple, and cherry. In February and March sudden cold winds occasionally check the progress of vegetation; in general, however, cherries, &c. are ripe by April, and also beans, peas, and potatoes. The hay harvest begins in May; that of barley, oats, wheat, and flax in June. Indian corn and millet, in early seasons, are ripe in August; in less favourable years they are not fully ripe before September or October. Lentils, vetches, and French beans are also ripe in August. Citrons and oranges are in season throughout the year; the fruit and the blossom being frequently contemporaneous on the same tree.

The vintage begins about the end of September; the olive-tree flowers in April, the fruit is ripe in October, and the oil harvest generally commences in November; but in some of the more elevated parts of the island, they begin to express the oil so early as August. The laurel, myrtle, pine, cypress, date, &c. preserve their verdure throughout the whole year, and greatly add to the numerous beauties of the scenery.

There are no animals, as far as I have learned, peculiar to Corfu. The scarcity of pasture does not admit of the rearing of cattle. These, whether for food or agricultural purposes, are principally imported from the opposite coast. It is a curious fact, that dogs are reared in Corfu with great difficulty; few bitches bring up even the half of their puppies. Hares and rabbits are frequently met with. Deer, and other species of large game, are unknown.

Birds of prey, *Accipitres*, are rare in Corfu. The vulture is sometimes met with, and hawks and owls are occasionally seen. Of the orders *Pici*, *Coraces* and *Passeres*, the variety to be met with (particularly of the latter) is very great; and they are almost indiscriminately used for food by the Corfiots. Among the *Gallinæ*, the domestic fowls are good

and plentiful; but I believe the turkey is principally imported from Albania and the Morea. Pigeons, both tame and wild, of different species, are found in vast numbers. Partridges, both of the common and red-legged kind, are plentiful. The *Tetrao coturnix*, (or quail, a migratory bird,) is, in the season, very abundant, as are also most of the migratory birds of Europe.

Among the *Grallæ*, storks and herons are occasionally met with; but the *Scolopax rusticola*, or woodcock, is found in the greatest profusion; many, also, are imported from Albania. Snipe, red-shank, plover, and other species of scolopax, are also abundant.

Of the *Anseres*, or water-fowl, the supply is immense, including many species of the anas or duck tribe, as wild duck, widgeon, teal, &c.

In the markets of Corfu we find a variety of fish, the principal of which are as follows:—

Among the cartilaginous fishes, various species of the genus *Raia*, especially skate, and various species of the genus *Squalus*, especially dog-fish. The beautiful *Pegasus draconis* (or sea-horse) is often found. Of the *Acipenseres*, the sturgeon is occasionally seen. Of the order *Apodes*, we meet with various kinds of eels and sword fish. Of the *Jugulares*, the star-gazer (*Uranoscopus*), the weever (*Trachinus draco*), the blenny, the whiting and the pollack, are the most common. Of the *Thoracici*, the *Echeneis remora*, or sucking fish, is very common; and, though rejected even by the shark, is eaten by the lower orders of the Corfiots. We also find the john dory, the plaice, the sole, various species of the sparus, or gilt-head, the perch, the pilot fish, the mackerel, the bonito, the dolphin, miller's thumb, the little sea scorpion, and the mullet of the Romans, *Mullus barbatus*. Of the *Abdominales*, we meet the anchovy, the trout, pike, tench, and the roach. The river fish are not natives, but imported from Albania. The most noted fish of Corfu is the *Mugil cephalus*, or grey mullet. It is caught in great quantities in the lake of Calachiopulo, where it is called *Chefali*, probably from the great size of its head. It is a delicious fish, and from its roe, mixed with that of another species caught in

Bucintro, the Corfiots prepare their *botargo:* they first salt the roes, then smoke them, and preserve them in oil.

Of *Mollusca,* the star-fish, cuttle-fish and echinus, are very abundant. Many of this class are dried, and are a common article of food ; they are glutinous if well dressed, but otherwise tough and leathery.

Of *Crustacea,* the crab, craw fish and shrimp are abundant ; and the lobster is frequently met with.

Of *Testacea,* the razor-fish, pinna, oyster, mussel and scallop, are abundant ; and in Calachiopulo, the cockle is found in vast quantities, and of excellent quality.

Of the *Cetaceous* tribe, the *Delphinus phocæna,* or porpoise, and the *Delphinus delphis,* or dolphin, of the ancients, are very common.

Many, if not most of the fish exposed for sale in Corfu, come from the coast of Albania. The Corfiots pretend that, since the last siege, the fish have been frightened away from their shores ; the fact, I believe is, that they are not expert fishermen : be that as it may, their fish does not appear to me to bear any comparison, in flavour and firmness, with those of the British Islands.

The principal places for catching fish are Calachiopulo, Govino, and the neighbourhood of Gerovolio and Bucintro. They are taken by nets, by the line, and occasionally by means of a deleterious substance which intoxicates them, called "Splono." The basis of this is *verbascum,* a plant which, although in England we look upon it as merely mucilaginous, is, both by Haller and Linnæus, considered as anodyne, to man at least. Some species of *euphorbium* are used for a similar purpose. In fishing for *Polypi, Echinides,* and cuttle-fish, the fishermen throw a few drops of oil on the surface of the water, and having thus rendered it calm, they drop their bait to the fish, to which it soon affixes itself. I have often watched this process under the walls of the Citadel.

Mordo speaks of a fish caught in a valley near Corissia, which, though of a very delicate flavour, is unwholesome : I have inquired for this fish in vain.

Coral is found in small quantities near Cape Sidero and Cape Bianco : it was formerly an object of commerce. Corallina is

also found upon the coast of Corfu; and sponge and many other zoophytes are abundant.

Venomous reptiles are either unknown, or very scarce, at Corfu. Among the harmless kinds which I have seen, are the land tortoise, the frog, common lizard, and the harmless *Coluber berus*, or adder. Corfu abounds with insects: a complete catalogue I cannot give, but among them are the tick, by whose ravages so many museums have been destroyed; *Chrysomela*, of various species; *Lampyris*, or glow-worm; *Blatta*, or cockroach; *Mantis; Meloe;* a great variety of *Papiliones;* the *Gryllus*, *Cicada*, *Tipula*, *&c. &c.* The beautiful moth *Phalæna junonia*, is occasionally to be met with, as also the *Lepisma*, the *Scolopendra*, and the *Scorpio europæus*, whose bite, however, is not poisonous.

PHYSICAL CHARACTER OF THE NATIVES.

Having touched upon the lower order of animals, I shall now speak of the physical character of the inhabitants. Considering the native Corfiot in a zoological point of view, I would say he held a rank among European nations not inferior to many of the Mediterranean islanders. The upper and front parts of the skull are well developed; the features are, in general, pleasing, and wear an air of intelligence. The complexion, in healthy persons, inclines towards olive; and in some of the females, who are not exposed to the sun, it is clear and white. The complexion of the peasantry is, of course, much affected by the sun. Those who reside in the Lefchimo district in particular, and in the neighbourhood of marshes in general, have a sickly leucophlegmatic cast. The eyes are almost universally brilliant and full, in both sexes, and generally dark-coloured; the teeth good; the hair generally brown or black, and bushy in the men; the beard copious; the figure of the middle standard—sometimes beyond it,—and, if not indicative of strength, it promises activity. The constitution sanguineo-choleric; the gestures vivacious; the gait erect and elastic; the enunciation voluble and emphatic.

The females are, in general, well formed, many of them

handsome: unlike the men, they allow the hair to grow luxuriantly; they menstruate early; the process of parturition is easy; twins are common among them, and triplets are not rare. In December, 1807, a Jewess brought forth five children at the seventh month, three of them alive. In point of longevity, the Corfiots are on a par with the other natives of southern Europe, and many old people are to be seen among them. Within the last fifty years, thirty-five males and thirty-six females died upwards of 90, and five males and three females at upwards of 100; one of them 116.

Deformity is a rare occurrence among the Corfiots, and monstrosity still more so. In his whole life Dr. Mordo has only met with one monster; in this unique case, the ears were placed on the *occiput*, and the legs and arms were distorted. He has only seen one hare-lip, and one *spina bifida*. In one or two families, children have been born with six fingers, and this had continued for four generations. Goitrous persons and cretins are unknown in the island.

MINERALS.

The mineralogy of Corfu is but very imperfectly known, though, if we are to place any confidence in ancient mythology, we might suppose it contained many mineral treasures; for the scythe which Saturn is fabled to have received from his mother, and which subsequently became Corfu, was said to have been fabricated with the minerals drawn from the bowels of Thea.

The mountains are, generally speaking, formed of carbonate of lime, destitute of any organic remains, but with occasional strata of flint, precisely similar to those of Albania, as described so well by Dr. Holland. To the westward it is very compact, and fit for the purposes of the statuary: in that direction also, variegated marble is sometimes found in small masses, but widely scattered. In some of the mountains carbonate of lime alternates with strata of vegetable earth; it is often met with, tinged with the oxide of iron, and presenting on its surface, when fractured, beautiful arborescences. Gypsum, both fibrous,

crystallized and granular, abounds, principally disseminated in argillaceous deposits. Some of these are known on the continent under the name of alabaster of Corfu. Immense masses of brescia, either purely calcareous, or with a mixture of silex, are to be met with in various parts of the island.

In some spots, especially at that part of the esplanade where the new palace is built, limestone is to be found. Dr. Benza, who has been employed in making a mineralogical and geological survey, has observed some spots, in which carbonate of lime is mixed with nodules of sulphur, others in which coarse jasper is found; and in one spot he detected the rare mineral dolomite.

AGRICULTURE.

AGRICULTURE is at present at a very low ebb in Corfu, although said to be much improved of late years, especially in the production of garden vegetables. Few proprietors cultivate their own lands, but let them out on short leases, the tenants binding themselves to return a fifth or even a third of the produce.

The olive tree, to an English eye, appears grossly neglected; the fruit is not plucked when ripe, but is allowed to fall on the bare ground, a process which commences generally in October, and often lasts till April. The trees are never regularly pruned nor trenched, and they are so thickly planted, that there must be a considerable deficiency of healthful ventilation. The natives, however, say, that the produce of the olive trees, thus thickly planted, brings more money to the proprietor than if they were thinned, and the ground they occupy otherwise cultivated.

The vine is generally planted in the plains and vallies, and corn in the declivities of the hills. A system, so much the reverse of what we should consider perfect, cannot be supposed to call forth all the riches of the soil; it certainly does not improve it in point of salubrity; for a vast extent of the island is in a state of nature, and absolutely pestiferous, for want of a proper system of drainage and tillage.

The instruments of tillage are in a state as primitive as we

may suppose them to have been in the days of Ulysses. An ordinary-shaped spade, a broad-edged hoe, and a very rude plough and harrow, form the catalogue.

MANUFACTURES.

The manufacture of oil is the principal, and the machines employed in it are the rudest possible.

The olives are pressed under a perpendicular stone wheel, which revolves in a large-sized horizontal stone of a circular form, somewhat hollowed in the centre. A horse or mule sets the machinery in motion, and a peasant runs before and shovels the olives under the approaching wheel, the action of which is necessarily confined to a limited space, while its power is very insignificant. The bruised mass is then transferred to a bag made of rushes or mat, which is subjected to a heavy pressure; this pressure is increased by means of a screw, wrought by two men at irregular intervals; for the labour is so violent, that they cannot possibly continue long at it. They ship two strong bars, after the manner of a capstan, and then, with a most savage yell, they urge them forward by a simultaneous dart, the effect of which is marked by a quantity of oil oozing through the mat, and falling into a hole cut in the ground for its reception. After the interval of forty or fifty seconds, the labourers dart forward again with similar violence, and with a bodily effort which must strain their whole frame. The quantity of oil that two expert labourers can express in a day is estimated at ten or twelve jars of rather more than four gallons each.

The wine is reported to be naturally good, but spoiled in the manufacture.

Salt is manufactured extensively by evaporation under the rays of the sun.

Soap and leather are manufactured, but of a coarse kind, and not to any great extent.

There is also a manufactory of coarse earthenware at the village of Castrades. Besides these, silk, lace-makers, snuff-makers, confectioners, dyers, tanners, bell-founders, basket-

makers, mat-makers, and some other of the ordinary trades-people, are scattered through the town.

ROADS AND COMMUNICATIONS.

Until the last few years, the roads of Corfu were in a very neglected state. Its political position always rendered it an object of military occupation, and the few regular roads made through it were more for the purposes of facilitating a communication between the various points of military defence, than for those of political economy. Under the British Government, however, it has been otherwise. A variety of roads are planned, some are executed, and more are in contemplation, so as to effect a complete communication throughout the whole of the island. In the speech of his Excellency the Lord High Commissioner, to the Parliament assembled in the session of 1821, he most particularly called their attention to the formation of the public roads.

The communications by water are not different from those in other insular situations. There is only one regular ferry, viz., that across the mouth of Calachiopulo.

THE CITY.

The principal town of the island of Corfu, is the fortified position so called. The city is built on an irregular promontory, which juts out nearly from the central part of the island, on its eastern shore. This promontory has been sometimes compared to a triangle, having its base united to the island, and its apex towards Albania, with a semicircular bay on each side. The resemblance is not very striking, and reference must be had to a map to form a correct idea of the locality.

The ground on which the town is built is very uneven, but its general slope is towards the north-west. The inhabitants pretend that it was founded by Æneas, as a rival to the ancient Phæacia. The city, which existed in the days of still more remote antiquity, is supposed to have occupied that spot

through which the French cut the ditch already mentioned. All is doubt and conjecture upon this point; it is certain, however, that, in digging the ditch, many foundations of buildings, coins, and remains of vases, statues, and inscriptions were found.

In describing the present town, it will be necessary to notice separately, the citadel, the esplanade, and the town properly so called.

The citadel, or old fort, is built at the very extremity of the triangle. It is remarkable for two rocky eminences, "aërias arces" of Virgil, which add greatly to the natural beauty of the scene. The triangular promontory was by nature peninsular, but it has been completely separated from the main land by a military work or ditch, about 150 yards in length, 80 in breadth, and 40 deep. The sea enters freely at the northern mouth of this ditch; but at its southern end there is a wall which cuts off the communication. The communication with the esplanade is by a drawbridge. Within the citadel are the old palace, an armory (now used as an English chapel and school), barrack, artillery stores, an hospital, several houses formerly private property, but now chiefly occupied by officers connected with the government or the army, and one or two churches of the Greek religion. No regular plan is observed in these buildings, except the barracks and the palace; all the others are placed, either by chance or where a level surface presented itself to found them upon. The circumference of the citadel, within the walls, is 1800 yards, as measured by Dr. Benza, at my request.

The palace has some appearance of a regular front; it is immediately opposite the drawbridge. The barracks are on the northern aspect of the citadel, and will be described hereafter.

The esplanade commences at the ditch which insulates the citadel; it is a piece of ground extending in length from shore to shore, about 450 yards. It is not quite level, but slopes in a very gradual manner from the southern to the northern shore. It is perfectly free from buildings on the southern side; on the northern are situated the new palace and the old hospital. The breadth of the esplanade from east to west, or from the ditch of the citadel to the commencement of the town, is about

180 yards. One small Greek church projects somewhat beyond the line of the houses of the town, and is the only solid building that can be said at all to encroach on it. This open space forms the parade for the troops; it has of late been much improved by levelling and ornamental planting, and by the erection of a very elegant fountain over a tank, situated towards its southern extremity. The situation is beautiful; looking from the town, the citadel is in front, the mountains of Albania in the distance, and the sea on either hand. A carriage drive has been formed round it, and it has become a place of common resort for the inhabitants and the garrison, for their walks and rides.

The esplanade is certainly the most exposed situation in the neighbourhood of the garrison; it is excessively hot in the day, and, when the wind is northerly, piercingly cold; this is particularly experienced by persons who have to cross it at night in passing between the town and the citadel. I have heard it jocularly called "the harvest-field of the physicians," and I believe there is little doubt that the foundation of many severe catarrhal and febrile attacks has been laid, while pursuing duties or pleasure on this very interesting promenade. The natives charge the numerous attacks of this description, entirely to the importation of malaria from Bucintro, which, although twelve miles distant, is supposed by them to transmit its poison undiluted to the island of Vido and the town of Corfu, especially the citadel and esplanade, on which it first strikes, on its passage across the channel.

The town is separated from the rest of the island, by a strong double circumvallation, which bounds it on the western direction; the northern and southern boundaries consist of a single line wall, along the margin of the sea. Like other fortified towns, its extension is prevented by the lines of defence, and its cleanliness and ventilation are peculiarly impeded. The circumference of the town, exclusive of the esplanade, is 2800 yards; its greatest length from the esplanade to the spilea, or sea-gate, is 550 yards, as measured by Dr. Benza, at my request, and confirmed by the map in the Quarter-master General's office.

The town, especially on its flanks, is quite a labyrinth. In

the centre, or nearly opposite the entrance to the citadel, there is a range of tolerably good-looking houses, with piazzas, having an eastern aspect; from behind these, two or three principal streets, and as many of a secondary character, run from east to west; these are irregularly crossed by streets and lanes; narrow, straggling, and following no precise direction; being built, apparently, as the natural form of the ground admitted. In these irregular passages, the gables of some of the houses and the fronts of others are intermixed; some are approachable by steps, artificially formed, and others by ledges of the rock, which, by time and a little manual labour, are converted into rude stairs. Formerly, outside staircases projected from almost all the houses; but of late, these incumbrances have been removed, and very few are now to be met with in the more frequented streets. Some respectable houses are scattered here and there through the town, and on the line wall facing the harbour; but the generality of the habitations are of a very ordinary character, consisting of two or three stories, each containing a large hall and a few apartments leading off from it. The floors are almost all of wood, and the stairs, in general, are of the same materials.

Even the very best houses of Corfu are destitute of the comforts usually met with in those of the adjacent continent of Italy; the majority are very bad, and some of them execrable. An appearance of dilapidation runs through the whole town, although it is admitted, on all hands, that it is greatly improved since the arrival of the English.

I have not been able to procure any data upon which to found a correct calculation, as to the average number of inhabitants in each floor or house. With regard to the average size of the sitting and the sleeping rooms, it may be a close approximation to estimate, that the sitting rooms of the higher ranks, average 24 feet by 12, and their sleeping rooms somewhat less. Of the lower classes, and the greater part of the middling, the sitting rooms average 18 feet by 9; and they frequently serve the purpose of sleeping apartments also.

The local practitioners do not consider that there is any difference, in point of health, in the different parts of the town;

but I am led to suppose, that that part of it looking towards the north-east, is the least healthy.

MARKETS.

A VERY good market for fish and meat has recently been built near the water-side, and another for vegetables, poultry, &c. in the ditch of the fortifications on the land side; many miscellaneous articles, however, are still sold in the streets, and in the shops, which in general are low, dark and ill-aired cells.

The following are the prices of provisions as used in the British hospitals. In this list the dollar of 100 oboli, is taken at 4*s.* 6*d.* British currency. Beef, 6 oboli per lb.; bread, $2\frac{3}{4}$ oboli per lb.; country wine, $4\frac{1}{2}$ oboli per pint; milk, 8 oboli per pint; tea, 100 oboli per lb.; sugar, 11 oboli per lb.; rice, 5 oboli per lb.; macaroni, 6 oboli per lb.; salt, 1 obolus per lb.; soap, 11 oboli per lb; fowls, 28 oboli each; eggs, 18 oboli per dozen; flour, 6 oboli per lb.; porter, (English,) 33 oboli per bottle.

DRAINS AND NECESSARIES.

THE few drains that formerly existed, were very small in extent, constructed on improper principles, and allowed to run into a state of decay, insomuch as to form receptacles for the detention of filth, rather than the means of conducting it to the sea. Some drains have been recently formed in the principal streets, under the direction of Sir Frederick Adam. I have examined the kitchens of many houses in the town of Corfu, but without being able to detect any drains from them; and as they were the quarters occupied by officers and others in the public service, they may be supposed to furnish a tolerable estimate of the generality of houses. With regard to necessaries, it may appear not only strange, but almost incredible, that in these houses, one or two only had necessaries which, apparently, had formed a part of the original plan; a few were evidently of after formation, and had recently been built by the British inhabitants.

In lieu of drains, cesspools and necessaries, the Corfiots have substituted either the practice of throwing every species of household offal into the public streets, or depositing them in receptacles called "Calle Morto." The calle morto, literally "stagnant street," is an enclosure formed at the back of a house, or between the backs of two houses, into which all the filth is discharged; there it often accumulates, until, in process of time, it either rises to the lower windows, and flows into the adjacent buildings, or else bursts the side walls which confine it. Occasionally we see some measures taken to cleanse these Augean depôts, by a train of mules with baskets, which are filled from a breach made in one of the side walls; judging by the appearance and smell of the loading of these animals, the employment of the unfortunate labourer, who works within, must be one of the most disgusting drudgeries to which human nature can be condemned. There are from eighty to ninety of these pestiferous magazines which may be called public, as being common to several buildings, exclusive of those of a minor class, which receive the collected impurities of only single houses.

POPULATION.

THERE are great diversities of opinion as to the present population of Corfu, both in the city and the more remote villages. St. Sauveur, who published his work in 1799; General Vandoncourt, who professes to give the returns presented to the French Government in 1807; Dr. Mordo, who published in 1803, and who refers to a census taken in 1802; and the intelligent critic in the *Quarterly Review*, No. 46, for July, 1820, all differ. It would be difficult to reconcile these varying accounts; and as no very recent census has been taken, perhaps nothing accurate is known; but by the cession of Parga, it is certain that some thousand inhabitants were added to the population of Corfu: whatever they might have been previous to that event, I conceive the population to fall very little short of 70,000, of which 18,000 are in the city. Of these 2000 are Catholics, of the Roman persuasion, with six churches, (two

of them parochial,) and a vicar; to which, under the Venetians and French, was added a bishop; 1500 are Jews, with two synagogues and two Rabbis, and the remainder are of the Greek religion, with thirty-two parish churches, and I know not how many priests.

By the kindness of Colonel Robinson, I can state, with much accuracy, the population as taken in November, 1802.

Within the Town.

Men, Women and Children of the Greek persuasion .	4700
Do. do. Latin . . .	1600
Do. do. Jewish . .	1229
Total within the Town .	7529
In the Suburbs of St. Rocco	508
Do. Manduchio	1829
Do. Potamo	2192
Do. Castrades	2160
Total in the Town and Suburbs .	14,218
Population in the 24 Midland Villages . . .	7706
Do. 44 Northern	12,660
Do. 34 Southern	9169
Do. Island of Fano and Merlice . .	773
Total Population .	44,526

The classification of the inhabitants in the town was as follows, according to the same census:—

Section.	Proprietors.				No. of Proprietors.	Servants.	Indigent People.	Children.
	Rich.	Middle Class.	Lower Class.	Poor.				
1st Section	12	45	165	392	614	51	54	230
2d „	44	40	149	336	569	48	44	239
3rd „	26	59	231	441	757	78	106	295
4th „	24	51	205	415	695	97	44	249
5th „	5	19	54	147	225	24	49	86
6th „	24	17	93	379	513	66	116	201
7th „	22	48	84	358	512	65	75	198
Total	157	279	981	2468	3885	429	488	1498
Jews....	13	23	171	507	714	...	100	415
In all ...	170	302	1152	2975	4599	429	588	1913
Total . . . . 12,128.								

DWELLINGS, BEDDING, CLOTHING, AND FURNITURE.

I HAVE already described the general character of the houses in the city of Corfu. In the villages they are still worse; very few have a second story. The roofs scarcely afford shelter from the inclemency of the weather; the floors are of clay, and it is by no means unfrequent to meet a family of eight persons crowded into a sleeping place of 10 feet by 16.

Mats spread on the floors, are in use among the poorest classes; but, generally speaking, in the town, and in the better order of houses in the villages, there is to be found a good bed, stuffed with wool, hair, or straw, and placed either on a regular bedstead, or on boards and tressels. In lieu of blankets, a counterpane thickly quilted and stuffed with wool, forms a very common and a very comfortable substitute. The Greek females pride themselves on the elegance of their beds; they are covered with silk, and embroidered counterpanes, &c., and with ornamental pillows in proportion to the fortune of the owner. I had heard much of the difference between the exterior and the internal cleanliness of these beds: I have seen in some of the poorer villages of Portugal as many fleas, bugs, and other vermin; but for stationary filth, of the most disgusting nature, I should think no part of the world could produce a parallel to the beds at Corfu. The generality of the middling, and the whole of the lower order of people, sleep in their ordinary clothes, and rarely change their personal or bed linen oftener than once a month. A few chairs, tables and chests of drawers, of an ordinary description, a copper cooking-kettle, and some earthen pots and pans, of a very coarse kind, complete their furniture.

DRESS.

THE dress is much improved, within these few years, as far as the higher orders are concerned, and the English and French fashions are adopted among them; but the peasantry have made no alteration in their dress, for centuries. It chiefly consists of a wide capot of thick felt, (the principal ingredient

in which is goat's hair,) or coarse shaggy woollen cloth in summer, and of an additional article of the same material in cold or wet weather. The capot is very rarely taken off; the under dress is a woollen vest, large breeches of coarse cotton, with cloth leggings, and a coarse sandal of undressed hide, secured by thongs, or a shoe of half-dressed leather scarcely less rude. This is the national dress of the aboriginal peasantry; but the settlers, whether Albanians, Moriots, or others, retain some traces of their native costume, as the red skull-cap, the turban, &c., &c. A girdle or zone, of silk or cotton, is almost invariably worn round the waist by both sexes.

The women are loaded with as much clothes of coarse cotton, silk, or brocade, as they can procure, and are passionately fond of every species of ornament, especially necklaces, ear-rings, and girdle buckles. Many of them tinge the nails and tips of the fingers of a pink colour, and the practice of inserting powdered antimony along the edges of the eyelids is very common, especially among such as come from the islands of the Archipelago. This application gives a certain degree of brilliancy to the eyes, but there is a physical peculiarity in the eye of a Greek which requires but little aid from art, and fully justifies the term of "ox-eyed," so frequently applied to them. Cosmetics and perfumes are also much used among them.

The inhabitants of the town are more profuse in the articles of dress and furniture than those of the country, as is the case almost universally; but even amongst the richest there is a lamentable deficiency in point of comfort, and not the smallest approach to elegance either in their person or their houses; at least, to elegance as implied by the English acceptation of the term.

FUEL.

The fuel in use at Corfu is wood and charcoal, which are abundant, and at a moderate price. The "eliosto," or refuse from the oil mills, is also used for heating ovens. Fireplaces are very rare in Corfu, the Corfiots, and indeed all the Greeks, looking upon fire as unwholesome, and very seldom using it

except in their kitchen, and then only to prepare their meals. There are very few English residents, however, who participate in this fear; and while the Greeks put on additional clothing to avoid the effects of cold and moisture, the former add to these precautions, all the comforts of an English fireside.

DIET.

A Corfiot is a very abstemious person, when he eats or drinks at his own expense; but when he feasts at that of a foreigner, he is capable of consuming a vast quantity of food, both animal and vegetable, together with copious libations of wine. I have seen both males and females of the higher orders, swallow a portion of every dish and every wine within their reach, on a supper-table laid for 200 persons; but in their own houses, their fare is much more simple and limited.

In the Greek Church there are no fewer than four lents, which occupy 191 days of the year; in some of them even fish is proscribed, and bread and vegetables are alone tolerated *. The estimate for the food of a peasant is about two pounds of Indian corn per day, made into coarse bread, and seasoned by a few leeks, wild herbs, or cloves of garlic, with a little oil and vinegar, and washed down with some water or weak wine, which they denominate "vinetto." On gala days, some caviare, or morsel of salt fish adds an additional zest to the meal. On this fare the peasant labours a whole day in the fields; he rises early, swallows a glass of spirits, eats one-half of his provisions at noon, the remainder at the close of the day, and he then retires to repose for the night in the same garments which he has laboured in.

Fish, especially shell-fish, are much used in the town. Coffee also is in general use among the better orders, and of course luxurious living is more common among them; but, generally speaking, the Corfiots of whatever rank, as well as the mass

* The sick and children, on those occasions, are indulged, and so are travellers; but, except on emergencies, they seldom avail themselves of the permission.

of the Greek nation, may be fairly called abstemious in their domestic habits.

The late Dr. Clarke imbibed a notion, which he states with considerable confidence in his Travels *, viz., that eggs, butter, and milk, were considered so extremely unwholesome in Greece, as to be called the three poisons; this statement is somewhat overcharged, at least as it regards the islands. They are neither unwholesome, nor are they *generally* considered so. Cow's milk is not much esteemed, but goat's milk is in very general use, and it is very good of its kind; a good deal of butter is made from it, and cheese in abundance. Salt butter, imported from England, is in very common use among those who can afford it; and a manufactory of fresh butter from the milk of cows has long existed at St. Salvador.

The eggs are particularly good, and in universal use by all who can procure them. So far are they from being considered unwholesome, that Dr. Mordo mentions the use of eggs by convalescents as an improvement in the Corfiot practice of physic; and he attributes the better state of health of the Corfiots in his time, to what it formerly had been, among other things, to the more abundant use of milk.

WATER.

In the town of Corfu, the water in common use is rain, preserved in tanks; some within the walls, and others at a distance, from whence it is daily brought and retailed to the inhabitants.

The troops are principally supplied from cisterns on the esplanade and citadel. The troops in Vido Island are supplied from a tank and two wells.

In the country, almost all the villages have their own springs, the water of which is excellent. There are some open springs in the town of Corfu, but the water is brackish and muddy. There are also a number of sunk wells (about 200), but the water is so strongly impregnated with calcareous matter, as to render it unpleasant, unwholesome, and unfit for many

* Vol. iii. 8vo. edition, p. 255.

domestic purposes. There was at one time a plan for conveying to the town, a never-failing supply of pure water from the fountain of Crissida, but it has never been executed, in consequence, I believe, of the expense.

EMPLOYMENTS, AMUSEMENTS, AND CUSTOMS.

UNDER the heads of agriculture and manufactures I have stated most of the employments of the Corfiots. Horticulture is much practised by the inhabitants of Castrades; they also occupy themselves a good deal in fishing. It has been remarked by St. Sauveur, and with some justice, that the people of Castrades differ most materially in character from those of Manduchio, which lies equally commodious for gardening and fishing, and is only separated from it by the length of the glacis. While the inhabitants of Castrades are peaceable and industrious, the Manduchians are fierce, piratical, and often murderous. How far the more general resort of sailors to the latter village may be productive of this difference of character, I cannot say.

Although in other countries, smoking tobacco may be considered as an amusement; in Corfu, and indeed all over the islands, it may fairly be stated as an *employment* for the male sex. It is scarcely hyperbolical to say that the pipe is never out of their mouths. This practice must necessarily affect the stomach; but I am convinced that it enables the system better to resist the marsh miasmata, where persons are in their immediate vicinity. The fumes of tobacco create an artificial atmosphere round the individual who produces them; they obviate damp; they obviate ill smells, and they solicit a tranquil state of the mind, which in a very serious degree diminishes the chance of contracting infectious or contagious diseases. Let me not be supposed, in doing justice to tobacco, to be blind to the ill consequences of using it to excess.

There is one propensity among the Corfiots of all ranks and sexes, and in whatever part of the island they may be born, which, in the intervals of these employments, that self-preservation renders necessary, or their relative situations in life

impose upon them, seems to form their darling occupation, viz., an irresistible desire for the discussion of news, in the pursuit of which, all their mental and corporeal energies are exerted. Old and young, rich and poor, fly to the town walls, to the esplanade, or to some of the adjoining villages, to debate in groups, on any political event or rumour. A religious procession, of which there are numbers, does not possess more charms for a Corfiot, than a piece of recent intelligence (no matter whether true or false), which allows him to exercise his tongue; nor is his body unmoved on the occasion; for he distorts it with the most eager and ridiculous gesticulations which can be imagined.

I had an opportunity, on the occasion of the detention of a Greek armed vessel, by one of our ships of war, to witness a very extravagant scene of this description; nor is the mention of it misplaced in an account of the influence of locality and custom over health; for numerous attacks of apoplexy take place on these particular occasions, and epileptic, hysterical, and other nervous affections, originate at, or are aggravated by, popular meetings of this description.

The Carnival is in Corfu, as it is all over the Mediterranean, a great, although a temporary source of amusement. Every one knows that the Carnival immediately precedes the principal Lent in popish countries. On this occasion the Corfiots bid adieu to animal food, much upon the principle that a camel, about to travel over the desert, takes in his water. In general, this festive period elicits some degree of wit, either practical or colloquial. At Corfu I have seen some tolerably well-dressed characters, but not the most distant approach to humorous dialogue.

Dancing is a very favourite amusement among the Corfiots of both sexes, and their national dance is not ungraceful; many suppose it to be the same as the ancient Pyrrhic dance. It is not performed, however, with the active movements that we are taught to believe were employed in the Pyrrhic dance, but with a slow, languid, and measured pace.

A circle is formed by men and women joining handkerchiefs; the circle opens, and the leading person goes through the evolutions of the dance, which consist of forming and reforming

the circle; sometimes completely; again only to half its extent; sometimes it doubles back on itself; very often, the leader passes through the middle of the waving line, under the uplifted hands of the dancers, and is followed by the whole train: after a variety of movements of this description, which seem entirely arbitrary, the first leader is succeeded by another. During the whole continuance of this performance the leader alone is the active person.

There is another dance, principally executed by men, in which they form circular and other figures, and use considerable muscular exertion, leaping from the ground and stamping upon it with great perseverance.

The open air is the usual scene of performance, but I have witnessed the first-mentioned dance in private houses.

The theatre, singing, music, and village fêtes, are also favourite amusements among the Corfiots. Their instruments are the fife, lute, guitar, violin, and drum.

Upon the whole, the Corfiots, and the Greeks in general, are fond of amusements, or a state of listless idleness, for which the numerous festivals of their Church afford them ample opportunity. In this respect they still maintain their ancient character; and in speaking of this trait of the modern Greeks, we may still apply to them Cicero's remark on the "summum Græcorum otium" of their ancestors.

MORALS.

It would be unphilosophical and unjust to deny that many individuals of strict integrity and unblemished honour may be found among the Ionian Islanders; but the concurrent testimony of all who have governed, resided among, or trafficked with them, justify us in asserting that the national character is the very lowest in Europe. Vanity is the predominant characteristic of almost every individual, however low in rank he may be. But of what are they vain? Among them, before they came under British protection, justice was openly sold to the highest bidders; public faith was unknown; and as to individual veracity, Greek falsehood *(Græcia mendax)* is proverbial.

The instances are rare in which these islanders do not exhibit an uncontrolled propensity to revenge, litigation, and political intrigue, cloaked under the thin veil of patriotic enthusiasm for the national glory. These objects they pursue with all the pertinacity of vice, and with scarcely one redeeming qualification. Tyrannical to their inferiors, they are to their equals and superiors what Juvenal long since described them :

"Adulandi gens prudentissima."—*Sat.* iii.

Their clergy are taken from the very scum of the population, and are, with few exceptions, illiterate, superstitious, and immoral. Their nobles are without honour, their merchants without integrity, and their peasantry ignorant and degraded to the most abject degree.

Whence this lamentable decadence may have proceeded, this is not the place to investigate. It pervades all ranks, from the palace (and every house of more than ordinary size is called a palace) to the cottage. That the Greek character, in general, has been greatly debased by their long endurance of Turkish tyranny and Venetian prostitution, as exerted on the Continent and in the Islands, is agreed on all sides, and is consonant with what the history of man has in every age presented to our view; but one of the principal causes is to be found in the depravity and ignorance of their clergy. Many of these persons can barely read their breviary: few, if any acts of private atrocity, or rebellion, have occurred in the Islands, which have not been planned and in part executed by the priests, and there are few gangs of robbers or pirates which have not their chaplain. I know many who publickly keep concubines, although a wife is allowed them by their religion, and yet some of these reverend sinners pretend to a sanctity and chastity quite superhuman*.

BIRTHS, MARRIAGES, AND DEATHS.

For the following table of the marriages, births, and deaths in the Roman Catholic parishes of the town of Corfu, I am

* See Douglass's Essay on the Ancient and Modern Greeks.

indebted to Dr. Benza. It is an abstract of a voluminous series of reports which he has consulted at my request:—

Years.	Born.			Dead.			Died more than 90 Years old.		Died more than 100 Years old.		Born.	Marriages
From 1770 to 1820 inclusive.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Males.	Females.	Twins, and more.	
51	3071	2750	5821	5109	3217	8326	35	36	5	3	44	2235

So that marriages are to children born nearly as 1 to $2\frac{1}{2}$, and twins stand to marriages as 1 to $50\frac{35}{44}$, and to births as 1 to $132\frac{13}{44}$.

The deaths in this table bear no proportion to the marriages and births. They exceed the latter by 2505; hence we might be led to conclude that the Roman Catholics of Corfu would be extinct in fifty years. But the great difference between births and deaths is owing to the following cause: under the Venetians and the French all soldiers and sailors who died here were entered in the register, which increases the number of deaths above that of births. The French, in particular, lost more than 2000 soldiers in the excavation of the ditch, which is the reason of the *plus* of deaths. In fact, in the register of the Citadel Catholic parish, where neither soldiers nor sailors were buried, the births exceeded the deaths a thirteenth.

I have not been able to procure any correct returns for the island generally.

EDUCATION AND REARING OF CHILDREN.

Education is at a low ebb in Corfu, although great encouragement has been held out, both by Sir Thomas Maitland and Sir Frederick Adam. There are schools where reading and writing are taught; but persons destined for law or medicine are generally sent to Italy.

There is a school established by Government, and furnished with professors of mathematics, drawing, architecture, and sta-

tuary, Greek, English and writing. Except among the higher orders, reading and writing are not at present general accomplishments, and, as has been observed by one of themselves, "their young women are allowed to grow up like their olives."

The English have lately established a female orphan school for the natives, which promises to be of much solid use. The English chapel is lent for the purpose of a school in the week days. The Lancasterian system of education is extending among the islands. It is not a little singular that schools on the Lancasterian plan have long existed in Greece, and I have seen some of them in the Islands. Guillatiere, who travelled in 1669, and whose work was translated into English in the year 1676, under the title of "Athens, Ancient and Modern," at page 200, speaks of this method. As the book is rare, I shall quote the passage as given by Dodwell in his "Classical and Topographical Tour through Greece":—

"We found about thirty young lads sitting upon benches, and their master at the head of them teaching them to read. His method was pretty, and much beyond ours; the master causing the whole class to read at a time without confusion, every scholar being obliged to attention and to mind what his next neighbour reads. They had, each of them, the same author in his hand; and, for example, if he had thirty scholars, he chose out some continued discourse, and gave them but thirty words to read; the first boy reading the first word, the second boy the second word, the third boy the third, and so on. If they read roundly and right, he gave them thirty words more; but if any of the boys were out or imperfect, he was corrected by the next, who was always very exact in observing him, and he his neighbour, till the whole number of words were read. So that the thirty scholars, lying all of them at catch, and ready to take advantage of any defect in their neighbour, stimulated by an ambition of being thought the best scholar, every one's lesson was the lesson of all, and happy was he that could say it the best. To obviate any of the scholars in eluding that order by preparing himself for any single words, their places were changed, and he who was at one reading in the first place was removed a greater distance in the next. Thus one lesson was enough for a whole form, how numerous soever,

and which was very convenient for the master; the boys were not constrained to come to him one after another, for every one was a master to his neighbour."

Considerable exertions have been for some time making, by different learned Greeks, to revive a taste for literature, by printing at Venice, and elsewhere, various works on history, philosophy, medicine, &c. in the Hellenic and Romaic Greek; and it is possible that in a few years a considerable improvement will take place. In another part of this Memoir I shall refer to the works published on medicine, and sciences connected with it.

They have a singular method of dressing their infants. Immediately after birth, they swathe them very tightly with a roller, from the toes to the neck, binding down the arms so as to give them the appearance of mummies. This bandage is only loosened twice a day, and is continued throughout the first year. It is then removed, and the child is allowed to crawl about as he best can. Until the age of puberty, little attention is paid to the females; they are then closely looked after, and sometimes shut up, if of the better class.

POLICE.

This has been considerably improved of late; but a large sum of money, much judgment, and a length of time will be required before Corfu can become a clean, well-ordered city. I have already touched upon some points which come under this head, while speaking of the dwellings, drains, necessaries, markets, &c.: I shall now advert to some others. The burials of the Greeks are universally performed in the churches, and it would at present be a hopeless task to attempt to prevent it. A Greek Christian of the lower orders firmly believes that he has no chance of salvation, if he is not buried within the precincts of a Greek church, and he leaves to Jews and Englishmen the abomination of field sepulture*. Accordingly, the former

* Since this paragraph was written, I find, by a letter from the Lord High Commissioner, "that the burying in churches is to be gradually abolished."

deposit their dead in the ditch of an outwork called Fort Abraham; and the latter in the ditch of Fort Raymond, which is nearer the town, but in a very eligible situation. The Greeks bury their dead in a few hours after their decease. They are not placed in coffins, but the body, dressed in its best clothes as while alive, is carried to the church on a bier: when prayers are read over it, it is wrapped in a piece of cotton and deposited in the grave. I have frequently seen the ceremony, and observed the shallowness of the graves, and the very noisome smell which they emitted; indeed, at all times, a Greek church is remarkable for a close, damp, and musty smelling atmosphere, which cannot be disguised by the most unlimited use of incense. To the old and infirm, long visits to these churches must be very injudicious.

Some slaughter-houses still exist in the town of Corfu. Depôts of old clothes are numerous, and from many of their magazines and manufactories proceed "the rankest compound of villanous smells that ever offended nostril;" but, in the present state of the natives, years may elapse before these nuisances are removed.

It would be out of my province to enlarge on the defects under the head of police, knowing, as I do, that the subject is under the consideration of Government; but I shall gladly mention two points which are worthy of imitation in more civilized cities. First, their prostitutes are under strict regulations, are examined at stated times by a medical man, and receive from him certificates of health. Secondly, there is a regular roster of medical men, or apothecaries, two of whom are obliged to keep a light over their doors all night, for the accommodation of the public. The names of these medical officers of the night are also put up in front of the theatre, on a board destined for the purpose, and furnished with lamps, so that the earliest assistance can be given in cases of sudden accident.

POOR.

Of actual mendicants few are to be found in Corfu. The number of persons who beg from door to door are by no means proportioned to what is seen in the British islands. They

usually confine their excursions to their own district, which they visit on Saturdays, and to the churches, whither they repair on Sundays. In the country there are still fewer poor than in the town. The calculation under the head "Population," will give a view of the number of persons who may be called "indigent" in the town of Corfu. In fact, there is work for all who are able to undertake it; their wages are a quarter of a dollar per diem, with two meals. There exists no regular establishment for the reception of the poor, or any charitable funds for their accommodation, if we except a wretched lodging-house, in which they may sleep, but which is quite gone to decay and without funds; but a very excellent plan has been adopted for introducing something of the kind among the grain-porters at the Custom-house, by Colonel Robinson.

There is a "Monte de Pieta," or house for the issue of loans on pledges, as at Malta, from which the poor derive much advantage. The funds of this institution amount, at present, to 50,000 dollars.

DISEASES OF THE INHABITANTS.

Of the diseases as they affect the soldiers, I shall hereafter speak: those of the natives are, in spring, synochus and catarrh; in summer, bilious remittents; in autumn, intermittents, and sometimes, though rarely, typhus. In winter, pneumonia, rheumatism, and a few cases of enteritis and other inflammations of mucous membranes. Worms are prevalent at all seasons and among all classes.

It is a curious fact, that causes which produce intermittent fever only, in the inhabitants, often occasion severe remittent among the troops. Hospital-Assistant Alexander states to me, that this was very remarkably the case in the Lefchimo district in 1816, when a detachment of Rolle's Regiment and of the Corsican Rangers were obliged to be removed from the village of Argirades early in June, on account of remittent fever, whilst the inhabitants at that time suffered but slightly from intermittents.

About twenty-five years ago, a formidable epidemic, supposed to be the yellow fever, raged in Corfu, which generally

proved fatal on the fifth or seventh day. Bleeding was found to be extremely prejudicial, but bark, blisters, and tonics were of service.

In ordinary remittent fevers, the native practitioners, after a gentle purge, immediately commence with the bark, but never have recourse to the lancet. In intermittents they commence with emetics, and then administer the bark.

Gout, at one time, was prevalent at Corfu, but at present is almost unknown.

Jaundice and diseases of the liver and spleen are frequent.

Cancer of the breast is reported by Botta to be common; but Dr. Mordo says, that in forty-two years he has only seen six cases.

Bronchocele is very rare. Stone in the bladder, and scrofula, are seldom seen, and tubercular phthisis pulmonalis is not common.

Contagious diseases have frequently been imported into Corfu. In 1758, typhus was introduced from Italy, and again in 1798 by the French.

Plague has been imported on various occasions, especially in 1815. As this was more a disease of the inhabitants than the troops, I shall speak of it here.

Some most atrocious reports were spread by the political adherents of the Russian Government, as to the mode of the introduction of plague into Corfu; but the fact is, that the germ of the disease was first imported from Parga, in a box of smuggled goods, and was subsequently spread through the country by the papas or priests, who were assembled from different villages, on the first breaking out of the disease, in order to exorcise the foul spirits who were supposed to have occasioned it.

It unfortunately happened at Corfu, as history shows us it almost universally happened at other places, at the very commencement of plague, that neither the exact nature of the disease nor the precise means of treatment were at first perfectly known; and some time elapsed before the laws of quarantine were put into full and energetic action.

I do not intend here to enter deeply into the subject of this disease, as it appeared at Corfu, because its history, as detailed

by Staff-Surgeon Tully, has been long in the possession of the Director-General, and his published work is now before the world; but I am, by the liberal condescension of his Excellency Sir Thomas Maitland, in possession of such valuable and original documents relative to plague, that I feel it incumbent on me to make it the subject of future discussion*. As I apprehend that, with the exception of Drs. M'Lean and Mitchell, there is not one well-informed medical man in a thousand, in the British dominions, or perhaps in Europe, who doubts the strictly contagious nature of this disease, I shall not waste words in attempting to prove it; indeed, I fear that in lengthened discussions of this nature we sometimes, in the eagerness of illustration, furnish arguments to our opponents, who take advantage of some little deviation from logical precision, to erect a flimsy opposition to truth †. I cannot, however, deny myself the gratification of transcribing one fact from a despatch from his Excellency Sir Thomas Maitland to the Earl Bathurst, which, in my mind, is abundantly sufficient to set the question at rest for ever. He says, in speaking of the soldiers who did duty in the plague district, "In the few solitary instances which occurred, and very few they were, it was uniformly observable, that when any soldier got the plague, he was one always loose in his conduct, and negligent of the necessary precautions. But when they attended to those precautions they never did catch it. They were sent into villages of all kinds, many of them with streets but a few feet wide; they did the several night duties of all kinds in these villages; they were living in exactly the same atmosphere with the inhabitants, and they never caught the disease which was raging in the village: they surrounded, within a yard or two, camps and hospitals in which the plague was raging with great violence, and they never caught that plague; and, lastly, they were uniformly subjected to those hard duties which, in all infectious diseases, are known

* The subject of plague and plague police is fully discussed when treating upon the diseases of Malta.

† For some valuable observations on the danger of attempting a strict demonstration in subjects which, from their very nature, are incapable of such proof, see Preface to Hutchinson's System of Moral Philosophy, vol. i. p. 5.

to give a predisposition to inflict upon the soldiers the most virulent type of the prevailing disease, but they never caught the plague at all.

"If these facts do not prove that plague is got by contact, and not by infection, I am not apprized of what can be called strong proof; and of every and all of these facts, I am ready to send your Lordship, if you wish it, most complete and perfect evidence*."

Dr. Granville, in a letter to the Right Honourable F. Robinson, 8vo. London, 1819, has undertaken to give some account of the plague of Corfu. In his general doctrines, as to the disease being contagious, he is correct; but his definitions are so exceptionable, and many of his particulars are given in such a style, as to weaken his evidence considerably. Dr. Granville supposes that the communication of plague is, in some cases, quite an instantaneous process, as rapid as electricity. This is not the case, however: we know many diseases fully as contagious as plague, if not more so, and very slight precautions indeed will occasionally avert it; while there can be little doubt, that many persons are not susceptible of the disease at all, proof of which I shall give at a future period.

Dr. Granville, in proceeding to refute the singularly absurd assertion of Dr. M'Lean—that the term contagion was never applied to plague, before the time of the Council of Trent in 1546, gives many quotations on the point. Sir B. Faulkner gives many more; and the learned and lamented Dr. Bateman furnishes others, and justly remarks, that the assertion was one "which a school-boy might refute." The monkish historian, Gregory, of Tours†, is quoted by Dr. Granville; but in such a way, as to convince me he never read his work; else how could it have escaped him, that the word "*Contagio*," *the very point in dispute*, was used by this bishop as far back as the *sixth century?* As Gregory demonstratively proves the whole process by *actual contact* and the *infallible utility of segregation*, I shall here give a literal translation of the passage; and in order to afford an opportunity for comparison, I give the original in the Appendix.

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* This evidence is in my possession.

† He was a Bishop of Tours from 573 to 596.

Lib. ix. sect. xxii.—" As we have before observed, the city of Marseilles was at this time infected by a severe *contagious* disorder; how great were the evils it experienced shall presently be related. About this period Bishop Theodore went to the king, as being about to suggest something against Nicetius the patrician; but as King Childebert did not listen to him on this subject, he resolved to return home.

" In the mean while, a Spanish vessel laden with the usual merchandize, was driven into the harbour of Marseilles, which carried in along with it, unawares, the hidden sparks of this disease, from which vessel the citizens purchasing different articles of merchandize, one house, containing eight souls, was on a sudden left empty of its inhabitants, who were carried off by this *contagion.* This pestilence, however, did not spread immediately throughout the whole city; but after being interrupted for a certain space of time, like fire thrown into a cornfield, the disease afterwards raged throughout the whole city. The bishop hastened to the spot, *and retired with a few attendants within the precincts of the church of St. Victor, and there, amid the general destruction, devoting himself to constant prayers and vigils,* supplicated the mercy of the Lord, that by putting an end to this destructive disorder, the people might rest in peace. This plague having ceased in two months after, the people, conscious of security, had returned; the disorder again breaking out, those who had returned fell victims, and the city was afterwards, on many occasions, afflicted by this calamity."

Compare this with Dr. Granville's report of Gregory's assertion, (at page 89 of his letter,) and the difference between the historian and the letter-writer will at once be seen. Trifling as this difference may be, it is of importance to the cause of truth, that no exaggerated or garbled statements are brought forward in its defence, to give a temporary triumph to its enemies.

As I conceive plague to be much more an object of police than of medical inquiry, I shall not enter into any discussion on its treatment; indeed, were I inclined, I could only speak from books, which are in the hands of every medical man. Among these, with all its prolixity, Dr. Russell's work is a

mine of practical information. That some mild cases of plague have been cured, or rather that some sufferers have survived, there can be no doubt; but to speak seriously of combating the aggravated cases of the disease by physic, is, I believe, rarely thought of at the present day, except in the dreams of self-devoted enthusiasts.

Upon the question, whether a person can have the plague more than once, from an attentive consideration of what I have read and heard, I am decidedly of opinion that he can. It is certain, however, that re-infection is not a common occurrence; therefore, persons who have once had the plague, are invaluable assistants in a lazaretto, as, in general, they can handle the infected with impunity; a striking example of which is to be seen at the Lazaretto of Malta.

Upon the question, why so many escape? I have no answer more in point, than the observation made by an old English author, a century ago, in a communication on plague, under the title "A Confutation of those who would believe the Plague not contagious." It is as follows:—"Certainly such persons might as rationally affirm, that bullets will not wound and kill, because some, in the hottest battles, amidst showers of small shot, walk untouched by any of them, whereas these escape rather upon the account of the various happy postures they are in, during the charge, than their fancy of being shot free*."

Great stress is laid by some inquirers upon the fact, that the clothes of persons who have died of the plague are publickly sold in Turkey, and do not *always* communicate the disease. Do the authors who urge this recollect, that these clothes are all hung in the bazaars in the open air, and undergo a daily and protracted purification and ventilation? Notwithstanding which, however, the disease is, in innumerable instances, traced to them. In fact, from this and other causes, the plague never is extinct, in one part or other of the Turkish dominions.

Upon the whole, although the provisions of the quarantine laws, as they at present stand, when carried to their utmost

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* "A Collection of very valuable and scarce Pieces relating to the last Plague in the year 1665, octavo." London, 1721, p. 18, Hodge's Letter.

extent, violate some of the finest feelings of the human heart, and are, possibly, susceptible of much modification; yet no man, with the smallest pretensions to common sense, could think of abolishing those salutary restrictions, without which, health and life would, in these countries, be held, on terms beyond calculation, precarious.

EPIZOOTIES AND DISEASES OF PLANTS.

I HAVE not been able to acquire much information on the first of these heads. The febrile diseases of the few cattle imported, are treated by decoctions of herbs, and sometimes by bleeding, either in a vein, or by cutting off a joint of the animal's tail. The disease called the pip in fowls, is cured by removing the aphthous crust which forms on the tongue, as is done in England; but the Corfiots make the bird swallow the crust in a spoonful of oil, which purges it copiously. Convulsions in goats, are cured by the actual cautery thrust through the cartilage of the nose. Setons of green hellebore are inserted in the breasts of horses for pectoral complaints. Their pigs are subject to a tumour of the palate, which is cured by incision and the application of salt. As a preventive to canine madness, a paste made of verbascum and cantharides is administered to their dogs.

The principal disease of plants, independent of the ordinary effects of sudden cold, blighting winds, long continued drought, &c. is one which attacks the olive tree. It is caused by insects, which are supposed to have been originally bred in the olives, that rot at the roots of the trees. These insects are either the common grub, which destroys the kernel of the olive, or the dart fly, which lays its eggs in the fruit, and whose young destroy its pulp. The mode of cure consists in gently beating the leaves, so that the worms drop on the ground, which are there buried by digging round the tree. Dr. Mordo, who has written a short essay on the subject, annexed to his book, which I have so often referred to, advises, if the fruit is much pricked by the worm, to begin the oil harvest at once, so as to anticipate the formation of the fly.

POPULAR MEDICINE.

The Corfiots and the Greeks, generally, are much inclined to trust their diseases to nature, or at least to the most simple remedies, and rarely have récourse to a physician until their disease becomes very violent or painful. There is a proverb in their language, which states that "the disorder is the physician," and another which advises to consult "not the physician but the disorder." To the first part of this advice they are very attentive.

Besides numerous plants and herbs which are used by the country people, in their own and their children's diseases, the following are the most remarkable practices:—

To weakly children, the blood of the land tortoise is given internally, and it is externally rubbed to the spine. Hence it will appear, that frictions to the spine are not so exclusively of German and British invention as are imagined. This practice has been followed from time immemorial, and I have little doubt, from the slow progress which innovation makes among the peasants in Corfu, that this popular medicine is the same now as it was centuries ago.

Chlorotic girls are made to swallow the liquid collected in the little hollows of the leaves of the plant *dipsacus*, which they call *Nero krati*, or water-holder. An extract, or decoction of the leaves of the same plant, is used internally as a deobstruent.

Rickets they cure by frictions, with aloes and aristolochia, a practice derived from the Zantiots, and upon which I shall enlarge, when speaking of the popular medicine of that island.

Roasted wheat and forge-water are conceived powerful, in the cure of erysipelas.

Bleeding in the foot is the favourite mode of blood-letting among the Corfiots and all Greek females; and the sovereign remedy among all classes and sexes for pains of the stomach, griping, &c. is a spirituous tincture of rue, which is sold universally in the coffee-houses and liqueur-shops.

CIVIL HOSPITALS.

In the town of Corfu there are two civil hospitals; one for sick poor; the other for foundlings. From neither of them is much information to be derived, and assuredly, if we except the charitable purposes for which they were erected, there is nothing worthy of imitation about them.

Several years ago, a pious Catholic priest died, and bequeathed a sum of money for the purpose of erecting a house of reception for paupers. This benevolent example was followed by other charitable persons, until a tolerable fund was established, with which an hospital was commenced. It was originally founded on a large scale near the esplanade; but it has since been transferred to the interior of the town, near the public courts—I presume for want of funds to complete it on its original capacious plan; or, perhaps, the prostituted Venetian government, under whom it was commenced, had seized or dissipated its funds. As it now stands, it is a low, shabby, ill-ventilated house, capable of accommodating no more than twenty patients, chiefly on the ground floor. Christian paupers are alone admitted; they are furnished with a paillasse and mattress raised from the floor on boards, the bed linen of which is said to be changed once a fortnight. Their diet is not fixed by any regular standard, but is left entirely at the discretion of the medical man, who contracts to feed them at a certain allowance per head. There are no case books kept, nor any regular medical register; there are no necessaries, but each ward has a close-stool; there is no convalescent ward, but in fine weather, patients of this description are allowed to stroll about the town; there is no classification of disease, and the patients are placed indiscriminately, with the exception of separating the sexes.

The officers of the establishment are, one physician, at ten dollars a month, and an assistant-surgeon, at six dollars a month. The physician gives what diet he pleases; for which he is allowed at the rate of nine and a half oboli (of 100 to the dollar) for each patient per diem.

This establishment is entirely civil, and not in any shape

paid by, or connected with, the government. Its funds were formerly conducted by four commissioners, but there is now only one who serves gratis.

The practice in this hospital, and indeed, among practitioners generally, is very simple, and to an English physician must appear inert; but we should not forget, that the constitution of the natives is by no means so well able to bear evacuations, especially by blood-letting, as that of our soldiers, who are naturally robust, fed with a large proportion of animal food, and so often kept in a state of artificial excitement by the inordinate use of wine and spirits.

FOUNDLING HOSPITAL.

The Foundling Hospital is situated in a public street, close to the gate which leads into the country. It is an ordinary building, containing four rooms on the ground-floor and four on the upper—low, ill ventilated, and far from clean.

The establishment consists of one surgeon, at 5 dollars a month; one matron, at 6 dollars a month; and two wet nurses, at 4 dollars a month. These women are residents in the house, but have no other allowance or emolument whatever. There is also a chaplain at 4½ dollars a month, for the purpose of christening the foundlings after the manner of the Greek Church.

On the last day of February, 1822, there were on the books 39 males and 50 females, bastards, who were nursed out of the house at the rate of 145 oboli a month, for suckling and clothing. These expenses, as well as those incurred for medicines, bedding, cradles, servants, &c. are all paid by the Government.

A regular register is kept of the name, date of entry, death and departure of each foundling. The females, by the liberality of the British Government, receive a dowry of 100 dollars on their marriage. The males are apprenticed to trades, and in the last year of their apprenticeship they receive a certain allowance from their masters.

Since Colonel Robinson has been vested with the administration of this establishment, viz. from November 1817 to February, 1822, there have been admitted 59 males and 56

females; of whom have died 10 males and 20 females, or total mortality 1 in $3\frac{5}{30}$; males in the proportion of $5\frac{9}{10}$, and females in the proportion of $2\frac{16}{20}$.

With the permission of Government, any respectable person may take a foundling and rear it as his own child. In a great many instances, the foundling thus reared has been adopted by the fosterer; and it is more than probable, that in a large proportion of those cases the claims of nature, rather than the abstract principle of benevolence, have led to the result. But as this cannot be the case in every instance, and as it would be injudicious to search too minutely into motives, Government have wisely allowed $1\frac{1}{2}$ dollar per month for the expenses of the foundling until it arrives at maturity.

Scarlatina committed great ravages among all classes of children at Corfu in the year 1821, and the foundlings suffered considerably.

For the fifty years between 1770 and 1820, the mortality was as follows:—

Admitted . . .	1439
Died	1088
Remained	351

Not knowing the ages at which the children died, I cannot calculate how far the mortality above mentioned exceeds or falls short of the ordinary averages in similar establishments in England; but from documents furnished me by Colonel Robinson, I can give some little information on the subject, though on a diminished scale. Of 10 male infants who died between January 1814 and March 1815,

5 were below 1 year
2 between 1 and 2 years
1 „ 2 „ 3
1 „ 5 „ 6
1 „ 6 „ 7

Of twenty female infants who died between June 1819 and January 1822,

16 were below 1 year.
4 between 1 and 2 years.

HOSPITAL FOR PROSTITUTES.

At the suggestion of Deputy-Inspector Porteus, a very important hospital establishment has been founded in Fort Neuf, within the town of Corfu.

The proposals for this hospital are dated 21st September, 1817, and it was established on the 5th December following; since which period, up to March 1822, 292 females have been admitted, of whom 288 have been discharged cured, 2 have died, and 2 remained under cure. The admissions include as follows:—

Suspected women	80
Real disease	212
Total	292

Of those really diseased, the distribution was,

Primary	113
Secondary	6
Gonorrhœa	93
Total	212

The deaths have been occasioned, in one case, by an accidental attack of fever, in a woman labouring under the primary disease; and in another by consumption, in a woman labouring under secondary symptoms.

In the cure, the following has been the mode of treatment:—

Syphilis, with mercury, in the primary disease	64
,, with mercury, in the secondary disease	6
,, without mercury, in the primary disease	49
,, without mercury, in the secondary disease	0
Gonorrhœa, by caustic injections	2
" by solution of zinc	71
" by solution of lead	20
Total	212

The hospital building has been given by Government, and is capable of accommodating 25 patients. The medicines, bedding, &c. are supplied from the British stores, and a British medical officer is in charge.

The average daily expense of the hospital, including wages, diet, contingencies, washing, wood and oil, is estimated at 3*s*. 5*d*., from its establishment to 24th November, 1821.

Lists of prostitutes are occasionally furnished by the police, and they are inspected twice a month; but it appears that they all do not present themselves for examination; for the last return furnished by the police enumerated 63, while the number who presented themselves at the last fortnightly inspection, in February, was only 39. Besides the women registered by the police, any female who is reported by a soldier as having diseased him is brought to the hospital. If actually diseased, she is taken into the establishment; if not, she has a certificate of health given her, as is practised in the case of females who voluntarily present themselves.

The hospital is in good order, and there can be no doubt of its very beneficial influence on the health of the troops.

QUARANTINE ESTABLISHMENT.

Previous to the island coming under British government, reformation was most loudly called for in this department.

The most absurd and nugatory regulations were formerly in force, while the corruption of those who regulated, and the poverty of those who carried their orders into execution, were much more calculated to spread than to check the progress of contagious disease. I shall give only one example. Under the former regime, persons who had to perform different periods of quarantine were mixed indiscriminately in the same place, so that it often happened that in the same apartments were individuals who had finished their quarantine, and were on the point of being restored to free communication with the community, and others who had just arrived from suspected ports, and had to undergo the whole period of foul quarantine; an arrangement contradictory to the rules not only of quarantine, but of common sense. The poverty of the guardians was so great as to expose them to every temptation, and, instead of being selected from respectable persons, they were generally picked from among the vilest characters in the community. All this is now reformed. The Lazaretto has been placed

under proper regulations; separate apartments have been prepared for the various classes, according to the periods for which they are to be segregated. The pay of the guardians has been raised, so as to enable them to exist, without bribery, and their characters are most rigidly investigated before they are appointed to act.

Instead of being a sink of corruption, dangerous to the health of the community, and a source of expense to the public, the quarantine establishment is now placed upon a most respectable and efficient footing, and yields a considerable revenue, insomuch that a new health and post office have been built in the town of Corfu, and the improvements already mentioned have been carried into execution at the Lazaretto.

There are no establishments in the Mediterranean which exhibit more fully the paternal care of his Excellency the late Sir Thomas Maitland, than those for the purposes of quarantine. To him the public are indebted for having brought these establishments to the highest state of perfection of which they are capable.

A regular tariff was published in 1818, by which the revenue was finally arranged. It flows from a per centage on goods expurgated; a certain tax on passengers living in the Lazaretto; a tax on goods brought into the city from the Sanita Barrier (provisions excepted); a tonnage duty on ships and boats in quarantine; a fee on all health patients; a fee on all decisions on subjects litigated by persons in quarantine; and a fee on all contracts, certificates, letters, and other documents relative to the health establishment.

PRISONS.

The state of the prisons throughout the whole of the Septinsular Union has been much ameliorated since they have been placed under the British protection.

In the town of Corfu there are three prisons, the same, I believe, as existed under the old government. The first is attached to the courts of justice, and contains thirteen rooms upon two floors. The majority of the apartments are dry, airy and lofty, and kept tolerably clean, wonderfully so for

Corfu. In these rooms are confined prisoners for civil and criminal offences, and persons who have been already tried and sentenced to various periods of imprisonment. They are kept separate, according to their different offences, sexes, &c.

Behind the Civil Hospital is a room, also for criminal prisoners. It is ill ventilated, and confined. The third prison is at an old convent, the Nunziate. It consists of four good rooms on the second floor, with a yard for exercise. The servants consist of a gaoler at 20 dollars a month, an assistant at 10 dollars a month, and two servants at 3 dollars a month. If prisoners are paupers, Government allows them two pounds of bread, and 1½ oboli per diem, otherwise there is no regular prison allowance; but the prisoners are all permitted to work at their trades.

Washing and other contingencies are paid by government.

The prisoners are furnished with beds raised from the floor on boards and tressles.

The prisoners, when sick, are attended gratis by the Proto Medico. If they require removal, they are taken to the Civil Hospital. There are no regular chaplains to the gaols.

STATE OF PHYSIC AND SURGERY.

Few of the practitioners of physic and surgery in Corfu have received a liberal education. The ordinary routine to qualify a young man for the profession, is an attendance on some old physician or surgeon for a few years; after which, a meeting of established practitioners is held, before whom he is examined, and from whom he receives a licence to practise. There are some, however, who have been educated in Italy and France, and have passed through a regular course of study.

There are seven physicians and three surgeons resident in the town of Corfu. They are almost universally Brunonians. Italian translations of the "Elementa Medicinæ" of John Brown, and a variety of commentaries on that work, are in very general use among the medical men; and those who have been educated in France and Italy, import with them some of the standard works of the most esteemed writers of those countries. I have seen the works of Broussais, Rasori and Scarpa

in common use; and many other equally valuable works are occasionally to be met with, however little they may influence the practice of the medical men of the island. Indeed, they are by no means deficient in curiosity, though most pertinacious in their own opinions and practices. There are many apothecaries in Corfu, some very respectable; in their pharmaceutical operations they are expert. Their pharmacopœia is that of Capello, a Venetian author of the last century. Sometimes they consult Baume, and the "Code Chimico-Pharmaceutique François." A respectable physician is always appointed to the situation of Proto Medico, or police physician. His duties consist in examining persons coming out of quarantine, inspecting the Lazaretto, visiting the prisons, and attending the poor out of hospital. For these different duties he has an allowance of 30 dollars a month, and an assistant at half that sum. The duties of the Proto Medico are principally confined to the subject of the public health within the city of Corfu. In the country there are three or four officers of a similar description paid by the government, at the rate of 25 dollars a month.

There are no hospitals established for the poor in the country parts of the island.

VACCINATION.

There is a vaccine institution in Corfu, the officers of which are a physician, a surgeon, and two assistants, who serve gratis. This establishment was founded in the year 1817, but met with great opposition from the natives, from religious motives. By the meritorious exertions of Dr. Broadfoot, however, it is now happily in full activity. The Doctor procured a letter from the president of the Senate, to be addressed to the bishop, and by his pastoral charges to the clergy their flocks were induced to avail themselves of the advantages held out to them.

EMPIRICKS.

Empiricks abound in Corfu; they principally trust to herbs, charms, and exorcisms. With them, an infallible cure for acute ophthalmia is the sign of the cross made seven times over the diseased eye.

MEDICAL SCHOOLS, COLLECTIONS OF NATURAL HISTORY, &c.

THERE are neither colleges nor schools in which medicine and surgery are taught, nor any public museum or collections illustrative of any of the branches of the science. In 1808, indeed, a year after the French established themselves at Corfu, an institution calling itself the Ionian Academy, held its first sitting. In a prospectus bearing date August 1809, (or second year of the 147th Olympiad,) the establishment of public and gratuitous courses of physics, chemistry, natural history, physiology and medicine, is announced by the academy, and the professors are named; but the whole establishment soon fell to the ground. A college of physicians was also founded during the time of the republic, but it has since dwindled to nothing.

WORKS CONNECTED WITH THE MEDICAL TOPOGRAPHY, &c. OF CORFU.

THE only works which I know of on the subject of the topography or natural history of Corfu, are the following:—

Storia Naturale e Medica dell' Isola di Corfu, di Carlo Botta, Medico dell' Armata d' Italia, 2 vols. 12mo. Milano, anno VII. The first part is on the climate and natural productions of the island. The second is on the diseases which occurred in the military hospitals of Corfu during the autumn of the year VI, (1797.) This work is now scarce; it contains some information, but buried under a mass of verbiage.

Voyage Historique, Littéraire et Pittoresque dans les Iles et Possessions ci-devant Vénétiennes du Levant par A. G. Saint Sauveur, Paris, anno VIII. (1799,) 3 vols. 8vo. and one quarto of plates. The author was French Consul-General of the islands. His book is extremely interesting, and gives a perfect and correct account of Greek manners and morals, with some topographical notices.

A most interesting little tract was published in 1808 at Corfu, entitled "Nozioni Miscellane intorno a Corcira, esposte dal

Medico-fisico Collegiato Lazzarro Mordo." It is a small 12mo. of 111 pages, and treats in a summary manner on the climate, productions, and health of the island. I have derived many hints of inquiry from it. Its venerable author is still alive. The work is rare, and I should suppose will, in a few years, be totally extinct, as the number of copies were limited, and from the badness of the paper they are daily yielding to the ravages of time. Mordo has an extensive and select library.

In 1814, Dr. Pieri published a Flora of Corfu, entitled "Della Corcirese Flora," in folio. It does not comprise all the classes and orders, and therefore, although a second edition, cannot be considered a complete work. It is well printed, and contains a description of 300 plants, with their ancient and modern Greek names.

In 1815, the Baron Theotoky printed a little quarto work, styled "Des Iles Ioniennes." It is unfinished, only extending to the twenty-fourth page.

The work, I believe, has never been published; and although it exhibits much more fancy than is consistent with topographical inquiry, it is evidently the work of a man of a philosophical mind.

General Vandoncourt published a work on the Ionian Islands, which was translated by Walton, and published in one vol. 8vo. in London, in the year 1816. It is principally political, and gives but little information on the islands.

Dr. Holland, in 1815, published his well-known work on the Ionian Islands, Albania, &c., in which he gives a great deal of information on Zante, Cephalonia, Ithaca, Santa Maura, and Cerigo. I have lamented much my not having access to this classical production while in the islands, especially upon points of mineralogy and botany.

In 1819, Mr. Dodwell published a Classical and Topographical Tour through Greece, in which he dedicates a chapter to Corfu, and another to the adjacent islands. The work is the production of a man of classical learning. Antiquities were his principal object.

Mr. Williams, an Edinburgh artist, published Travels in Italy, Greece, and the Ionian Islands, 2 vols. 8vo. in 1819, in

which he incidentally mentions Corfu; his work is the production of a connoisseur, and deals principally in paintings and the picturesque.

Colonel De Bosset published a work on Parga and the Ionian Islands in 1821; this work is solely political and polemical.

These are the principal works in which information on Corfu or the other islands is to be found, to which I have had access; but when I derive assistance from any other sources, I shall refer to them as I proceed.

NATIVE PHYSICIANS, MODERN GREEK AUTHORS, TRANSLATIONS, &c.

THE names or some traditionary accounts of various eminent Corfiot physicians and surgeons are preserved among the old people of Corfu, and Dr. Mordo gives a list of twenty or thirty of them. I cannot discover whether any of these wrote on professional subjects, but I am happy to find that some of the most celebrated of the number belonged to the navy and army. Among them Lipilli introduced the knowledge of Sydenham's works and practice into Corfu. The works and practice of Baglivi were introduced into Corfu by a physician of the name of Sbaraglia.

I have already stated that various works had been published in the Hellenic and Romaic Greek languages, by the efforts of some enlightened and patriotic Greeks. I shall now give a catalogue of such of them as are connected with medicine, natural philosophy, &c., &c., first commencing with those published by Corfiots and other natives of the Ionian Islands, and proceeding in the order of time.

Nicephorus Theotoki, a Corfiot, published at Leipsic in 1766, "The Elements of Natural Philosophy, collected from modern writers," in 2 vols. 8vo.

George Vendoti, a Zantiot, translated Tissot's "Avis au Peuple sur sa Santé," at Venice, in 1780, which was printed in 8vo.

Eugenius Bulgari, a Corfiot, published at Vienna in 1806,

" The Opinions of Philosophers, or Elements of Natural Philosophy," in one vol. 4to.

These three are the only islanders whose works I can trace.

The following are the works of continental Greeks, but frequently to be met with in the islands:—

" A Discourse on Phlebotomy," a prize work by Demetrius Karakasi, a physician, which was published at Halle, in 1760. He also published poems, chiefly on medicine, which he afterwards translated into Latin, 8vo. Vienna, 1795,

A translation of Tissot, " Sur les Maladies des Gens du Monde," was published in 1785, at Vienna, in 8vo., by Constantine Michael, a physician. He also published " Dieteticks," together with an essay on the rise and progress of medicine, and memoirs of illustrious physicians, 1794, at Vienna, in 8vo.

Adamantinus Korai, a physician, published at Naples in 1794, " Xenocrates de Alimento et Aquatilibus," with critical notes, 8vo. Korai also translated Hippocrates' " De Aëre " into Greek and French, at Paris, in 8vo. 1799.

George Khrisoveloni published, in 1800, at Venice, a " Treatise on the Brain, Nerves, and Senses," in 12mo.

Anthimus Gazi published, at Vienna, in 1800, " The Elements of Chemistry," from the writers of the French school.

In 1802, Fourcroy's " Chemical Philosophy" was translated and published in 8vo., at Vienna, by Manasser Iliadhi.

Gregory Konstanta published, in 4 vols. 8vo., a translation of the Abbé Soave's " Elements of Philosophy," Venice, 1806.

Constantine Kuma translated Adet's " Elements of Chemistry," at Vienna, in 1807.

In 1807, Demetrius Pulo published, in 8vo. at Venice, a translation of Sir James Smith's " Discourse to the Linnæan Society of London, upon the Rise and Progress of Natural History, especially Botany."

Anastasius Gheorghiadhi, a physician, published in Greek and Latin, an 8vo. volume at Vienna, in 1810, called " Antipanacea," upon the causes that render curable disorders incurable. He also published, the same year, and at the same place, a translation of Mesger's " Anthropology."

In 1810 and 1811, Bertouch's collection of Plates of Natural History were published at Vienna, with explanations in modern

Greek, by Manuel Kapetanki and his brother, designed for the use of youth.

Of these works, I have seen many in the hands of professional men at Corfu, but I am principally indebted to the learned "Researches in Greece," of Colonel Leake, for this catalogue.

LIBRARIES.

No library, for public use, exists among the natives in Corfu. A collection of books, originally founded at Messina in 1810, by British officers, and transferred to Corfu by them, has, since that period, gradually increased into a very respectable library, containing many valuable and well-selected books, to which a very ready access is at all times afforded. All military and naval officers, officers of the civil departments, British residents, and respectable inhabitants, may become members at a moderate entrance, and a small annual, or monthly subscription.

This very respectable institution, at present contains nearly 2500 volumes, and twenty atlases, charts, &c.

Besides this library, the medical officers of the garrison have a small collection of English periodical publications, and a few standard works, but the institution is merely in its infancy.

A small library was founded by the Canon Carale, from voluntary subscriptions among the nobility, &c. The books were lodged in the Franciscan Convent of St. Giustina: to this the Ionian Academy added theirs; but on the arrival of the French, the most valuable of the books were abstracted by them. Some few remain at the convent.

A Bible Society was instituted in the summer of 1819, for the purpose of distributing the translations of the Scriptures into the Greek language, without note or comment, and there can be no doubt that much good will be derived from it by the islanders, for whose benefit it is intended.

Having now spoken, as far as my information extends, on the most important points, which have borne directly on the Medical Topography of Corfu, as well as on many which have incidentally occurred, I shall dedicate the remainder of this

report to an account of the barracks, and hospitals, and of the diseases under which the troops have laboured, as far as the records within my reach will permit me.

SECTION THE SECOND.

BARRACKS.

THERE are four barracks for the garrison of Corfu ; one in the Citadel, one at Fort Raymond, one at Fort Neuf, and another for a small detachment on the Island of Vido.

The French had some wooden barracks on Mount Ascension for the use of the troops employed in cutting the ditch at Castrades ; but they are now totally abandoned, and in ruins, in consequence of the notorious insalubrity of the situation. Were I to erect new barracks, I might perhaps place all the buildings of this description better than they now are ; but military reasons obliged them to be placed where they at present stand, and our business is to make the best of them.

The great and simple principles for the erection of all barracks and similar buildings are, first, that they should be placed on high, dry and healthy spots ; second, that they should afford perfect shelter to their inhabitants ; third, that they should be built so as to admit of full and free ventilation and cleanliness ; and fourth, that the means of cooking, washing, &c. should be ample, but always detached from the lodging rooms.

The aspect of a barrack is of some importance, especially in warm climates. I find some observations by a veteran army physician upon this subject, which appear to me very judicious. Dr. Mosely says, " The aspect of a house may be towards any other quarter than the west ; but this will depend on situation in some measure, and the construction of the building. For if it have only a single roof, in a long, narrow range, from north to south, and that the front lie to the east, the sun will bear all his force on the largest surface from six to eight in the

morning; and for the same reason, on the west side, from four to six in the evening, and render it excessively hot. If it ranges from east to west, the morning and evening sun will have less surface to act on, and the building must necessarily be cooler; as the meridional sun acts nearly the same on the roof, let it be placed how it may. But the east should not be excluded, on account of the breeze and the afternoon shade and coolness. Then, if the building be single, a north front with windows, piazzas and balcony to the east and south, has the advantage. But if the building be large and double, an east front is, on the whole, the best plan for a house."

Although these observations were dictated by experience in the West Indies, they are equally applicable in all warm countries, in which thick walls and large rooms are more necessary than in more temperate climes.

But to advert more particularly to Corfu; the barrack in the Citadel is a very good stone building of four stories, including the basement story, situated at the foot of the rock on which the Citadel is built, and open to the north. Between the rock and the back of the barrack, the space is, in some places, very confined—not exceeding fifteen feet; but from the front of the barrack to the line wall, there is a space of fully twenty ordinary paces, and the ventilation on that side is complete. It unfortunately happens, however, that the necessaries are built on this line wall, and when the wind blows from the northerly point, the effluvia are excessively unpleasant. The proximity to the rock which obstructs the ventilation in some rooms, is greatly counterbalanced by the shelter it affords from the mid-day sun. These barracks form two sides of an oblong square, the larger running north and south, the shorter east and west. Some little difference in temperature is felt in these different aspects, as must always be the case; but none, I apprehend, sufficient, materially to affect the health of the troops. The foundation of these barracks stands about forty feet above the level of the sea.

Fort Raymond barracks are also of stone, and are situated in the town, at the south-western extremity of the Esplanade; their aspect is southerly, towards Castrades Bay and the Lake of Calachiopulo. They are considerably elevated, however,

over them; for the top of the work at Fort Raymond is ninety feet above the level of the lake. There are some bomb-proofs attached to these barracks, which lie below the level of the works, but they are not occupied.

Fort Neuf is situated on a rocky eminence at the north-western extremity of the works, with an easterly aspect, looking towards the harbour and town. It is 100 feet above the level of the sea. In it are two sets of stone barracks; one at the summit, and another about one-third from the top of the rock.

BARRACKS OF VIDO.

The barracks on the small island of Vido, formerly occupied by the troops, were of wood, very badly constructed, and excessively unhealthy. They are now abandoned, and the small garrison of thirty men are accommodated in very airy and comfortable bomb-proofs.

Much has been said on the unhealthiness of the barracks at Vido. The malaria from Bucintro was supposed to affect them. This I doubt; for on its passage of twelve miles over the bay, much of its baneful properties must be absorbed by the water, and much of them diluted and dissipated by the winds. Besides, the prevailing winds do not blow from the marsh, and if they did, the barracks are screened from their effects; while the Citadel, which is more directly exposed to the wind blowing from Bucintro, is free from malaria.

To determine the distance at which malarious vapours act is not a subject of curiosity alone, but of great practical utility. Much will depend on the extent of the evaporating surface, and much on the strength of the wind. Some authors are inclined to limit the distance within half a mile: perhaps, in certain circumstances, this may be below the mark. It is certain, however, that in the Walcheren expedition the 2nd Dragoon Guards and the 9th and 12th Light Dragoons, who lay in transports, only three-fourths of a mile from land, escaped the fever; and Pringle, Blane, and Lind afford us numerous facts of a similar nature.

I am convinced that the unhealthiness of Vido has been principally owing to the excessive changes of temperature

experienced by the troops quartered in the wooden barracks, which were intolerably hot in the day, and piercingly cold at night*. In addition to this, there is no shelter in the island to moderate the heat or the piercing winds, the French having cut down all the olive trees with which the island was formerly covered. Native marsh miasmata could have had only a very partial share in the production of disease at Vido, for there are only one or two small ravines on the island, and three or four small pits, or reservoirs, used by the French for washing gravel from the lime employed in constructing their works. In one instance, I have learned that troops who had been employed in the interior, and had been much exposed to the influence of marsh effluvia, suffered very severely on their arrival at Vido, but they evidently imported the seeds of disease along with them: they were not sown, they were merely developed there, and therefore Vido is not chargeable with the effects produced.

The island is about four or five miles in circumference, and is necessarily garrisoned, as it is said to be the key of Corfu. A smaller island is occupied as a lazaretto, which is peculiarly healthy, and although much nearer a marshy part of the bay (in the neighbourhood of the old Venetian harbour called Govino) than Vido is to Bucintro, marsh fever is almost unknown there, notwithstanding that the prevalent winds blow from the marsh towards the island.

The highest point of Vido is 132 feet above the level of the sea; and certainly, judging from external appearances, I should not suppose it to be an unhealthy situation; indeed, I am told that, formerly, sick people were sent there from the city for change of air.

As what I have now said may serve to convey a sufficient general idea of the barracks of Corfu, I shall conclude this subject with the following extract from my report to his Excellency the Commander of the Forces:—

"With regard to these buildings, I found them in a state in which (considering the nature of relative circumstances) they

* Dr. Benza found the thermometer six degrees higher in the sheds of Vido, than in the hottest quarters of Corfu; and while the men in the sheds were extremely sickly, those in the adjoining bomb-proofs sent but very few men to hospital, and all slight cases.

would not suffer on a comparison with any similar erections in Great Britain. It was only at Vido that I found the wooden barracks positively bad, but the bomb-proofs there are as good as that species of accommodation usually is.

To preserve as much as possible the health of the troops in barracks, the following appear to me to be the principal points which require attention :—

1st. Of the importance of the discipline, sobriety, messing, &c. &c. of the troops; of the cleanliness of their persons, their bedding, and their rooms, it would be superfluous to speak. I found everything under these heads conducted upon the best principles; but I may be permitted to recommend, that all the barracks should be whitewashed *regularly four times* a year, while particular rooms might, if necessity required it, be washed oftener. Kitchens, necessaries, guard-rooms, and places of confinement should come within the provisions of this regulation.

It too frequently happens that this simple operation is performed in a very slovenly and imperfect manner. To render it most effectual, every part of the walls and ceilings should, before the application of the lime, be carefully scrubbed with hard brooms, so as completely to remove all filth and concentrated animal effluvia, as practised in the Lazaretto here under Dr. Broadfoot.

These effluvia are not only fruitful sources of infection, but are exceedingly tenacious, and adhere to the walls more closely than is generally imagined. After the walls have been thoroughly cleaned, the subsequent application of the whitewash, recently made, and while yet hot, will afford the fairest chance of neutralizing or altogether destroying the fomites of contagion. To obtain, in its fullest extent, the effects of the lime, it should be placed in heaps upon the floors of the rooms if of stone, or in proper vessels if of wood, and it should be there slaked: the windows and doors should, after the application of the water, be closely shut and be so kept, as long as the lime yields its vapours freely: by this means, there can be no doubt that these hot and highly rarefied vapours will carry with them the finer particles of the lime into crannies of the walls and ceilings inaccessible to the ordinary applications of the brush.

In all suspicious circumstances, the extrication of the mineral acid gases should also be employed, under medical inspection.

2nd. The ground-floors and bomb-proofs should be appropriated, as much as possible, for the reception of stores; for offices, washhouses, cleaning places, &c.; and never occupied as sleeping-rooms for the soldiers, when it can be avoided. Whenever practicable, cross windows or air holes should be cut in them to promote ventilation; while, in order to ensure cleanliness, they should be whitewashed as regularly as any other parts of the buildings.

3rd. Cleanliness and ventilation being the principal keys to health, where large bodies of men are necessarily confined within a small space, I would recommend, in order to ensure the latter of these points, that in such barrack-rooms as have not cross windows, or in which it would be impracticable to cut them, perforations of a foot and a-half square, furnished with sliding shutters, should be made in all the walls (at a distance of ten or fifteen feet) close to the floors, and a similar set of perforations close to the ceilings. It is obvious, that the foul and heated air must, by its levity, escape through the upper openings, while the cooler and heavier air will rush in below, without exposing the bodies of the soldiers to direct currents. Ventilation will also be greatly improved if a window in each room and passage be cut down to a level with the floor, and a corresponding window be raised to a level with the ceiling.

In places of confinement, guard-rooms and necessaries, similar means of ventilation should be adopted.

In order still further to cool the rooms in the summer season, instead of going to the expense of verandas and *jalousies*, I should suppose the direct rays of the sun would be adequately warded off by hanging coarse mats or canvass in a shelving position before the windows, so as not to intercept the passage of the air. A few pence from each soldier would, I apprehend, be sufficient to cover the expense.

In colder seasons, when fires may be considered necessary, the stoves now manufactured in England for warming large buildings by means of heated air might be advantageously sub-

stituted for the stoves at present in use, which are nearly as expensive, and diffuse only a very partial heat.

4th. I am not prepared to say that all disagreeable smells are in themselves unwholesome, though they are often the vehicles of effluvia of a deleterious nature; and, with regard to the particular point upon which I am now going to speak, I hesitate still more in making a positive assertion, because I know that the diseases of those persons who are continually employed in cleaning out the vast depôts of the ordure which accumulate in the privies of foreign countries, as well as those of our own, are not of a febrile or putrid kind, but are clearly referrible to the direct effects of foul air on the lungs, or of acrid and volatile vapours upon the eyes *.

As a great nuisance to the senses, however, I cannot avoid particularizing the necessary upon the line wall, in the Citadel. The plan proposed by the Quartermaster-General, of casing it, and giving a greater fall to the drain, bids fair to obviate much of its disgusting effects. In all future erections of this description similar measures should be adopted."

HOSPITALS.

The hospitals now occupied by the troops are two, one on the northern side of the Esplanade, close to the water's edge, and about fifteen feet above its level; the other in the Citadel, on a

* I am perfectly borne out in this opinion by a statement read by Messrs. Guyton Morveau and Chaptal to the French Institute. See Annales de Chimie, vol. liv., p. 86. The gases arising from animal substances in progress of decomposition, are the less dangerous to health, in proportion as the matters undergoing putrefaction are less humid. When dry, they give out carbonate of ammonia in considerable quantity, which is perfectly innocent, and has the property of correcting other vapours, while, if wet or humid, the fumes emitted are sweetish, nauseous, and injurious to health. In the necessary in question, the soil is perfectly torrified by the action of the sun and wind, and, as it adheres to a perpendicular wall, several feet above the sea, it cannot retain any moisture. Still, I beg to be understood as only stating the question between a nuisance which is disgusting to the senses, and a nuisance which is positively prejudicial to health.

plain between the two Phæacian rocks already mentioned, and 109 feet above the level of the sea. This last is by far the better situated, but is only sufficient for the sick of one regiment. The former is the largest of the two, and looked upon as the principal. In and near it are accommodations for the sick of two regiments, and also the apothecaries' stores and pharmacy for general purposes.

The hospital on the Esplanade, or the Town Hospital, as it is called, was applied to the same purposes by the French, the Russians, and the Venetians. In the time of these last, its administration was so notoriously bad, that St. Sauveur states, without reserve, "that the health of the soldiers was an object of speculation, and often sacrificed to the interests of the directors of the hospital;" and that, if a soldier recovered, he owed it more to the native vigour of his constitution than to the aids he received from hospital treatment. His remark upon the hospital is sufficiently striking: "C'est là, que le soldat alloit au-devant de la mort plutôt que de la santé."—Tom. i. p. 29.

Botta complains much of the want of ventilation in this hospital in his days; of the difficulty of preserving it from bad smells; and of the lodgment its wooden floors afforded to vermin; but especially of the want of necessaries. That it may formerly have been in a most deplorable state I am well prepared to believe, but by British humanity and British judgment many of its defects have been removed, and it is now far from being a bad hospital for Corfu, although assuredly it can never be brought into comparison with a good hospital in Great Britain. It is built in the form of a quadrangle, one side running from south-east to north-west, and the other from east to west. It is constructed on the side of a slope running rapidly down towards the sea; and, in consequence of this declivity, one part (that running from south-east to north-west) consists of three stories, and the other of only two. It has been estimated as capable of accommodating 270 men, but, in my opinion, it cannot well accommodate beyond 200.

It is divided into seven wards of various sizes, the smallest containing ten, the largest thirty-six beds. There is also a large ward, which, however, from being badly ventilated, is used

only as a dining room for convalescents, but on an emergency it may answer for a sleeping room for the more trifling cases. As two regiments occupy this hospital, there are kitchens, store-rooms, &c., for each, with a necessary and yard common to both. There are two large tanks in the hospital yard, the water of which is good and abundant.

The hospital in the Citadel, which was formerly a granary, is situated on the plateau between the two conical hills so often spoken of, and is a very excellent building for its purpose, though still susceptible of many little improvements for the comfort of the sick, and the abridgment of the labour of the servants. It is capable of accommodating one hundred patients extremely well, and even one hundred and twenty of the slighter cases might be accommodated on an emergency. The beds are in four wards, the smallest containing twenty-six, and the largest twenty-eight beds. Besides this, there is in the Citadel a detached house, in which the artillery sick are accommodated, capable of containing twenty beds.

MODE OF LIVING OF THE SOLDIERS.

It is unnecessary to enlarge much on this subject, so familiar to every military man. The soldier's ration is one pound of bread, one pound of meat, and one pint of wine daily, with two pounds of wood for cooking. He is provided out of his pay with a hot breakfast of tea, coffee, or cocoa, and an additional pound of bread previous to his going on duty; at one, he has his ration of meat, bread, and wine, for dinner. In winter, salt meat is issued occasionally twice a week, but in summer never more than once. Daily bathing is practised in summer, and the soldiers are confined to barracks in the heat of the day, when they are encouraged to repose themselves. Every precaution is taken to keep the men from the influence of the sun and of the night air, and especially from excesses in drinking; but this is a task beyond the power of man to accomplish. Every means are taken to render the troops clean and comfortable in their barracks.

DISEASES.

I HAVE now to speak of the diseases which have been most prevalent among the troops at Corfu. From what I have already said in describing the country, it must naturally be supposed that fevers, especially of the remittent and intermittent types, would be of frequent occurrence, and accordingly we find, that since the year 1815, up to the end of the year 1821, (the longest period for which I can obtain any records,) febrile diseases have formed nearly two-fifths of the total admissions into the hospitals.

The total of all diseases admitted into the hospitals during the seven years was 15,191, among which were—

Common fevers	3299
Typhus	2
Remittents	1400
Quotidians	342
Tertians	285
Quartans	17
Unclassed Intermittents	376
Total	5721

The mortality by fevers of all descriptions was 170, or about 1 in $33\frac{2}{3}$.

The deaths occurred as follows:—

From common continued fever	40	or 1	in	$82\frac{1}{40}$
„ Typhus	1	„ 1	„	2
„ Remittent	119	„ 1	„	$11\frac{20}{119}$
„ Quotidian	5	„ 1	„	$68\frac{2}{5}$
„ Tertian	2	„ 1	„	$142\frac{1}{2}$
„ Quartan	—	„ —	„	—
„ Unclassed Intermittent	3	„ 1	„	$125\frac{1}{3}$

That many of these fevers have proceeded from the effects of marsh miasmata, there can be no doubt; but that many were the product of unrestrained exposure to the mid-day sun, and of intoxication, is a fact which can only be questioned by those who are ignorant of the habits of British soldiers in all parts of the world.

It is universally allowed that there is often great difficulty in distinguishing between the more severe forms of remittent fevers, and those of the continued class; and the physician must, therefore, in some degree, guess at them, from the general character of the reigning disease, from the season of the year, and from the nature of the exciting causes to which the patient has been exposed: still it often happens that the identity of the disease cannot be ascertained, but it is fortunate that the same means of cure are generally applicable to the continued and the remittent fevers, except indeed in the very commencement of the season, when the continued fever is purely inflammatory.

It is agreed upon, that the remittents of Corfu, and of the Mediterranean generally, much resemble those of the West Indies.

Dissection in fever cases almost always shewed considerable determination to the head, and (according to the verbal accounts which I have received) to the spinal canal. The spleen was very generally diseased, enlarged, soft, and semi-putrid. The liver was often diseased, the pancreas was frequently hardened, and the stomach mottled with red patches, while the colon was irregularly distended or contracted.

DYSENTERY.

THE next most important disease treated in the military hospitals of Corfu, was dysentery. The admissions for the seven years were—

	Acute .	805					
	Chronic .	86					
Of whom died—Acute .		25	or	1	in	32¼	
,, Chronic .		6	,,	1	,,	14⅜	

DIARRHŒA.

DIARRHŒA was of frequent occurrence; there were treated 605 cases, of which only 2 died, or 1 in 302½.

PNEUMONIA.

PNEUMONIA occurred in 337 cases, of which only 4 died, or 1 in 84¼.

PHTHISIS PULMONALIS.

WITH regard to phthisis pulmonalis, I find 66 cases recorded in the returns, of which 33 proved fatal in the islands. I also find 60 cases classed under the indefinite head "Pulmonic," before the returns had received their present form. Of these 60, thirty-four were discharged, and 26 died. Many of these cases, I presume, were actually phthisical; but at this distance of time it is impossible to ascertain, and they cannot be well brought into calculation, as having *all* been cases of phthisis. The records are also defective, inasmuch as I cannot discover the fate of those who survived. I have reason, however, to conclude, that many of them were sent home. As to their ultimate recovery, holding the opinions that I do, upon the subject of tubercular phthisis, I look upon that as impossible. That the catarrhal and the apostematic species may occasionally be cured, I know; but the genuine tubercular phthisis I view more as a complicated combination of symptoms of two or more diseases, which infallibly announce the approach of death, than as a simple disease in itself; and with the greatest respect for the humanity and talents of the numerous physicians who are in quest of cures for tubercular phthisis, I look upon the project as precisely tantamount to seeking a remedy against death itself.

I greatly lament that I have not the means of investigating the comparative frequency of phthisis in the army, and in the navy stationed in and about the coasts of the various islands in the Mediterranean. Without having official documents before me, I could never be able to determine the comparative prevalence in the two services at different places; but certainly, judging from *primâ facie* appearances, we have had much less in our service than is recorded by my friend Dr. Sinclair, to have occurred in the navy. There are obvious reasons why

sailors should suffer more than soldiers from the inclemency of the weather, from checked perspiration, and from other causes of pectoral complaints. But if sailors have to turn up on deck frequently at night, soldiers also have occasionally to encounter the night air, when reeking with perspiration excited in a close guard-room. Soldiers are also frequently exposed to the alternations of heat and cold, drought and moisture; and although the excesses of the former, when they get on shore, strike the eye more forcibly, I doubt whether the general mode of living of soldiers is more abstemious in point of drinking, than that of sailors. Upon the whole, although the chances of pectoral diseases are certainly against the sailor, they do not seem adequate to account fully for the great difference which appears in the annexed return.

According to Dr. Sinclair's reports, phthisis and pulmonic inflammations, as they occurred at Malta, Gibraltar, and Minorca, bore a proportion of 1 to $2\frac{1}{2}$ of all the other serious complaints; but by the annexed return, it will be seen that at Corfu, phthisis only bore a proportion of 1 to $218\frac{43}{66}$, and including the cases marked "pulmonic," as well as all the cases of hæmoptysis, pneumonia, and acute and chronic catarrh, the whole only amounted to 760, or a proportion of 1 to 19 of other complaints. It may be said that Dr. Sinclair embraces a much wider field than I do, and the assertion is true; but the annexed returns clearly prove, that in the seven Ionian Islands, phthisis, as it has occurred in the army, has, from an average of seven years, borne a proportion to other complaints of 1 to $198\frac{25}{122}$ only.

At Malta, on an average of eight years, phthisis has occurred in a proportion only of 1 to $93\frac{43}{190}$.

Including all pulmonic complaints whatever, they have only been as 1 to $20\frac{3}{4}$ in Greece. Including all pulmonic complaints whatever, they have only been as 1 to 14 in Malta.

Taking into calculation the whole Mediterranean Islands, the proportion of pulmonic to other diseases has been only 1 to $17\frac{1}{4}$ in the British army, affording a wide difference, indeed, from Dr. Sinclair's calculations for the navy.

Every practitioner acquainted with the climate of the Mediterranean, must be aware of the fatal error of sending

persons in the advanced stages of phthisis to this country, and the work of Dr. Clarke* must have, by this time, convinced British physicians of the fact. Whenever the disease is established, the climate is decidedly injurious; but I think it admits of a question whether the climate may be equally injurious to those who are merely predisposed to pectoral complaints.

I also conceive it worthy of investigation, whether a moist malarious atmosphere, like that of the island of Corfu, may not be unfavourable to the development of these diseases. We certainly have strong grounds for supposing that hectic symptoms diminish in proportion to the increase of intermittent and remittent fever.

If we take the Ionian Islands in the order of rarity of pulmonary affections in general, as given by the returns, they stand thus:—

Zante	- -	1 in	$30\frac{72}{106}$
Cephalonia	- -	1 „	$29\frac{75}{108}$
Corfu	- - -	1 „	19
Cerigo	- - -	1 „	$18\frac{4}{21}$
Santa Maura	-	1 „	$18\frac{53}{126}$
Ithaca	- - -	1 „	$13\frac{23}{43}$

By this we see that the three islands *which are decidedly most malarious and remarkable for remittents have had fewest pulmonary affections*, viz. Zante, Cephalonia, and Corfu; while Ithaca, which is very dry, has had most. Santa Maura, although marshy, has had little less than Cerigo, which is dry, but it has only been garrisoned by small and select detachments: while Cerigo, if it wants malaria, makes up for it in violent storms and changes of wind. I think this evidence is very striking as to pulmonic affections in general. Let us now turn to pure phthisis, and see how it stands in the order of rarity. It is as follows:—

Ithaca	- -	1 in	588
Corfu	- - -	1 „	$212\frac{35}{66}$
Santa Maura	-	1 „	211
Cerigo	- -	1 „	191
Cephalonia	- -	1 „	$160\frac{7}{20}$
Zante	- - -	1 „	$147\frac{18}{20}$

* "Medical Notes on Climate, &c.," 8vo. London, 1820.

This table certainly does not bear out the views suggested in the former. Ithaca, which showed most pulmonary affections in general, exhibits in the present table the smallest number of phthisical cases: perhaps, this may be explained by recollecting that it was garrisoned by only small detachments, which are generally selected from among healthy men. Cerigo, also, which is drier than either Cephalonia or Zante, has had fewer cases of phthisis than occurred in these islands. It was similarly circumstanced, as to its garrison, as Ithaca; but, on the other hand, we find, that Corfu and Santa Maura, which are among the most remarkable for malaria, are the freest from phthisis. These facts, when weighed together, in part support and in part contradict the opinion which has been offered on the influence of malarious countries on pulmonary diseases.

Before this important question is decided, a vast number of facts must be collected, and the histories of individual cases must be drawn up with such precision as to leave as little doubt of their real nature on the mind of the reader as on that of the narrator, at whatever distance of time or place. I cannot say that such was the nature of the documents from which I have deduced the above details; and I shall not risk the chance of embarrassing the question, or retarding the triumph of truth by pushing to the furthest extent the remarks which are suggested by the following table. I must, however, offer some observations upon the mode in which I have conducted it.

1st, I have added to the list "chronic catarrh," although it is well known to all conversant with military returns, that this term is often used to express a worn-out state of the system, attended with cough, from a variety of diseases, especially obstructions of the liver; and when it depends solely on an affection of the lungs, it is, in the course of the year, generally transferred to the head "phthisis pulmonalis."

2dly, Many cases, also, under the heads of "pneumonia," "pulmonic," "acute catarrh," and "hæmoptysis," are subsequently placed under the head "phthisis;" and, although they serve to swell the admissions numerically, they do not so actually; for the same individuals may be returned, during the course of the year, repeatedly under one or other of these heads. The actual average, therefore, should be much lower than

stated in the return; but I take them as they are, in order to avoid all possibility of error, in favour of that side of the question which the evidence before me inclines me to take.

Return of Pulmonary Diseases treated in the Hospitals of the Ionian Islands, from 1815 *to* 1821 *inclusive; together with the same as they have occurred at Malta from the year* 1814 *to* 1821 *inclusive.*

Islands.	Hæmoptysis	Of whom have died	Phthisis Pulmonalis	Of whom have died	Pneumonia	Of whom have died	Catarrhus Acutus	Of whom have died	Catarrhus Chronicus	Of whom have died	Complaints classed under the head Pulmonic	Of whom have died	Total of Pulmonary Affections	Total of Deaths	Total of other Diseases	Proportion of Pulmonary to other Diseases
Corfu	21	1	66	33	444	4	141	..	28	..	60	..	760	64	14431	1 in 19
Cephalonia	2	..	20	3	53	..	20	..	6	..	7	1	108	4	3207	1 in $29\frac{75}{108}$
Santa Maura ...	7	..	11	6	67	..	34	..	6	..	1	..	126	6	2321	1 in $18\frac{53}{126}$
Cerigo	1	..	2	2	12	1	3	..	3	..	..	..	21	3	382	1 in $18\frac{4}{21}$
Ithaca	2	..	1	1	15	1	24	..	1	..	..	..	43	2	588	1 in $13\frac{2}{43}$
Zante	4	..	22	7	47	..	33	..	..	..	..	..	106	7	3252	1 in $30\frac{72}{106}$
Total	37	1	122	52	638	6	255	..	44	..	68	27	1164	86	24181	1 in $20\frac{1}{4}$
Malta	51	5	190	76	486	10	392	3	146	2	..	..	1265	94	17718	1 in 14
Grand Total	88	6	312	128	1124	16	647	3	190	2	68	27	2429	180	41899	1 in $17\frac{1}{4}$

Comparative Table of the various Pulmonary Diseases, as they have appeared in the Ionian Islands, for the Seven Years between 1815 *and* 1821; *and in Malta, for Eight Years, from* 1814 *to* 1821.

Station.	Hæmoptysis	Proportion of Ditto to other Diseases	Phthisis Pulmonalis	Proportion of Ditto to other Diseases	Pneumonia	Proportion of Ditto to other Diseases	Acute Catarrh	Proportion of Ditto to other Diseases	Chronic Catarrh	Proportion of Ditto to other Diseases	Complaints classed under the head Pulmonic	Proportion of Ditto to other Diseases
Corfu	21	1 to 687	66	1 to 218 $\frac{45}{66}$	444	1 to 32 $\frac{1}{2}$	141	1 to 102 $\frac{3}{4}$	28	1 to 515 $\frac{1}{2}$	60	1 to 24
Cephalonia	2	1 „ 1603 $\frac{1}{2}$	20	1 „ 160 $\frac{7}{20}$	53	1 „ 6 $\frac{1}{4}$	20	1 „ 16 $\frac{3}{4}$	6	1 „ 534	7	1 „ 459
Santa Maura	7	1 „ 331	11	1 „ 211	67	1 „ 35	34	1 „ 69	6	1 „ 387	1	1 „ 2334
Cerigo	1	1 „ 382	2	1 „ 191	12	1 „ 32	3	1 „ 128	3	1 „ 127 $\frac{1}{3}$	..	....
Ithaca	2	1 „ 294	1	1 „ 588	15	1 „ 39	24	1 „ 25	1	1 „ 588	..	....
Zante.....	4	1 „ 813	22	1 „ 147 $\frac{18}{22}$	47	1 „ 69	33	1 „ 99	..	....	..	....
Total	37	1 „ 650 $\frac{13}{37}$	122	1 „ 198 $\frac{25}{122}$	638	1 „ 38	255	1 „ 95	44	1 „ 549 $\frac{1}{2}$	68	1 „ 357
Malta	51	1 „ 347 $\frac{1}{2}$	190	1 „ 93 $\frac{48}{190}$	486	1 „ 37	392	1 „ 46	146	1 „ 121 $\frac{1}{3}$	..	....
Grand Total..	88	1 „ 476	312	1 „ 134 $\frac{81}{312}$	1124	1 „ 37 $\frac{1}{2}$	647	1 „ 65 $\frac{1}{3}$	1911	1 „ 220 $\frac{1}{2}$	68	1 „ 357

In order to illustrate this subject more fully, I shall now give a Table exhibiting the comparative mortality of Pulmonary Diseases to the general mortality by diseases of other descriptions, in each of the Ionian Islands and Malta, for the periods specified in the preceding tables.

Station.	Deaths by all Diseases, Pulmonic excepted.	Proportional Mortality of Hæmoptysis to other Diseases.	Ditto Ditto of Phthisis to Ditto.	Ditto Ditto of Pneumonia to Ditto.	Ditto Ditto of Acute Catarrh to Ditto,	Ditto Ditto of Chronic Catarrh to Ditto,	Ditto of Complaints classed under the head Pulmonic.	Ditto of Total Pulmonary Affections to other Diseases.
Corfu	272	1 to 272	1 to $8\frac{8}{33}$	1 to 68	.....	.....	1 to $10\frac{2}{33}$	1 to $4\frac{6}{64}$
Cephalonia	128	.....	1 „ $43\frac{2}{3}$	.....	.....	.....	1 „ 128	1 „ 32
Santa Maura	52	.....	1 „ $8\frac{4}{5}$	.....	.....	.....	.....	1 „ $8\frac{4}{5}$
Cerigo	4	.....	1 „ 2	1 „ 4	.....	.....	.....	1 „ $1\frac{1}{3}$
Ithaca.....	10	.....	1 „ 10	1 „ 10	.....	.....	.....	1 „ 5
Zante	119	.....	1 „ 17	.....	.....	.....	.....	1 „ 17
Total	585	1 „ 585	1 „ $11\frac{13}{32}$	1 „ $97\frac{1}{2}$	.....	.....	1 „ $21\frac{19}{27}$	1 „ $7\frac{22}{88}$
Malta	254	1 „ $50\frac{4}{5}$	1 „ $3\frac{26}{28}$	1 „ $25\frac{4}{16}$	1 „ $84\frac{2}{3}$	1 „ 127	.....	1 „ $2\frac{56}{64}$
Grand Total	839	1 „ $139\frac{6}{6}$	1 „ $6\frac{71}{128}$	1 „ $52\frac{7}{16}$	1 „ $279\frac{3}{3}$	1 „ $419\frac{1}{2}$	1 „ $31\frac{2}{27}$	1 „ $4\frac{116}{180}$

By this return we find another illustration of the supposition that malaria has a salutary influence on pulmonary diseases; we see that the mortality has fluctuated from a proportion of 1 to $1\frac{1}{3}$, to a proportion of 1 to 32; and it is not a little singular that the greatest mortality should have occurred at the island which is decidedly driest of any of the Septinsular Union, and that the smallest mortality should have occurred at Cephalonia, which is the most marshy.

I shall now pass on to the consideration of other diseases.

CHOLERA MORBUS—HEPATITIS.

Cholera morbus was not of frequent occurrence, only 81 cases having been treated in seven years, of whom 4 died, or 1 in $20\frac{1}{4}$.

Hepatitis occurred as follows:—

Acute - -	65
Chronic -	59

Of whom died,

Acute - -	0
Chronic -	8, or 1 in $7\frac{3}{8}$

VARIOLA.

Variola has not occurred during the above period.

RUBEOLA.

Only six cases of rubeola appear on the returns; viz. one in the year 1818, and five in the year 1819.

SCARLATINA.

In the year 1819, two cases of scarlatina occurred, and these are the only instances in which the disease appears to have been treated in the hospitals of Corfu.

GOUT.

One case of gout appears on the face of the return; a very rare, though not an unique military occurrence.

SYPHILIS.

Syphilis is little known among the troops, under any form, in this island: in its exasperated stages it scarcely ever appears. During 1815 and 1816, there was not a single case of syphilis. In 1817, 104 were reported; in 1818, 59; in 1819, 31; in 1820, 30; and in 1821, 8; a pretty convincing proof that the disease has either diminished, or that we do not, now-a-days, give the appellation to the same disease we did formerly. The institution of the hospital for prostitutes must have had a considerable influence in preventing the diseases caught by sexual intercourse. That increased morality among the soldiers has anything to do with it, is completely out of the question.

Only six cases of consecutive syphilis occurred in Corfu during the whole period under review. Of non-syphilitic sores, the following were the admissions; and it cannot escape observation, that the *increase* of this description, which appears on the returns, bears a striking relation to the *decrease* of the syphilitic affections.

In the years 1815 and 1816 there were none reported. In 1817, two crept into the returns. In 1818, they increased to ten. In 1819, nine were reported; but in 1820 and 1821 they suddenly rose, in the first year to 30, and in the last to 27.

In the same way, Cachexia Syphiloidea has increased, though not with equally rapid strides. In 1815 and 1816 we hear nothing of it. In 1817, one case occurred; in 1818, one; in 1819, one; in 1820, two; and in 1829, we at once leap to nine.

BUBO SIMPLEX,

One of the old syphilitic family, and which a dozen years ago would have infallibly entailed on the patient a long mercurial course, is not mentioned in 1815 and 1816. All buboes were

then considered syphilitic. We have, however, 2 cases in 1817, 10 in 1818, 20 in 1819; but, by good luck, we sink to 14 in 1820, and 13 in 1821.

Gonorrhœa has been more steady in its occurrence. We have none in 1815, being then new comers. In 1816, we have 26 cases; in 1817, 87; in 1818, 45; in 1819, 42; in 1820, 27; and in 1821, 52. The peculiar views of medical men may lead them to differ as to the reality of a syphilitic sore, but no dispute can take place with regard to gonorrhœa. Whencesoever it proceeds, its symptoms are the same, and fortunately they are curable by the same means; indeed, very often without any medical treatment whatever. The decrease of gonorrhœa, since 1817, and its rarity before that period, must have been altogether fortuitous, or perhaps increased cleanliness and precaution on the part of the soldier have obviated the effects of the contagious matter.

OPHTHALMIA.

Ophthalmia, and other diseases of the eyes, are very little known in Corfu, compared to what they have been at other Mediterranean stations. In seven years, and among upwards of 1500 sick, their whole number amounted only to 581, or 1 in 26 nearly, in which is included the slightest inflammation of the eye from catarrh, dust, or intoxication, which has rendered the soldier unfit for duty for a day.

PLAGUE.

It appears that 28 cases were treated in 1816, only 3 of which recovered.

In the return, in the Appendix, will be seen at one view, all the diseases which have passed through the military hospitals at Corfu since its occupation by the British up to the end of the year 1821.

A voluminous work might be founded upon this return, were I inclined to go over each disease, and to compare one year with another, as to its salubrity, &c.; but such a diversity of circumstances come to be considered, before I could, with any

prospect of utility, enter into an analysis of this return, that I have restricted myself to pointing out, in the gross, some leading facts with regard to the more important diseases, without pretending to a character of minuteness which could only be attained at the expense of truth, and which, if attained, might, after all, in the minds of most people, subject me to the imputation of being "a weigher of nothings in scales of cobwebs."

Fortunately, however, some excellent practical essays on the treatment of the diseases of Corfu exist in the official reports of various medical officers who have practised there, at the head of which I may place those of Dr. Skey, Dr. Bulkeley, and Dr. Cartan.

TREATMENT OF THE FEVERS OF CORFU.

In robust habits, especially in new comers, and in the very commencement of fever, where strong symptoms of inflammatory action appear to justify bleeding, blood letting, either general or local, is a remedy of primary importance; but it requires considerable judgment, especially in the advanced period of the season, and in weakly habits debilitated by long residence in the country. Leeches to the temples, over the stomach, the spleen, or the liver, are often of the most serious benefit, and by some practitioners are substituted, in every case, for general bleeding. The blood does not often exhibit the buffy coat.

Emetics are rarely had recourse to, except in some few cases where the presence of acrid bilious matter in the stomach seems to call for them; and even then, most medical men prefer purgatives, and many reject emetics altogether, on account of the very irritable state of the stomach which they produce. They are certainly remedies of ambiguous utility, and requiring nice discrimination.

Purgatives are of the utmost importance; the rapid accumulation of biliary and other intestinal secretions, and the depraved quality which they very early assume, render purgatives one of the most useful auxiliaries that the physician can possess in the fevers of this country. Calomel, in various combinations, has a decided preference over all others.

Sudorifics of the milder kind, as the liquor ammoniæ acetatis, warm lemonade, and other diluents, are found very useful; those of the antimonial class should be avoided, on account of the great irritability of stomach.

When remissions or intermissions are fairly established, it is agreed upon all hands, that the bark is a most powerful and indispensable remedy, and accordingly it is employed to a very great extent in the military hospitals of Corfu, and throughout the islands. When the powder can be borne, experience has proved it to be the best form, but it is often necessary to substitute the infusion or decoction. But the sheet anchor and that, which, if it does not supersede, at least most powerfully assists all other remedies, is the early employment of mercury, especially in the more violent cases.

Almost every individual has his own peculiar methods of administering mercury; in combination with opium; with antimonials, and in combination with cathartic extract; in small doses frequently repeated; in doses of greater extent; in friction, &c., &c. All these may occasionally have their advantages; but however used, where it can be brought fairly to produce its effects on the system, particularly on the hepatic organs, amendment may be looked for in all, and recovery predicted in most cases where the energies of the constitution are not broken down.

Sponging with cold water and vinegar is always refreshing to the patient in the paroxysm of fever, and is much employed; but the cold affusion is seldom had recourse to. Indeed, so varying are the symptoms, that the skin seldom continues *steadily* to indicate the propriety of using that application.

Blisters and sinapisms are also excellent remedies, either as local stimulants, or to restore the balance of the circulation.

Arsenic has also been found useful in the advanced stages of intermittent which have resisted the bark.

Whatever remedies are fixed upon, it is the opinion of the best informed officers, that one precaution should be observed in their administration, the omission of which has occasionally exposed our medical men to the sneers of the native practitioners—it is, to guard against a farrago of medicines, and to recollect that the stomach of the patient belongs to an organized

and living being, at no time endowed with the passive properties of a chemical vessel, but in a state of disease, tremblingly alive to every impression, and, as I have heard it well remarked, at this period in particular, "all nerve."

From the end of June to the beginning of October, is the most unhealthy period of the year, and most productive of fevers, although they occasionally appear at all seasons. In August especially, the remittents appear in their worst form, and later in the year they are replaced by intermittents.

In the earlier part of the season continued fevers are most prevalent, and they exhibit more of the inflammatory type than as the season advances. Hence it is almost unanimously admitted, that evacuations, especially by blood letting, are more applicable in the early part of the unhealthy season, than as it advances. Some practitioners abstain altogether from venesection in the end of August, and throughout the whole of September and October.

It is agreed upon all hands that convalescence is slow after the autumnal fevers of Corfu, and indeed of all the Ionian Islands; and that cordials and light nourishing diet are more required than in England. It is also an established fact, that after a formidable attack of these fevers, the patient is always subject to relapse on the slightest occasions, and that the hepatic system is ever afterwards liable to derangement.

TREATMENT OF DYSENTERY, &c.

In the severe forms of dysentery, early bleedings are agreed upon as the most powerful means of relief, and in some cases they have been advantageously had recourse to even in advanced stages of the disease. Topical blood letting by leeches, warm bathing, and mild purgatives, have been always found useful; and as in fever, when the effects of mercury can be early produced on the system, if great organic derangement has not taken place, and the constitution is sound, recovery may be looked for. Calomel, succeeded by the neutral salts, is a favourite purgative with many, and castor oil has been very generally employed. I have no doubt of the great utility of this last excellent medicine.

In the treatment of the other principal diseases of Corfu and of the other islands, nothing very peculiar is to be remarked. The indications are nearly the same as in Great Britain, holding in view the insidious nature of the first attack of inflammation, and that peculiar tendency to hepatic, splenic, and cerebral congestions which gives a character to almost every disease of the Mediterranean, especially among soldiers.

PREVENTION OF DISEASES.

With regard to that most important part of the duties of medical men, which refers to "prophylaxis," or the prevention of diseases, it may be expected that I should say something, especially as I find, on a reference to the reports, that some experiments were tried on that subject at Corfu.

With the highest esteem for the distinguished talents and humane intentions of that respected patriarch of military medicine, Dr. Jackson, and with a due sense of the merits of those who have followed in his steps, I would, with great deference, offer my opinion, that the preventives best adapted for large bodies of troops in garrison, are to be found rather in the regulation of the non-naturals, than in the administration of physic, while the soldier does not suffer under actual disease. During a voyage to warm countries, indeed, the official regulations for troops embarked on board transports afford, perhaps, as complete a code of prophylactic medicine as ever was promulgated; and it is not one of its least advantages, that it can be acted upon without interfering with military duties, and under the immediate eye of a medical man. But of the expediency of *general* mercurializations, or bleedings, or purgings of troops on shore, I must confess I entertain serious doubts. Of their utility to reflecting *individuals*, I make no question, but I do not hesitate to say, first, that they cannot be *generally* applicable to a *whole corps or garrison.* Secondly, that although the soldier may submit in passive obedience, he will invariably make himself amends (as he supposes) for the restriction, by subsequent excess of one kind or other; and thirdly, although military officers are sufficiently enamoured of

any favourite theory originating with themselves, they view the proposals of medical men but too often with a jealous eye, especially when the advantages to be derived from them are merely prospective. We possess the power, by means of the established medical inspections, to meet the approaching disease as early as possible, but I question the prudence (in a military point of view) of anticipating it before its arrival by the general administration of medicine throughout a garrison; because, nearly thirty years experience has convinced me that no power on earth will reconcile British soldiers to taking physic, *en masse*, when they are not sick; nor will they ever view the man who orders it in any other light than that of a speculative experimentalist.

The true preventives to disease are, shelter from the heat of the day, and from the dews and cold of night, avoiding the neighbourhood of marshes and other unhealthy spots in military exercise; mounting guards at such an hour that the least possible number of fatigue parties may be employed in conveying dinners, &c.; timing duties in such a way that the men may enjoy their natural sleep; regulating the messes so that the soldier shall always have a due proportion of vegetables, and especially a comfortable breakfast before going on duty in the mornings; furnishing every man with flannel waistcoats or cotton shirts; enforcing personal cleanliness by frequent bathing, and by daily washing the feet, &c.; but, above all, regulating the Canteen, so that access can be had to liquor only in the evening, and then, taking every precaution that the bad spirits and the sour wine of the country be rigidly withheld.

We may refine as much as we choose, and we may modify our plans according to circumstances, with critical precision, but these are the bases upon which health is founded, so far as the soldier is individually concerned. To a higher power belongs the selection of barracks, the proportioning of duties, and the removal of nuisances; the duty of the medical man is to point these out when they come under his cognizance, but he should avoid, with the utmost scrupulosity, all uncalled for interference with military arrangements.

The slowness of convalescence, and the liability to relapse at Corfu, as well as in all the other islands, strongly evinces the

necessity of removing all invalids when capable of being moved with safety. The first step after their quitting the hospital, should be to quarter them in the healthiest and airiest barracks in the various islands; at Fort Neuf, for instance, in Corfu. This is a measure which has frequently been adopted with advantage. As a convalescent station, still further removed from the sources of disease which operate in Corfu, I have had my inquiries directed to the Island of Fano, by his Excellency Sir Frederick Adam.

ISLAND OF FANO.

This island * is situated about six leagues from the northern point of Corfu, and nineteen from the port. It is nearly twelve miles in circumference, and contains about 1000 inhabitants. The British garrison consists of an officer and twelve men, but the French had at one time 700 men there; it is reported as abounding in excellent spring water, and as being a spot remarkably healthy for both the troops and inhabitants. It was equally salutary to the French garrison.

The sick, which occasionally are reported there, are sent to Corfu, and it has sometimes happened that their diseases have proved fatal; but this may, in many instances, be referred to long exposure to the sun on the voyage. Even in passing from Corfu to Vido, exposure in a boat to the mid-day sun has produced fever, and an awning has most sensibly diminished these attacks.

The accommodation is at present quite insufficient for more than thirty healthy men, so that, until buildings can be erected, and a regular communication established by water, between it and Corfu, we cannot avail ourselves of Fano as a resource for our convalescents.

As the ulterior destination of convalescents from the Ionian Islands, it was extremely desirable to fix upon some spot, which

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* Supposed by Procopius to be the Island of Calypso.—*Vide* Procopius de Bello Goth. lib. iv. cap. 22.

combined exemption from marsh, salubrity of situation, sufficiency of barrack and hospital accommodation, abundance of the necessaries of life, and facility of access. Such a spot is Malta; and I arranged with his Excellency the Commander of the forces, the plan of this convalescent station. Although I cannot discover that any proposition to that purpose was ever before submitted to the Government, yet I disclaim all merit for having executed what others may have contemplated under less favourable circumstances. When I speak of the islands of Malta and Gozo, I shall enlarge on this plan, and his Excellency's improvements on it.

Having now given such details of the Medical Topography and diseases of Corfu as I have been enabled to collect, or think necessary to enlarge upon, I shall throw into the form of Appendices, some miscellaneous observations, tables, and catalogues, which I could not so well introduce into the body of the narrative.

The first Appendix refers to the Weather, and consists of two articles,—No. I. a Memoir on the Winds, extracted from the work of Baron Theotoky, already alluded to,—No. II. a Memoir on the Sirocco of Sicily by Dr. Benza.

In the second Appendix is given the Flora of Corfu, extracted from the work of Pieri, to which I have added some notices on popular medicines of the peasantry.

In the third Appendix is given the original text of Gregory of Tours, referred to under the head of Plague.

In the fourth Appendix is given a General Return of the Admissions, Discharges, and Deaths in the Regimental Hospitals of Corfu, from July 1815 to December 1821, with Averages of the Strength of the Garrison, and General Table of the Weather, compiled from the returns in the Inspector's office.

APPENDIX TO CORFU.

I.

No. 1.—*Extract from* Baron Theotoky's "*Memoir on Meteorology.*"

WINDS.

East.—This is a brisk, pleasant, and refreshing, but variable wind; it is rarely accompanied with rain. In winter it is sometimes sharp and violent; it often precedes fine weather.

East and by South—Is not so dry in summer, nor so piercing in winter as the preceding.

East-South-East—Is light, fresh, and elastic in summer, and tolerably mild in winter. An abundant fall of rain generally dissipates the light clouds which arise with this wind; when it is likely to continue, it commonly begins with a cloudy evening.

South-East and by East—Resembles the south wind. In summer, when it blows, the atmosphere is moist and thick, at other seasons of the year it is cloudy, gloomy, and wet; sometimes this wind is extremely violent.

South-East.—This wind prevails sometimes for three months, during which it rains almost incessantly. It is commonly accompanied by storms of thunder and lightning. In winter it is tempestuous and occasionally overwhelming. Early in the morning of the 25th November, 1775, a storm of this kind tore up by the roots, a great number of olive trees, threw down the steeple, drove on shore, damaged, and sunk several vessels in the channel, and excited universal terror. In summer it is close, hot, damp, and often gloomy. Although this wind is not always injurious to vegetation, it assuredly is unfavourable to the health, and, what is of more consequence, exerts its influence on the mind.

South-East and by South—Does not differ materially from the south-east; while it prevails, the weather is rather more dense and gloomy.

South-South-East—Is not so violent as the two last; it is less moist in winter, but hotter and drier in summer.

South and by East.—A cloudy sky and heavy atmosphere are the precursors of this wind. In summer, while this wind blows, the atmosphere is dull and thick, but is not so close in winter. It sometimes brings rain.

South.—This wind is not very violent; its principal characteristics are heat and moisture. The sickness of 1805, which was analogous to the yellow fever of the West Indies, was entirely caused by the prevalence of this wind; fortunately it is not durable; it always inclines to south-west.

South and by West.—Frequent rains accompany this wind.

South-South-West.—This sometimes blows in whirlwinds. The dews and rain which it produces are irregular and variable. It partakes of the nature of the south wind.

South-West and by South—Is a violent wind; in winter sudden and stormy; at other seasons always violent. It is never dry, although it is sometimes attended with cold and snow.

South-West.—This wind is by turns impetuous, cold, hot, moist, close, and rainy. Sometimes suddenly rising, then ceasing altogether. Sometimes it blows in whirlwinds, sometimes it is stormy, and occasionally it is calm; but its serenity is temporary. In winter it is sometimes accompanied with snow and hail; when it prevails in spring, it reverses the natural order of the seasons. The vines are often frozen while this wind prevails.

South-West and by West.—This wind resembles the former; it is not so often attended with rain, and in summer it is cooler.

West-South-West.—This wind is milder than the last, more free and refreshing. It inclines sometimes to south-west, sometimes to west.

West and by South—Is not so variable as the latter. In summer it is generally high, in winter moderate.

West *.—The weather, during its prevalence, is sometimes humid, sometimes dry, but it is always light, soft, and benign. It occasionally brings rain, which has something peculiarly agreeable, and exerts a powerful influence on vegetation. For these reasons the ancients ascribed to it the power of producing flowers and fruits.

West and by North—Is mild and dry, clear skies and a light atmosphere commonly accompanying this wind.

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* This is the zephyrus of the ancients, ζωη φερω, bringer of life.

West-North-West—Is rather sharp; it is sometimes tempestuous, but its violence is temporary; it often settles at north-west.

North-West and by West—Has the same characteristics as the preceding, except that in winter it is sometimes more violent at its first commencement.

North-West—Often is ushered in with fine weather. It is almost always dry (especially in summer); its natural qualities are to cool the air, and to extinguish the seeds of diseases, which in close and unwholesome weather we frequently see affect certain constitutions. Its favourable influence is very extensive. It is never, or very rarely, attended with rain, and then but for a short time; in summer it is often periodical. Although our climate is that of Greece, this wind often increases its natural purity.

North-West and by North—Is variable; it always inclines to north-west.

North-North-West—This wind is high and ungovernable in winter. In summer it is cool and dry, occasionally stormy and wet.

North and by West—Is high and violent, and sometimes accompanied with snow. If it rains, it is cool, and the fall of rain heavy. In summer it is cool, but not lasting; it always settles at north-west.

North—In winter it is sharp, high, and piercing, sometimes very violent. After the winter solstice there is frost and snow with this wind, but those are temporary. In summer it is cool and serene.

North and by East—Is variable, and tempestuous; it ends by fixing at north-north-east.

North-North-East—The parent of ice and snow; the ancients represent him with the tails of serpents instead of legs and feet; its fury is terrible. In summer it is dry; in winter sometimes rainy; its violence often does great damage.

North-East and by North—Sudden and heavy rain, with a sharp atmosphere, generally precede this wind for some days; it is temporary. In summer it is cool and wholesome.

North-East—This wind is the coldest felt in the island; it often continues through the half of January, freezing the rivers, and even water in the glass; but this degree of severity does not continue more than a day or two at most. In summer, if it is violent, it obliges the inhabitants to return to their winter clothing.

North-East and by East—Is rather more humid, and not quite so severe; in its other qualities it is not unlike the last mentioned.

No. 2.

Extract from a Communication of Dr. Benza's, *on the Sirocco Wind, principally as it blows in Sicily.*

There has been so much said on the *sirocco*, that it is useless for me to enter into minute details regarding it. Many people, and among them the *old fellow* mentioned by Brydone, agree in considering it the same with that prevailing in Africa, and in the deserts of Arabia, called *sami-el*. To strengthen this opinion, I must add the following fact:—

When the sirocco has been impetuous and violent, and followed by a shower of rain (as is almost always the case), the rain has carried with it to the ground an almost impalpable red micaceous sand, which I have collected in large quantities, more than once, in Sicily. This sand fell abundantly in Palermo in the year 1811; and in March 1819, when I was on a visit to my friends, it fell in such a quantity in the interior of the island, that I collected more than three ounces of it. The appearance of this sand is quite different from what is found either in Sicily or Malta; and I see nothing paradoxical in admitting (seeing its impalpable state and short distance it has to traverse) that it has been carried over from Africa by the violence of the wind, and, when this ceased, to have fallen down with the rain.

The objection of Brydone, that if the sirocco of Sicily was the same with the poisonous wind of the desert, it should be felt as violent, if not more, in the south than in the north of the island, does not hold good; since I have felt it just as oppressive at Girgenti as at Palermo. Of course, the locality of places must be taken into consideration—Girgenti, situated on an eminence, and opened to every wind; and Palermo, built on a plain surrounded by high mountains, and its buildings high and its streets narrow.

Although the sirocco at Corfu, compared with that of Sicily, and particularly of Palermo, might be called a refreshing breeze, yet its effects on the animal system seem more deleterious here than there. I think the humidity of the atmosphere, and the marshy nature of the country round, accounts for it.

In fact, although the sirocco is so powerful at Palermo and in the north of Sicily, yet its effects on the human frame are of a

very short duration, and rarely any untoward consequence follows them; but when that wind prevails at Syracuse, Lontine, &c., all marshy country, and so fatal to Greek and Roman armies of old, the system suffers much under its influence. When the British troops were quartered in that part of the island, they did not escape the baneful effects of the climate of that district.

The first symptoms felt under the prevalence of this wind are the following:—a general lassitude or torpor of the muscular system, attended by head-ach and heaviness and oppression of the nervous system, inducing an inaptitude to any exercise, either corporal or mental; everything that is touched is damp and clammy, particularly one's clothes, which feel as if they had been wrung out of water; appetite impaired; thirst increased; perspiration profuse: in short, one feels as if all the pores (as the common expression is) of his frame were relaxed and opened.

It is easy to conceive that this condition of the system predisposes and renders absorption very active, which accounts for the deleterious effects of the sirocco while prevailing in marshy places abounding in malaria.

All weak constitutions suffer considerably under the influence of this wind; and patients with affections of the liver feel its baneful effects more than others.

To finish this short account of the sirocco, it remains to say something of its nature. In what does this wind differ from all others? and what is the cause of the peculiarity of action on the animal system? are questions which have not, as yet, been satisfactorily answered. Some observers, among whom is Dr. Holland, appear to entertain the opinion that electricity has a great deal to do in it. But, although the above opinion appears very probable, yet it requires many more facts and well-conducted experiments, before it can be admitted as true. However, it is an unquestionable fact, that during the prevalence of that wind electric meteors are very often observed in the atmosphere, such as falling stars, flashes of electric fluid, &c. I remember that when the sirocco was very strong, (I speak always of Sicily, where this wind is more violent than in any other part of the Mediterranean,) a slight friction against the fur of any living animal, or the shaking of woollen clothes, was sufficient to produce sparks of electric fluid. If, during the sirocco, the horizon be clouded, the most vivid and beautiful coruscations, lasting for several seconds at a time, are to be seen.

All these facts seem to render probable the opinion that the quantity of electric fluid is increased in the atmosphere during the sirocco; which, if we once admit, we can easily and satisfactorily explain the depressing power of the atmosphere during this wind; why rain almost always follows soon after it; why there is so much watery vapour in the atmosphere, so as to render it thick and hazy; why, during the sirocco, the thermometrical degrees of caloric do not keep pace with our sensations of heat; why sea-bathing almost always relieves the sensations produced by this wind, &c. &c.

II.

No. 1.

Flora of Corfu, extracted from Dr. Pieri's *Work*, "*Della Corcirese Flora, Centurie Prima, Seconda e Terza; ossia Storia di Piante Tre Cento, appartenente al Suolo dell' Isola di Corfu;*" *Corfu*, 1814; *folio*, *pp.* 141; to which I have added some remarks on the popular medicines of the peasantry.

Class.	*Order.*	*Name.*	*Remarks.*
1	1	Salicornia	S. herbacea. S. fruticosa
2	1	Ligustrum	L. vulgare.
—	—	Phillyrea	P. media. P. latifolia.
—	—	Veronica	V. spicata. V. arvensis. V. hederifolia
—	—	Verbena	
—	—	Salvia	S. nilotica. S. officinalis. S. orbinum. S. horminum. The fabulous virtues of this plant are still credited by the Corfiots.
3	1	Valeriana	Used in medicine, as with us. V. rubra. V. officinalis.
—	—	Crocus	Ditto; but under the terror of producing convulsions when taken in large quantity.
—	—	Gladiolus	
—	—	Iris	Used as a purgative in asthmatic cases. I. florentina. I. germanica. I. lutescens. I. pseudacorus. I. spuria. I. tenuifolia.
—	—	Cyperus	
3	2	Alopecurus	
—	—	Agrostis	
—	—	Aira	

Class.	*Order.*	*Name.*	*Remarks.*
3	2	Festuca	
—	—	Avena	
—	—	Lagurus	
4	1	Scabiosa	
—	—	Galium	
—	—	Asperula	
—	—	Rubia	Used in dyeing, and proposed in rickets.
—	—	Plantago	
—	—	Sanguisorba	Used as a mild astringent in internal hæmorrhage.
—	—	Cornus	
—	2	Hypecoum	
—	3	Ilex	
5	1	Heliotropium	Sometimes used externally in scrofula.
—	—	Anchusa	
—	—	Cynoglossum	C. officinale. Pills composed of the roots and the leaves are occasionally employed in fluor albus, gonorrhœa, and internal hæmorrhage.
—	—	Symphytum	
—	—	Cerinthe	The distilled water is much used as a wash in ophthalmia. C. major.
—	—	Onosma	
—	—	Borago	
—	—	Lycopsis	
—	—	Echium	
—	—	Cyclamen	C. europæum. The dry roots of this plant possess a caustic quality, and are formed into an irritating ointment known under the name of "astanita." When deprived of their causticity by maceration, they have been used as a substitute for bread in times of scarcity.
—	—	Anagallis	
—	—	Convolvulus	
—	—	Campanula	
—	—	Lonicera	L. caprifolium. The distilled water is employed in ophthalmia, and the decoction in colic, in the proportion of three ounces to one of orange-flower water.
—	—	Verbascum	
—	—	Datura	
—	—	Hyoscyamus	
—	—	Solanum	
—	—	Hedera	H. helix. The leaves, boiled, are employed in cleansing old ulcers, and in the cure of tinea capitis, and for the destruction of lice in children.
—	2	Chenopodium	
—	—	Gentiana	G. centaurium. The decoction is much used in intermittent fevers.
—	—	Bupleurum	
—	—	Tordylium	

Class.	*Order.*	*Name.*	*Remarks.*
5	2	Caucalis	
—	—	Imperatoria	
—	—	Smyrnium	
—	3	Viburnum	
—	—	Sambucus	S. ebulus. S. nigra. The electuary is used as with us.
—	5	Statice	S. limonium. When burned, affords a very pure soda.
—	—	Linum	
6	1	Galanthus	
—	—	Allium	
—	—	Ornithogalum	
—	—	Asphodelus	
—	—	Asparagus	
—	—	Juncus	Extensively employed in the manufacture of mats and cordage. I. acutus.
—	—	Scilla	
—	—	Hyacinthus	
—	3	Rumex	
—	—	Colchicum	The powder, mixed with vinegar, is used for dispersing tumours, especially of the eye: the oxymel is employed in diseases of the breast. C. autumnale.
8	1	Epilobium	
—	—	Chlora	
—	—	Erica	
—	3	Polygonum	
9	1	Laurus	The essential oil, procured by macerating the leaves, is much employed in pains of the abdomen, and for suppressed menstruation. L. nobilis.
10	1	Circis	
—	—	Ruta	
—	—	Tribulus	
—	—	Arbutus	
—	2	Saponaria	The root is used as a substitute for soap. S. officinalis.
—	3	Cucubalus	
—	—	Silene	
—	—	Stellaria	
—	4	Cerastium	
11	1	Lythrum	
—	2	Agrimonia	The peasants use the decoction in cases where cutaneous eruptions are repelled. A. eupatoria.
—	3	Euphorbia	
—	5	Sempervivum	
12	1	Myrtus	
—	—	Amygdalus	
—	2	Cratægus	
—	4	Pyrus	
—	5	Rosa	
—	—	Rubus	

Class.	*Order.*	*Name.*	*Remarks.*
13	1	Chelidonium	
—	—	Papaver	
—	—	Tilia	
—	—	Cistus	
—	3	Delphinium	
—	5	Nigella	
—	7	Anemone	
—	—	Clematis	The juice is much used as a blister and rubefacient. C. viticella. C. vitalba. C. flammula. This latter is the vesicatory.
—	—	Adonis	
—	—	Ranunculus	
—	—	Helleborus	
14	1	Ajuga	The juice is much used by the country people in the cure of wounds. A. reptans.
—	—	Teucrium	The spirituous or vinous tincture is strongly recommended as an assistant to Peruvian bark in intermittents. The decoction is very much in use among the peasantry for those diseases; the species they use is the T. chamædris. *Linn.*
—	—	Satureia	
—	—	Nepeta	
—	—	Mentha	
—	—	Lamium	
—	—	Stachys	
—	—	Phlomis	
—	—	Origanum	Much used as a condiment by the natives, and for dyeing wool purple. O. vulgare.
—	—	Thymus	
—	—	Melissa	The same virtues are attributed to it as with us. The peasantry cultivate it much, as food for their bees. M. officinalis.
—	—	Prunella	
—	2	Rhinanthus	
—	—	Antirrhinum	
—	—	Scrophularia	
—	—	Orobanche	
—	—	Vitex	
—	—	Acanthus	
15	1	Myagrum	
—	—	Draba	
—	—	Thlaspi	
—	—	Alyssum	
—	—	Biscutella	
—	2	Cardamine	
—	—	Cheiranthus	
—	—	Raphanus	
16	2	Geranium	
—	5	Sida	
—	—	Malope	
17	1	Fumaria	

Class.	*Order.*	*Name.*	*Remarks.*
17	2	Polygala	Employed in pleurisy and peripneumonia as in Germany. P. vulgaris.
—	3	Ononis	
—	—	Anthyllis	
—	—	Lupinus	
—	—	Pisum	
—	—	Orobus	
—	—	Lathyrus	
—	—	Vicia	
—	—	Ervum	
—	—	Cytisus	
—	—	Coronilla	
—	—	Hippocrepis	
—	—	Scorpiurus	
—	—	Galega	
—	—	Astragalus	
—	—	Biserrula	
—	—	Trifolium	
—	—	Lotus	
—	—	Medicago	
18	3	Hypericum	The peasantry express an oil from this plant which they call κοκινολαδον, and which they very much use in wounds. H. perforatum.
19	1	Geropogon	
—	—	Tragopogon	
—	—	Sonchus	Used as a substitute for lettuce. S. oleraceus.
—	—	Leontodon	
—	—	Crepis	
—	—	Lapsana	
—	—	Cichorium	
—	—	Cnicus	
—	—	Onopordum	The expressed juice is used in cancer. O. acanthium.
—	2	Tussilago	
—	—	Senecio	The expressed juice is a common remedy for worms. S. vulgaris.
—	—	Aster	Furnishes excellent soap, when burnt. A. tripolium.
—	—	Inula	
—	—	Bellis	
—	—	Matricaria	
—	—	Buphthalmum	
—	—	Anthemis	Greatly in use for the same purposes as with us. A. maritima. A. nobilis.
—	4	Calendula	
—	6	Viola	The roots possess the virtues of ipecacuanha, and are employed as a substitute for this plant in domestic medicine. V. palustris. V. canina. V. odorata. The odorata is the substitute for ipecacuanha.

Class.	*Order.*	*Name.*	*Remarks.*
20	1	Orchis	
—	—	Ophrys	
—	5	Arum	The root is used as a substitute for soap. A. arisarum.
21	10	Momordica	The elaterium is used as with us. M. elaterium.
22	6	Smilax	Possesses all the virtues of sarsaparilla. In cutaneous diseases it is particularly useful. The plant employed is the smilax aspera, *Linn.* The Greek name is "asmilaki koinon."
—	8	Mercurialis	
24	1	Adiantum	
—	—	Asplenium	
—	—	Polypodium	
—	—	Acrosticum	

III.

Extract from the History of Gregory of Tours referred to at p. 192.

22. "Nam sicut superius diximus, Massiliensis urbs *contagio* pessimo ægrota quanta sustinuerit, altius replicari placuit. His enim diebus Theodorus episcopus ad regem abierat, quasi aliquid contra Nicetium patritium suggesturus. Sed cum a rege Childeberto minime de hac causa fuisset auditus, ad propria redire disposuit. Interea navis ab Hispania una cum negocio solito ad portum eius adpulsa est, quæ hujus morbi fomitem secum nequiter deferebat; de qua cum multi civium diversa mercarentur, una confestim domus in qua viii animæ erant, hoc *contagio* interfectis habitatoribus relicta est vacua. Nec statim hoc incendium luis per domos spargitur totas; sed interrupto certi temporis spatio, ac velut in segetem flamma accensa, urbem totam morbi incendio conflagravit. Episcopus tamen urbis accessit ad locum, et se intra basilicæ sancti Victoris septa continuit cum paucis qui tum cum ipso remanserant, ibique per totam urbis stragem orationibus ac vigiliis vacans, Domini misericordiam exorabat, ut tandem cessante interitu, populo liceret in pace quiescere. Cessante vero hac plaga mensibus duobus, cum jam populus securus redisset ad urbem, iterum succedente morbo, qui redierant, sunt defuncti, sed et multis vicibus deinceps ab hoc interitu gravata est."—*Gregorii Turonici, Historia Francorum,* lib. ix. sect. 22. Basil, 1568, 8vo.

IV.

No. 1.—*Statement of Diseases, Admissions, Discharges, and Deaths, in the Military Hospitals at Corfu, from 21st July, 1815, to 20th December, 1821.*

DISEASES.	1815.			1816.			1817.			1818.			1819.			1820.			1821.		
	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.
Feb. Quotid. Intermittens.	..	..	..	..	..	..	56	63	1	59	59	..	55	51	4	63	66	..	109	90	..
„ Tertiana „	..	..	..	..	..	..	76	69	..	39	37	..	39	39	1	36	37	..	97	87	1
„ Quartana „	..	..	..	..	..	..	2	2	..	4	..	..	3	3	..	1	2	..	7	7	..
„ Remittens „	114	96	18	719	688	29	202	167	32	136	118	17	59	46	11	40	41	4	130	89	8
„ Cont. Coms.	111	128	..	303	286	4	293	302	2	546	539	4	838	821	19	590	583	5	618	605	6
„ Synochus	..	..	..	..	..	..	1	1	..	10	8	2	..	..	..	..	..	..	..	..	..
„ Typhus	..	..	..	..	..	..	..	..	..	2	..	1	..	1	1	..	1	..	..	..	..
Phlegmon et Abscessus	5	3	..	6	4	..	49	50	..	40	40	..	103	101	1	96	96	..	101	97	..
Paronychia	..	..	..	..		..	..	..	..	..	..	..	1	1	..	1	1	..	7	7	..
Phrenitis	..	..	..	..	..	..	..	..	..	..	..	..	3	2	1	..	..	..	1	1	..
Cynanche Tonsillaris	..	..	..	..	..	.	5	5	..	3	3	..	10	10	..	12	12	..	10	9	..
„ Parotidæa	..	..	..	..	..	..	1	1	..	2	2	..	2	2	..	..	..	..	1	..	..
„ Pharyngea	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
Pneumonia	22	20	1	49	47	..	28	26	..	56	57	..	79	74	..	90	91	1	120	96	2
Peritonitis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..
Gastritis	1	..	1	..	..	..	1	1	..	..	..	..	..	..	..	11	11	..	..	..	..
Enteritis	..	..	..	1	..	..	2	2	..	2	2	..	5	3	1	25	22	4	..	..	..

Hepatitis Acuta	..	..	..	6	5	..	14	14	..	7	7	..	15	16	..	9	7	..	14	12	..
„ Chronica	..	..	..	6	8	3	15	12	3	8	9	1	5	4	..	7	7	..	18	18	1
Nephritis	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
Otitis	..	..	..	..	..	..	5	5	..	1	1	..	1	1	..	5	5	..	4	4	..
Rheumatismus Acutus	..	..	..	10	9	..	20	21	..	26	23	1	31	29	..	49	52	..	16	15	..
Rheumatismus Chronicus	..	..	..	7	6	..	32	32	..	27	26	..	30	31	..	17	15	..	64	59	..
Odontalgia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3	..	..	..	..
Rubeola	..	..	..	.	..	..	..	..	..	1	..	..	5	6	..	..	..	..	..	..	..
Scarlatina	..	..	..	..	..	..	..	..	..	..	.	..	2	2	..	..	..	..	..	..	..
Pestis	..	..	..	28	3	25	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Erysipelas	..	..	..	..	..	..	2	3	..	3	1	..	5	5	..	1	1	..	3	1	..
Urticaria	..	..	..	..	..	..	..	..	..	1	..	..	1	1	..	..	..	..	..	..	..
Epistaxis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..
Hæmoptysis	..	..	..	1	2	..	4	2	..	3	3	1	3	3	..	2	2	..	7	5	..
Phthisis Pulmon. Tuber.	..	..	..	15	9	4	6	5	7	12	4	8	7	4	3	9	1	5	17	13	6
Hæmorrhois	..	..	..	3	4	..	5	6	..	11	10	..	7	6	..	7	9	..	9	9	..
Catarrhus Acutus	..	..	..	8	7	..	35	35	..	25	25	..	28	26	..	14	16	..	31	26	..
„ Chronicus	..	..	..	4	4	..	14	13	..	4	5	..	..	..	..	..	..	..	6	5	..
Dysenteria Acuta	32	33	1	76	76	4	139	126	5	185	184	4	130	125	4	128	121	4	115	113	3
„ Chronica	..	..	..	..	..	..	12	9	3	15	15	1	12	12	..	5	5	..	42	31	3
Apoplexia	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..
Paralysis	..	..	..	2	..	..	2	3	1	1	2	..	3	3	..	1	1	..	1	1	..
Dyspepsia	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	2	2	..	2	2	..
Tetanus	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..
Epilepsia	12	15	1	4	4	..	4	1	2	6	3	1	3	2	..	5	5	..	8	6	..
Asthma Period. Con.	..	..	..	1	1	1	..	..	..	..	..	..	..	..	..	2	2	..	2	1	..
Dyspnœa Continua	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..
Pyrosis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..
Colica	..	..	..	..	..	..	5	5	..	11	11	..	11	11	..	7	5	1	8	9	..
Cholera Morbus	6	4	..	1	..	1	2	2	..	18	17	..	13	12	1	27	26	1	14	8	1
Diarrhœa	13	11	..	38	37	..	114	113	1	125	125	..	57	59	..	92	92	..	166	148	1
Mania	..	..	..	..	..	..	1	1	..	..	1	..	2	..	..	2	3	..	2	2	..
Atrophia	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	4	2	1	..	1	..

DISEASES.	1815.			1816.			1817.			1818.			1819.			1820.			1821.		
	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.
Anasarca	..	.	..	1	1	..	4	5	..	1	..	..	6	5	..	1	1	1	3	1	1
Hydrothorax	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
Ascites	6	3	1	..	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hydrocele	..	..	..	..	..	..	..	..	..	1	..	..	2	2	..	..	..	..	..	..	..
Physconia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11	11	..
Vermes	..	..	..	..	..	..	..	..	..	1	1	..	4	4	..	6	6	..	..	..	..
Scrofula	..	..	..	8	7	..	5	4	..	2	3	..	10	11	..	12	11	..	2	3	..
Syphilis Primitiva	..	..	..	..	..	..	104	91	..	59	76	..	31	36	..	30	25	..	8	13	..
„ Consecutiva	..	..	..	..	..	..	1	2	..	1	1	..	4	3	..	..	..	..	..	..	..
Ulcera Penis, Non Syph.	..	..	..	..	..	..	2	2	..	10	13	..	9	10	..	33	29	..	27	23	..
Bubo Simplex	..	..	..	..	..	..	2	..	..	10	6	..	20	18	..	14	12	..	13	14	..
Cachexia Syphiloidea	..	..	..	..	..	..	1	..	..	..	1	..	1	1	..	2	2	..	9	9	..
Scorbutus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	7	6	..
Icterus	..	..	..	..	..	..	11	11	..	20	20	..	4	5	1	6	6	..	2	2	..
Dysecœa	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..
Contractura	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	1	..
Gonorrhœa	..	..	..	26	21	..	87	89	..	45	47	..	42	44	..	27	24	..	52	53	..
Hernia Humoralis	9	14	..	8	4	..	9	11	..	21	22	..	22	22	..	13	12	..	13	10	..
Strictura Urethræ	..	..	..	..	..	..	2	1	..	2	2	..	2	2	..	..	..	..	2	1	..
Sarcocele	..	..	..	..	..	..	1	2	..	..	..	..	..	..	..	..	..	..	2	1	..
Obstipatio	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	1	1	..	9	3	..
Ischuria	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	1	1	..	..	..	..
Dysuria	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..

Aneurisma	..	..	..	..	..	..	1	1	..	..	..	..	1	..	1	..	..	..	..	..	..
Calculus Vesicæ	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
Varix	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Cancer	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
Tumores Alii	17	14	..	7	7	..	8	7	..	74	72	..	28	30	..	2	2	..	7	6	..
Verrucæ	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..
Hernia	2	1	..	..	..	..	..	..	..	..	..	..	2	1	..	..	..	..	..	..	..
Luxatio	..	..	..	1	1	..	3	4	..	2	2	..	..	..	..	1	1	..	2	2	..
Subluxatio	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	4	4	..	11	9	..
Vulnus Sclopit.	..	..	..	..	..	..	4	3	..	..	..	..	5	5	..	4	4	..	..	..	..
„ Incisum	..	..	..	..	..	..	38	24	1	31	31	..	31	24	1	34	40	..	25	24	..
Contusio	70	82	..	253	247	1	113	114	..	112	100	..	130	128	2	134	131	..	116	124	5
Ambustio	..	..	..	..	..	..	3	3	..	1	1	..	6	6	..	1	1	..	7	7	.
Ulcus	82	73	..	161	173	..	120	127	..	149	148	..	191	192	..	122	120	..	165	147	..
„ Grave.	..	..	..	2	..	1	2	2	..	1	1	..	1	1	..	..	..	..	..	..	..
Fractura	2	..	1	1	1	1	3	4	..	7	6	..	1	3	..	3	3	..	14	10	..
Amputatio	1	1	..	..	..	..	..	1	..	2	1	1	..	..	..	..	..	..	..	..	..
Punitus	121	118	..	114	121	..	80	74	..	117	118	..	166	169	1	114	115	..	132	119	..
Morbi Oculorum	35	45	..	77	78	..	74	72	..	62	63	..	108	108	..	163	163	..	62	58	..
Morbi Cutis	32	30	..	217	220	..	138	139	..	29	31	..	31	27	..	11	16	..	43	41	..
Febris Intermitt.	130	131	3	218	204	..	28	32	..	..	..	..	..	..	..	..	..	..	..	..	..
Hepatitis	8	8	..	23	15	1	4	3	1	..	..	..	..	..	..	..	..	..	..	..	..
Rheumatism	57	51	1	78	89	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Pulmonic	24	11	6	36	23	20	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diseased Viscera	17	18	1	27	25	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..
Œdema	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	5	..	..	..	..
Pneumatosis	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..
Hemicrania	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..
Hæmatemesis	..	..	..	..	..	..	1	..	..	1	2	..	..	..	..	..	..	..	..	..	..
Tinea Capitis	..	..	..	1	1	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..
Caries	..	..	..	..	..	..	2	5	..	1	..	1	..	..	..	..	..	..	..	..	..
Cephalalgia	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	1 3	11	..
Paraphymosis	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..

DISEASES.	1815.			1816.			1817.			1818.			1819.			1820.			1821.		
	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.
Angina	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3	..	..	..	..
Leipothymia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..
Concussio	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..
Rachitis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..
Fistula	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	3	3	..	..	..	..
Vomitus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Dilatation of the Heart	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Retentio Urinæ	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Rupture of the Aorta	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Excoriations	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3	..
Venereal	124	108	1	214	218	..	34	39	..	..	..	..	..	..	..	..	..	..	..	..	..
Wounds	28	31	..	66	62	..	6	7	..	..	..	..	..	..	..	..	..	..	..	..	..
Dislocation	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..
Sprains	11	9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Debility	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ebrietas	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
Killed by a Blow	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Podagra	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Total	1093	1058	36	2827	2719	101	2042	1990	61	2155	2107	44	2434	2373	55	2122	2093	28	2518	2297	36

No. 2.—*Average Strength of the Garrison of Corfu, from* 21*st July,* 1815, *to* 21*st December,* 1821; *and of the daily Number of Sick.*

Years - - - - - - -	21st July to 20th Dec. 1815	1816	1817	1818	1819	1820	1821
Strength of the Garrison	2867	2989	1821	1670	1898	1684	1785
Average daily Number of Sick	116	112	105	86	92	99	126

No. 3.—*General State of the Weather from June* 1818 *to December* 1821.

Years	Thermometer		Prevailing Winds, and State of the Weather.	General Remarks.
	Max.	Min.		
1818	89	44	Wind N.W. and S.E. Fine till towards the end of September, followed by rain. End of October, much rain with thunder. November terminated in the same manner. Continued bad weather through December.	Earthquake 15th Dec.
1819	88	48	S. and S.E., changing to N.W. Frost in January, followed by heavy rains. Snow and rain towards the close of February. Beginning of March wet. April generally fine. May and June variable, with storms and rain. Autumn fine. Rain the beginning of September. A good deal of rain, with variable weather during last quarter.	
1820	91	50½	S.E. and N.W. January and February rainy and stormy. March very cold, with rain at intervals. Second quarter some fine weather, but generally wet and stormy. July, August, and September close and sultry with only seven days' rain. End of October and end of December, wind with rain and thunder.	
1821	85	44	S.E. and N.W. Much rain in February. Remainder of first quarter variable. Second quarter also variable. Much rain about the end of May. June damp and cloudy, with some thunder. Some rain the end of August, and in September. The end of October stormy with rain and thunder. November generally mild. Cold and wet the middle of December, with heavy rains towards the end.	

THE

MEDICAL TOPOGRAPHY

OF

CEPHALONIA.

THE

MEDICAL TOPOGRAPHY OF CEPHALONIA.

"Sameque, et Neritos ardua saxis."—*Æneid*, iii. 271.

"———— Stern Cephalonia braves
The beating storm and ever restless waves:
In awful state erects her rugged brow,
Where mountain plants in wild profusion grow."—*Horæ Ionicæ*, p. 32.

SECTION THE FIRST.

NAME.

This island was, in the days of Homer, known under the names of Same and Samos, and along with Ithaca formed a part of the dominions of Ulysses. Strabo calls it Chefalli, and it is mentioned under the name of Epirus Nigra, and Melone or Μελαινα by Pliny. At present, the English appellation of the island is Cephalonia.

A great diversity prevails in the pronunciation and spelling of this name: some sound the initial letter hard, others soft; some sound it like the English letter *s*, and others again give it the power of the Italian *ch*. In the accentuation, also, there is great diversity, some making the last syllable long, others short, &c. &c.; so that it is reckoned there are no fewer than thirty modes of pronouncing or spelling the name, insomuch that a stranger who prosecutes his inquiries among numerous individuals, could scarcely suppose by their answers that they all referred to one and the same place. Much of this, especially among the English, is pure affectation, and as ridiculous as if, in speaking our mother tongue, we were to call Paris *Părĭ*, or London *Lŏndrĕs*.

SITUATION, EXTENT, &c.

Cephalonia is about thirty miles distant from the mouth of the gulph of Lepanto, on the main land of Greece. Santa Maura lies off its northern extremity. Zante is situated at its southern extremity; and between it, and the coast of Greece on the east, lies Ithaca; while on the west it is washed by the Mediterranean high sea. From the nearest point of Santa Maura (the celebrated Leucadian promontory, or Sappho's Leap) to the most northerly point of Cephalonia, Cape Guiscardo is little more than eight miles. From the nearest point of Zante to Cape Scala, the southern extremity of Cephalonia is about ten or twelve miles. The strait which divides it from Ithica, except where it forms the bay of Samos, is not more than two or three miles across. The capital stands in north latitude 38° 8′ and in 21° 18′ east longitude.

Cephalonia is the largest and most populous island of the septinsular union. Mr. Muir states it at nearly one hundred and sixty miles in circumference, St. Sauveur at sixty leagues, or one hundred and eighty miles. Its shape, according to the latter author, is oval, but an inspection of a map will shew that this is not its real shape; it is very irregular, one long and pointed slip of land turns from its northern extremity towards the north-west, assuming an irregular curved shape abruptly inclining towards the south, and enclosing the harbours of Argostoli, Livadi, &c. It is obvious that natural objects are not governed by artificial rules, but if we are to assign shapes to objects of geographical pursuit, I should say that, standing at the northern end of the map, we might compare the island to a large turtle, or some unwieldy fish in the act of stretching out one fin and going to dive or tack in the water, the curved south-western promontory representing the head, and the longitudinal ridge of mountain describing the centre of the animal's back or shell. However this may be, I shall presently shew that some singular effects result from the peculiarity of shape.

In the funnel-shaped canal of Corfu, I have already shewn that the winds are as variable as can be imagined. In Cephalonia, on the contrary, they blow with great regularity: here

also we observe the uncommon fact of a large body of water uniformly flowing against the wind, a phenomenon proceeding altogether from the shape and position of the harbour. All these combined circumstances have a very great effect upon the health of the inhabitants of the capital.

DIVISIONS.

In former times Cephalonia was divided into four regions, each named after an ancient city *, and hence it was called Tetrapolis. At present it is divided into twelve cantons, viz., Erizzo, Tinea, Samos, Anoi, Pilaro, Kaloi, Livadi, Potamiana, Ikongia, Skala, and Pirie.

MOUNTAINS.

The general character of Cephalonia is extremely rugged and mountainous. The general direction of the mountains is from south to north; at the southern extremity of the range, or opposite the coast of Zante, is the highest mountain in the Ionian Islands, the mountain Ænos of antiquity, the modern Black mountain, or Montagna Negra. Mr. Muir measured it from two different bases, and found it to be 3625 feet above the level of the sea. His remarks upon this mountain, and upon the mountain scenery in general, are so very interesting, that I shall here transcribe them.

"The general aspect of the mountains is arid and barren, some of them without a trace of vegetation, presenting, from the bottom to the top, nothing but a rugged variety of brown and grey rock, with perhaps here and there a solitary olive tree growing from a fissure betwixt them. What little soil they may have formerly been covered with, has either been washed down by the rains, or if found in the interstices and fissures, been carried down to cover the crusts of rock appearing through the scanty soil in the vallies below. On many of the mountains you find large blocks of various dimensions of a hard calcareous stone, sometimes isolated, and sometimes in groups. I found them upon the tops of the highest in great abundance. I ob-

* Samos, Palæa, Pronos, Cranii.

served that they were in general more rounded than angular, and evidently bore marks of having suffered by the attrition from rolling in water, which, there can be little doubt, must have been sea-water, from the number of marine fossil shells found deposited in the rocks at various elevations all over the island. It is to be remarked also, that these blocks appeared much more compact than the rock of the mountain itself, which is also calcareous, and I think in all probability they are the debris of former mountains, perhaps of the continent of Greece itself, lodged there by currents before the island appeared above the level of the sea; for that the whole of the island has been under water, indeed that it is a deposit from the sea itself, I have very little doubt.

"The top of Montagna Negra is usually covered with snow about the beginning or middle of December, which seldom disappears from its summit before the beginning of May. I shall here mention the remarkable appearance, and rather a curious circumstance, connected with the Montagna Negra. As the loss of the Bosco is looked upon by the inhabitants as a cause of disease, all agree in saying that diseases were not so frequent before the destruction of the wood on the Black Mountain. This mountain, in the recollection of many of the present inhabitants, was covered nearly to its summit, on the north side with forest trees, principally fir and cypress, which about twenty-seven years ago were completely destroyed by being set fire to by some evil disposed persons of one of the factions. Ever since then, say the inhabitants, the whole island, but especially the neighbouring valleys, have been subject to greater atmospherical vicissitudes in consequence of winds and storms, &c., having room to collect and rush down on the plains below with unimpeded velocity and fury. At this moment the north side of this mountain presents a very extraordinary, and to me melancholy sight. Conceive the whole sloping side of a high mountain, for miles, thickly studded with the bleached trunks of trees entirely denuded of their bark, and without a leaf, many of them, from thirty to forty feet high, presenting themselves, by their various forkings and withered branches, under the most grotesque and even hideous forms."

RIVERS, LAKES.

THERE is no stream in the island deserving the name of river, and there are only two or three which continue to flow during the summer months. Many ravines or fiumares, as they are called, pour their contents into the harbour, and all round the coast, when swelled by the winter rains.

There are two pools or basins about thirty yards in diameter on the side of one of the mountains, that run off from Mount Ænos, which feed the rivulets already mentioned as flowing the whole year. They are extremely deep, and are popularly supposed to be merely the openings of a large subterraneous lake. From the smallness of their surface, and their distance from the habitations of man, they cannot affect the health of the inhabitants directly; indeed, they must rather conduce to it, as they furnish a rapid stream which turns several mills in its course, and affords an abundance of good water for culinary and domestic purposes.

It is to the lagoons which exist at each extremity of the harbour of Argostoli, and to the fiumares or mountain gullies in the vicinity, that the malarious exhalations, as they affect the troops, are principally to be traced.

An arm of the sea, about three miles in breadth, enters at the west end of the island, and extends in a northerly direction for about nine miles, where it terminates in a low, marshy bay, the bay of Livadi. After this arm of the sea has penetrated about two miles up the country, an inlet runs off from it in a south-easterly direction, doubling back as it were on the great entrance, and extending nearly three miles, where it terminates in a marshy bay, the bay or lagoon of Cutavo. This inlet forms the fine harbour of Argostoli; it is nearly a mile broad, and is sheltered by lofty mountains on the north-eastern side, and by the ridge or tongue of land on which the town of Argostoli is built on the south.

Until judicious means are taken to drain the edges of the lagoon, it must ever be a source of the most deleterious miasmata; nor would much assistance from art be necessary, for it is rapidly filling up every year. The value of the recovered

ground would be a great temptation to speculators, but they should be compelled to enter into articles to keep the portions they reclaim in proper order for a given number of years. I have conversed with many well informed persons on the subject; they are unanimously of opinion that nothing would be easier than to drain nine tenths of the lagoon, leaving merely a canal in the centre to carry off the water from the underground springs.

At Livadi, which lies at the northern extremity of the bay, at the distance of about eight or nine miles from the town of Argostoli, there is a very extensive marsh, three miles long by one broad, abounding in aquatic plants, and being the resort of innumerable flocks of wild fowl; it is the great scene of amusement of the officers of the garrison.

CLIMATE.

I SHALL now speak of the climate of Cephalonia; and combining this with what I have already said under the preceding head, we shall have a ready explanation of the effects produced on the human constitution by a residence there. The climate, by those who have long known it, is said to be more variable than that of any other island of the septinsular union. By inspection of a map of the coast, we see the relative position in which Cephalonia stands to the gulf of Lepanto, in which the north-eastern winds are extremely violent and frequent during the winter months. These winds, at that period of the year, exert their influence very sensibly on the island. In summer they are much more regular; at that time of the year they generally blow from sun-rise till after mid-day from some point between the east and south, very often from the south-east or sirocco. From mid-day to midnight they generally blow from a point between north and west, frequently from the north-west; after midnight and until sun-rise, it is a general calm. Now, it is obvious, that all these winds must convey the miasmata of marshes to the town of Argostoli, which is encircled by them on all sides. When they blow over the adjacent lagoon of Cutavo, they come with undiminished power upon the town. When they blow from the more remote marsh of

Livadi, although the distance is such as to neutralize the effects of the exhalations from that unwholesome spot in a very considerable degree before they reach Argostoli, yet the continued action of the wind must naturally convey a portion of these vapours to the town, especially when in its course it sweeps along the mountains that bound the harbour on its north-eastern shore, and collects in its progress the malarious vapours which arise from every ravine, and from the bed of every winter torrent that indents their precipitous sides.

Did we not look at the plan of the harbour, we should consider as something paradoxical the assertion, that the water of the lagoon of Cutavo flows against the wind. The assertion, however, is true, and it is very easily accounted for. The doubling back upon itself of the inlet of the sea which forms the harbour, brings it into such a position, that the wind which blows up the main entrance of the harbour, blows down the lagoon. Now when the wind forces a large body of water up the entrance, that mass of fluid presses *undiquaque*, and altogether it is met by the very same wind which has forced it in, so soon as it turns the corner of the tongue of land forming the port of Argostoli; yet the hills at the southern extremity of the Lagoon break the force of the wind so considerably, that the water flows against it, being still impelled by the *vis a tergo*, which continues to act upon the body of water at the great entrance with undiminished force. On the other hand, when the wind blows down the harbour from Livadi, towards the mouth of the inlet, although it is evident that it blows in a direction up the port of Argostoli, yet it forces the water out into the Mediterranean with such power, that to supply its place the body of fluid in the inlet of Argostoli flows downwards towards the sea. This frequent agitation of the water must certainly tend, in a great degree, to obviate the ill effects of the lagoon, which would otherwise be almost stagnant.

The thermometer in the shade varies on the average of twenty-four hours from 52° in winter to 78° in summer. In the forenoon of July and August, however, it is sometimes up to 86° or 88°, but generally speaking, with a fresh breeze at north-west, it ranges in these months from 74° to 80°. This degree of heat must occasion a corresponding degree of evapo-

ration from the surface of all the marshy grounds in the neighbourhood of the town, and must exert a considerable influence on the health of the inhabitants. On my first inspection of the lagoon of Cutavo in March, 1822, when the thermometer in the shade was no higher than 56°, many insulated points of mud presented themselves above the surface of the water, and the whole neighbourhood emitted a very fœtid smell. But in summer, when in the open air, the thermometer, under the influence of reflected heat, often rises to 116°, and occasionally to 120°, and when, from the fall of the water of the lagoon, an extensive surface of mud and slime, composed of vegeto-animal matter, is exposed to the action of a vertical sun, the exhalations which load the atmosphere may, without exaggeration, be denominated pestilential. When I come to speak of the houses and barracks, it will be seen how little shelter they afford against these deleterious vapours.

As at Corfu, rain falls at all periods of the year, but November is the month which, if we are to apply the term "rainy season" to the Ionian islands, may be denominated so. About the beginning of this month rain falls down in torrents, accompanied with severe storms of thunder and lightning. This state of the atmosphere lasts from four to six days, and is succeeded by a delightful, mild season called the little summer. At this period the thermometer generally ranges from 61° to 70°, so long as the wind continues westerly, but this state of the mercury is far from being steady. Mr. Muir assures me, that he has witnessed a variation of 15 degrees in a few hours; and he once observed, within two hours, a variation of 22 degrees. The day was uncommonly fine, thermometer 68°, sky clear, but suddenly the air felt cool, the sky became cloudy, and it ended in a hail storm, the glass falling to 45°.

Snow begins to appear on the mountains about December, and is not entirely melted before May. It generally falls with a north or north-east wind. I have not been able, from any documents in my possession, to give such a Meteorological Table for Cephalonia, as I have for Corfu; but annexed to the return of diseases will be found some general observations upon that subject.

EARTHQUAKES. SOIL. EXHALATIONS.

Earthquakes frequently happen, but rarely do much injury. They seldom last more than three or four seconds. They are most frequent in summer when the sirocco wind blows, and they are generally accompanied or preceded by a rustling noise in the air.

The most severe, according to St. Sauveur, occurred in the years 1736, 1743, and 1752, and were very destructive, especially in the northern parts of the island. In the year 1818, 1819, 1820, and 1821, the shocks were very frequent and often severe.

The general character of the soil throughout the whole island is generally apparently decomposed calcareous rock, light, and of little depth. In some of the deeper vallies and ravines there are some fine beds of rich alluvial soil, mixed with fine red mould, called "terra rosa." I have seen this substance employed in the town of Argostoli as a cement for covering the roofs and floors of houses, and as a substance for mortar; it is mixed with water and well beat up, and occasionally lime is added.

The soil in the district of Lixuri is a heavy grey argillaceous matter, in some cases approaching to the nature of schistus, and much used for making tiles, bricks, and coarse earthen ware.

Where the soil is not tenacious of water, there miasmata are found in greatest abundance; the neighbourhood of a fiumare always abounds with them, as is the case close to the town of Lixuri. But above all, the two marshes already mentioned, as existing at each end of the harbour, emit the most deleterious exhalations in the summer and autumnal months. St. Sauveur asserts that the smell of the wells is often very sulphureous. I can, from my own experience, verify this, with regard to some of those at Argostoli.

VEGETABLE, ANIMAL, AND MINERAL PRODUCTS.

The vegetable productions of Cephalonia are nearly the same as those of Corfu, but horticulture is not by any means car-

ried to such an extent. They prepare a considerable portion of oil and wine of a very good quality. The currant also abounds.

M. St. Sauveur, in describing Cephalonia, speaks of three remarkable plants, but he does not give the names, nor any botanical characters, by which to trace them. The first dyes the teeth of the goats and hares which crop it of a bright golden yellow, and the milk of goats with teeth so dyed is said to be of a superior quality. I in vain inquired for the plant; no one could say what it was, but they all agreed in the fact. The second plant St. Sauveur speaks of as turning gold to a whitish colour, as if it had been touched with mercury, I could obtain no information of this plant. Of the third, the medicinal powers are reported to be very valuable. Mr. Muir supposes it to be the *Atropa Mandragora.* In the hands of a native empiric, named Zulatti, and by a remedy of which this plant is supposed to have been the basis, gout is asserted to have been cured in numerous instances. Under the head "Empirics" I shall enlarge a little on this subject. St. Sauveur says, that the trees of the black forest, now destroyed, yielded in spring as good manna as that of Calabria. In the Appendix is given a Flora of Cephalonia, with some remarks on the plants used in popular medicine, compiled from a catalogue furnished me by Hospital Assistant Muir, and from the work of Dr. Dellaporte, on the botany of this island, which I shall notice hereafter.

Their animals are also the same as in Corfu. Their bullocks are imported from the Morea, and few, if any, black cattle are reared or kept in the island, owing to the great scarcity of pasture. Goats and sheep are substituted, and there are considerable herds of them; but although Ælian asserts, lib. 3, cap. 32, that these animals do not drink in Cephalonia for six months of the year, they do not differ in that respect from the rest of their species; much use is made of their milk, both as food when fresh, and for the manufacture of cheese for home consumption and exportation to the other islands. Aquatic birds and migratory game abound. Fish is said to abound on the coast. In the harbour the ordinary fish are grey and red mullet, ink fish, and an occasional ill-shaped oyster. Their fisher-

men are far from expert. I saw a few Maltese emigrants who are much more successful than the natives.

None of the metals have been hitherto found in Cephalonia, nor have any specimens of rock been discovered after the most minute examination, except those of a calcareous nature, merely differing from each other in compactness, which seems to be influenced principally by exposure to the air. Small crystals of the sulphate of lime are occasionally found, but they are very brittle, and generally of a yellowish tint. Stalactitical depositions are found in considerable quantity in some caves near the coast. Their colour is of a greenish white, and they are remarkable for their hardness. Mr. Muir shewed me several when at Argostoli, and I am daily looking for specimens for our infant collection.

There is only one mineral spring known to exist in the island. It issues from a rock close to the sea; its taste is highly sulphureous; and it is occasionally used by the peasants both internally and externally as a remedy in psora.

AGRICULTURE. MANUFACTURES. ROADS.

As a science, agriculture cannot be said to exist in Cephalonia. Their implements are of the same primitive kind as those of Corfu. Their plough cannot be said to do more than scratch the surface of the ground. Potatoes * are not cultivated, nor are turnips, nor any of the grasses.

It is the vine, the olive, and the currant, to which they pay most attention. Mr. Muir informs me that in consequence of the high price of currants for some years back, the cultivators of that fruit at Cephalonia have adopted the plan of ingrafting the currant on the grape-vine stock, by which means they procure a crop in the third or fourth year, instead of waiting seven or eight, which it would otherwise require to bring the fruit to perfection. It is said that after some years these plants degenerate. They cultivate the common vine to a considerable extent, and export the dried fruit largely. The wine of Cephalonia is good, and sufficient for the consumption of the

* According to Dr. Holland, the culture of the potatoe was opposed by the priests, who represented that it was the identical fruit with which the serpent tempted our first parents.

island. The crops of grain are very limited, and do not furnish more than three or four months' consumption; the rest is imported from the Morea. The oil is good, and it and wine are the staple commodities of the country. They raise a good deal of cotton, and some flax. An attempt was some time since made to introduce English agricultural implements, but the natives could not use them, and in their hands they were much less effective than their own.

The manufactures of Cephalonia are but few. Their wine and oil I have already mentioned. There are two celebrated manufactures of liqueurs, much esteemed all over the Mediterranean, owing their high flavour to the aromatic plants with which the island abounds. They export a small quantity of brandy of native manufacture. They also manufacture coarse cloths and nankeens, and a small quantity of silk. They make a coarse carpeting of goats' hair and wool, but not to any great extent. They also manufacture blankets. Besides these branches, there are a few working silversmiths, tinmen, and other ordinary tradespeople in the town.

In the immediate vicinity of Argostoli and Lixuri there are some tolerable modern roads; but in the interior they have been very bad, but are now rapidly improving: there are scarcely any cross roads. The communication between the inland villages is by foot-paths along the edges of ravines. All the land carriage of the country is by mules and asses, but there is a considerable communication kept up by boats and country vessels.

POPULATION.

The population of Cephalonia is generally said to be about 60,000, but from official documents, compiled within the last few years, I find it much lower.—

It consists of Boys under 16 years of age	10,808
Men under 60	13,717
—— above 60	2,069
Girls under 16	9,094
Women under 50	11,981
——— above 50	3,329
Natives absent on business	2,238
Total	53,236

TOWNS.

The two principal towns are Argostoli and Lixuri, besides which there are 134 villages scattered over the face of the country.

Argostoli is built upon a slip of level ground upon the western shore of the harbour, at the foot of a narrow promontory or tongue of land about three miles and a half long, and not exceeding two miles in length at its broadest part, and gradually becoming narrower till it terminates in that point which forms the north-west extremity of the harbour. The town lies about the centre of this ridge. It consists of two main streets which run north and south, and a number of cross streets and lanes. The principal street, or that next the water, is about one mile and a quarter long and twenty feet wide; the other not nearly so long. As the town is open and unwalled, it is not easy to ascertain its circumference correctly; from the number of new houses which I saw in progress, I should suppose it was rapidly increasing in size, but at the time of my last visit I conceive it did not exceed three miles in circumference. The streets are all very narrow, but tolerably well paved, and with several common sewers, not, however, constructed on the most scientific principles. The houses are generally two stories high, fronting the north-east. They are built of stone, cemented with lime and the terra rosa already mentioned, and covered with tiles. The general average size of the rooms is about fourteen feet superficial square, and they are very low. The ceilings are unplastered, the floors are almost universally of wood; the windows are glazed, but in a loose manner, and without putty.

The soil on which the majority of houses are built is gravelly, but some are built on "made ground" recovered from the sea; these houses are principally to be met with about the wharfs and moles at the southern end of the town, which is decidedly more unhealthy than the northern. The hills which rise behind the town are thickly planted with the currant and the vine to the distance of about 120 or 130 feet up their sides, and interspersed with olive trees, but above that level they are bleak and precipitous.

The town of Lixuri (the ancient Palæa) is not a station for

the troops; it is nearly of the same general characters as Argostoli; but cleanliness is much less attended to. It is situated on the shore of that branch of the harbour which runs northward, on an argillaceous schistous soil. By the statistical returns to which I have had access, the number of inhabitants of Argostoli, exclusive of the troops, was, a few years ago, somewhat more than 3,500. That of Lixuri somewhat more than 4,800.

BEDDING, CLOTHING, FURNITURE, DIET, EMPLOYMENTS, CUSTOMS, &c., &c.

Under the head bedding, clothing, and furniture, I have nothing to add to what I have already said of Corfu.

The same may, generally speaking, be said of their mode of domestic living, their employments, amusements, customs, morals, education, and rearing of children. There are a few peculiarities, however, under some of those heads, which I shall briefly notice. Fuel is scarcer and dearer in Cephalonia than in Corfu; it consists solely of wood. Indian corn bread is baked by the natives in small ovens, heated by the prunings of their vines, and of this they consume about two pounds and a half daily, with olives, salt fish, garlic, fruit, or the leaves of vetches, wild peas, &c., boiled and beat up like spinach, with a little oil. They very seldom use animal food, but the enormous quantity of grapes they consume is almost incredible. I am credibly assured, that in the time of vintage they devour on an average twelve pounds of the ripe fruit daily, and without producing any disagreeable consequence, as their immoderate use does in strangers; on the contrary, it obviously tends to fatten them. The common drink is new or sour wine, which is procured at about 1*d.* sterling per pint.

I observed at Argostoli the largest school which I met with in the islands; it was conducted by a Greek priest on the Lancasterian plan.

The Cephaloniots are much more active than their Corfiot compatriots. They are much more enterprising, especially in their mercantile and nautical affairs. There are in the island

8000 professed farmers, and nearly 2500 sailors. Their shipping consists of 118 vessels of various tonnage, and 151 boats, independent of smaller craft.

POLICE, SEWERS, &c.

The police of Argostoli, as far as I was enabled to judge, was on a very fair establishment, and although some of the streets and lanes certainly did not come up to our ideas of common decency, much less of cleanliness, yet the principal streets were in very good order, and the sewers, though occasionally choked up, and in some cases not constructed with a sufficient fall, were in a good state of repair. These sewers are large and extensive, and communicate with the sea. The majority of the houses have private drains leading into the public ones. Necessaries in private houses are not very common, but there are a number of public buildings of this description ranged along the shore; as they project over the water, and are built upon slight piers or moles, loosely covered with shingle, they are not a very agreeable sight to persons lying in the harbour, but their situation renders them easily kept clean. Some lamps are distributed through the streets, and lighted in winter by private contributions: they, as well as the cleanliness of the streets, are placed under a municipal officer. There are some excellent wells in Argostoli, and the water used as a drink is pure and wholesome, but some of the wells are brackish and foul, their water being chiefly employed for domestic purposes.

The dead, as in all the other islands, are buried in churches. An old ruinous church at the north end of the town of Argostoli was formerly used as a burying-place for soldiers; but it became such a source of noxious vapour, that a fresh piece of ground at the Trapano side of the harbour is now employed for the purpose. I inspected the ruin, and found that, in many of the graves, the body was not more than a foot below the surface. Some few years ago a very extensive range of ancient catacombs were discovered a few miles from Argostoli; they had been known to the Venetians in 1647, but were not fully traced till 1810, and the subsequent years.

No establishments for the poor exist in Cephalonia. There are fortunately but few paupers, and for them the donations of friends, or the collections of the churches, are found sufficient.

Meat, fish, and vegetables are sold in the streets, and in respect to the supply of these articles, Argostoli is infinitely worse off than Corfu. The prices do not differ very essentially from those of the latter place, except bread, which is dearer, and the supply is less regular. The price of vegetables and milk, as also of fish, is entirely a matter of chance, depending solely on the day's supply in the market. The public slaughter-house is well situated, at a distance from the town, and hanging over the lake, so as easily to be kept clean.

DISEASES OF THE INHABITANTS.

The inhabitants of Cephalonia are subject to various sporadic diseases ; the great endemics of the country are remittent and intermittent fever. The remittents annually commence about the middle of June, and continue in general to the middle of September. They are then succeeded by intermittents, which last till about the beginning of January. It is stated to me, on the authority of a physician of thirty years' practice in the island, that not less than a fifth of the population suffer from these fevers annually. In 1816, when the British troops suffered so much, one-fourth of the inhabitants were attacked. The mortality among the natives from these diseases, is reckoned at 1½ per cent. ; among the troops it has never been less than double.

" The popular opinion," says Mr. Hospital-Assistant Muir, " regarding these fevers is, that they depend on a specific poison, —how generated, they do not attempt to explain, but which is naturally existing in the atmosphere in a state of activity at this time of the year. They consider the fever entirely as a disease of debility, never bleed, and trust to the cinchona solely as the only thing that can neutralize the cause of the fever, whatever that may be. Their mode is simply as follows :—On the morning of the second day they prescribe a glister, or a mild laxative ; and without waiting for anything like a perfect remission, they throw in the bark, two or three ounces in the

space of twelve hours: the only diet they allow, is light broth and coffee; and with this simple mode of practice it must be allowed they are very successful. After repeated inquiries and observations of the symptoms presented by the remittent fever of this country in the native and the soldier, I am led to draw the following conclusions—that with little difference either in the quickness or state of the pulse, the greater determination to the head in the soldier's case, is the real cause of the fatality among the troops; that this determination is frequently so violent as to produce irremediable injury in the very first paroxysm; in such cases bleeding only hastens the catastrophe; that it is useless and even unsafe to bleed after the second or third paroxysm; that bleeding during the accession of the first paroxysm is always attended by the most happy results, and ought never to be omitted in the British soldier, if possible; that this difference depends in a great measure, if not altogether, on the difference of temperament between the soldier and the native; for, speaking generally, the former are all sanguineous, the latter phlegmatic or melancholic."

In the winter and spring catarrh and pneumonia are very prevalent, and often fatal, in some measure from the aversion of the native physicians to bleeding.

Elephantiasis exists as an endemic in a small village (Paraclata) on the side of a mountain fronting the south. The soil of this village is light and gravelly, the water good. The summit of the mountain is sometimes covered with snow in winter; no precaution is taken to separate the diseased from the healthy.

Psora is extremely common all over the island. St. Sauveur attributes it to the use of salt fish, vegetables, and new wine, but, above all, to the quality of the water. The fact is, it is generated by filth, which, in all mountainous districts, disposes to psora; and as the physicians and natives believe it wholesome, and conceive that to repel it is highly dangerous, it is thus propagated without ceasing.

Scarlatina is often prevalent in summer, and very fatal. Variola, also, occasionally appears in the more distant districts. The following remarks of Mr. Muir are so interesting that I shall quote them entire:—"Small pox occasionally ap-

pears in some villages in the districts where great prejudice still exists against vaccination. This prejudice, however, I am happy to say is gradually vanishing, partly from the advantages and security afforded by vaccination, which are every day becoming more apparent, and partly from the measures adopted by the local government here on my recommendation, viz. to subject the whole family, wherever a case of variola happens, to a rigid quarantine and expurgation of their clothes, &c. Since my abode in this island, I have vaccinated upwards of 800 children of different ages, and in no single instance, wherever I was satisfied of the character of the vesicle, has a case of variola followed. I must confess, however, that many cases required to be repeatedly vaccinated, and that I was frequently astonished at the number of spurious vesicles; I believe not less than one in four; and I have often lost the lymph altogether, from all the vesicles becoming spurious. From the observations I was enabled to make, I am inclined to believe, that psoriacal or other eruptions on the skin at the time of vaccination, are very apt to cause a spurious vesicle; and I now, in consequence, refuse to vaccinate if the child is suffering from any cutaneous eruption, for every failure inevitably adds to the prejudice against it."

Gout, rheumatism, scrophula, and hemorrhoids are very frequent, especially the latter; indeed, they are scarcely looked upon as a disease, but are viewed in the light of a prophylactic. Syphilis is not very common, but gonorrhœa is general though not inveterate. The native practitioners say, that scrophula was not known until syphilis was introduced into the island by the French, but I could obtain no historical facts to support, or illustrate, the assertion. Consumption is very rare in Cephalonia, but when it does attack a native or foreigner its progress is extremely rapid.

Cephalonia, like all the other Ionian islands, is, from its vicinity to the Morea, subject to the introduction of plague. The most remarkable, or, at least, the best known of these visitations, is that which afflicted the island in the year 1816. As it has been so recently described by Staff-Surgeon Tully, I shall not enlarge upon the subject, but shall content myself with observing, that the mode in which the disease was introduced

into the island on this occasion, was such as to confirm, if, indeed, confirmation was required, the opinion we hold of the strictly contagious nature of the disorder; for, from the commencement to the termination of the epidemic, there is one connected chain of evidence, proving, beyond a question, that the disease was propagated from first to last, either by the actual contact of persons, or by the transmission of susceptible articles from one individual to another. It unfortunately happened in this plague, that its ravages continued for weeks without exciting much attention, in consequence of the non-appearance of buboes or petechiæ on the body of the first victim; the physician who first saw this person was hence led to report, that death was occasioned by an inflammatory affection of the chest.

Feigned diseases are not known.

BIRTHS, MARRIAGES, DEATHS, &c.

It is impossible to give any estimate of the marriages, births, and deaths, for no regular register is kept in the island. The women are prolific; Morosini, as quoted by St. Sauveur, says, that five children at a birth are common; but he impairs his veracity not a little by stating, that the boys are often brought into the world with tails! A large proportion of the male population arrive at fifty years and upwards; and there is scarce a village which cannot produce individuals of seventy and eighty. Instances of longevity are much more rare in the females, perhaps from their early bearing and suckling of children.

Epizooties.—The sheep and goats are subject, in winter, to a rot, which commences with languor, followed by emaciation, falling off of the wool or hair, and diarrhœa, which terminates in death. In spring, bullocks and sheep suffer from a small insect, supposed to be a species of leech which collects in the nostrils, mouth, fauces, and gullet, and often chokes the animal. They are said to be swallowed when the animals feed on the ranunculus pratensis, the habitat of the young insect. Worms in the liver of those animals are also frequent. The leaves of

the wild caper and bitter almond are considered as good remedies against these parasitical animals. The remedies for the other diseases of cattle are the same as among the Corfiots.

It is worthy of remark, as Mr. Muir observes, "that, although diseases among the cattle are looked upon, as they doubtless are, as a great calamity, yet the inhabitants have a consolation, in the generally received opinion, that the ensuing summer and autumn will be uncommonly healthy for themselves; as it is believed that sickness of the inhabitants and diseases of the cattle, as it were, metastate with each other. This, if true, is a curious circumstance, and would lead to the conclusion, that late springs had some connexion with the fever of the country, for it is observed, that animals suffer most in early springs, and *vice versâ*."

The diseases of plants are similar to those already spoken of under the head Corfu.

POPULAR MEDICINE, QUARANTINE ESTABLISHMENT, PRISONS, &c.

Their popular medicine is much the same as at Corfu. The smilax aspera, which abounds in all the hedges, is greatly employed in diet drink for purifying the blood, and is considered fully as powerful as the officinal sarsaparilla.

There are no civil establishments for the treatment of the diseases of the poor, but there are a physician and a surgeon who attend the sick poor, at an allowance of thirty dollars a month, besides a quarterly allowance for the medicines used.

The Lazaretto is situated at the northern extremity of the town of Argostoli, and is a branch of the general administration of the Sanita of the Ionian islands. New buildings are in progress of erection, and much regularity seems to prevail in the airing of the Levant silks, and other susceptible articles.

The public prison of Argostoli is a very bad one; it is placed in the centre of the town; the rooms are low, damp, ill ventilated, and without necessaries. The back part of the building, for the extent of a story and a half, is under ground. As in the other islands, new prisons are in contemplation.

STATE OF PHYSIC AND SURGERY, &c. EMPIRICS, MUSEUM, AUTHORS.

Although Cephalonia furnishes physicians to almost all parts of the Levant, and those physicians are, in general, educated at, and receive degrees from the Italian Universities of Padua, Pisa, and Bologna, yet the practice of the resident professional men is singularly inert. Calomel is never used as a purgative. Blood-letting is never carried beyond eight or ten ounces at a time. In pneumonia, perhaps, they may repeat it at the end of twenty-four hours, if the symptoms are very violent. Hence we cannot wonder at the great want of success in diseases of the chest. The operation is still performed by barber-surgeons. In surgery, they are not more active than in medicine. They rarely have recourse to an operation, and never to one of a delicate kind; their instruments are of the old Italian manufacture.

Among the Cephaloniots, as among other ignorant persons, there are many pretenders to physic; but one celebrated, and it would appear, well educated empiric, Zulatti, flourished some years ago in this island. He professed to possess a specific remedy against the gout. Its principal operation was by perspiration of an excessively fetid odour, and by urine, which deposited an immense proportion of earthy matter, of a consistence like plaster of Paris, but of a deeper colour. The natives still speak of his cures, and a *procès verbal* of them will be found in the third volume of M. St. Sauveur's work, drawn up by a French naval surgeon. The general opinion is, that the active ingredient, in this medicine, was the atropa mandragora.

They have neither colleges, schools, nor medical societies in this island. The museum of the late Abbé Fontana, or rather, I should suppose, the duplicates belonging to it, were purchased some time since by the Cephaloniot, Count Valsanrachi. In mineralogy it is respectable, and contains some beautiful specimens of fossil bones. There are some wax and wooden anatomical figures well executed, but affording a very poor substitute for actual dissection, although, to a non-pro-

fessional man, giving sufficient information on myology, neurology, and the developement of the fœtus in utero. There is a tolerably good library annexed to the Valsanrachi collection, principally of old authors.

Of the native authors, I have been only able to hear of two; they are both alive, and their works are as follows:—

A work on Vaccination, entitled "Saggio sopra l' Utilità della Practica dell' Innesto del Vaucolo Vaccino preferibile a quello del Vaucolo naturale o infantile, con alcuni Cenni sul vero Metodo di soccorrere gli Annegati di Dr. Daniele Coidan." Corfu, 1818. 8vo. pp. 28. A work, by the same author, on Plague, entitled "Opuscolo sopra il Morbo Pestilentiale, in cui vengano indicati i Mezzi più proprii alla particulare Configurazione dell' Isola di Cephalonia per tenere lontano l' accesso." Corfu, 1818. 8vo. pp. 48.

And a work, by Dr. Dellaporte, entitled "Prospetto della Peste che si trovono nell' Isola di Cephalonia, e che si possano adoperare a titolo di Alimento o di Remedio." Corfu, 1821. 8vo. pp. 145.

The first two are merely common-place productions, and the latter, although scientific, is far from complete.

SECOND SECTION.

BARRACKS.

THERE are no regular barracks at Argostoli, but it is in contemplation to erect them on a spot admirably adapted for the purpose. The soldiers are at present quartered in houses at the northern end of the town, the most distant from the lagoon of Cutavo; and, although that situation is decidedly more healthy than the southern, where the 14th regiment were quartered in 1816, when disease made such dreadful ravages among them, yet the accommodation is far from good—indeed, I may say, it is the worst in the Ionian islands.

Nothing could contribute more to the health of the troops than the construction of proper barracks upon some elevated

spot, such as the ridge behind the town where the signal post now stands; here they would, in a great measure, be secured from the noxious exhalations of the lagoon of Cutavo, and they would be screened from the vicissitudes of weather, comforts which they evidently cannot enjoy in their present situation. At Lixuri, as at Argostoli, there are no regular barracks, and whenever troops are detached there, they are accommodated in private houses taken up for the purpose. There is a third post at which troops are occasionally quartered, viz., the convent of St. Theodora, situated about a mile from Argostoli, on a healthy spot near the entrance of the gulf or harbour. The great defect of this post is the want of water.

At between five and six miles distance from Argostoli lies the citadel or castle of St. George. For the following very accurate account of it, I am indebted to Mr. McArthur, assistant-surgeon of the 90th regiment. "The Citadel stands on the summit of a hill of considerable height, which constitutes the southern termination of a range that extends along and forms the eastern side of the harbour of Argostoli. The wall of this castle encloses about three acres of land. It is situated five miles south-south-east from the city, and four from the lagoon in which the harbour terminates. The lofty Mount Ænos rises on the south-south-east of the castle, distant about six miles. The country adjacent is level in every direction, except where the hill is joined by a neck of the above-mentioned range. There is no marshy ground in the immediate vicinity. The vineyards, after a heavy fall of rain, are sometimes covered with water, but it is speedily absorbed. The building occupied as a barrack is situated on the south-south-east side of the castle near the gate. It consists of eight small apartments, not in a very good state of repair. On the north-north-west side it is tolerably well sheltered from the high winds that prevail in the spring season (particularly at night), by an eminence, and by the ruins of old houses. On the east the upper range of rooms is much exposed to the chilling blasts of Mount Ænos, which for six months in the year is covered with snow. There are no springs in the castle, but there is always a plentiful supply of rain water, which is preserved in tanks. It is somewhat muddy, probably in consequence of the tanks not having been

cleaned for some time. From the castle you descend by a gentle declivity to a tolerably well built village, which occupies the eastern extremity of the hill. It appears to have contained a considerable number of inhabitants at one time, but at present many of the houses are in ruins. On the south-south-east side of this village stands the hospital which was once a convent."

HOSPITALS.

The building at present occupied as an hospital in Argostoli, is a house recently erected for the accommodation of a private family. It is well situated at the northern end of the town, separated from all other buildings, and within twenty yards of the sea, and only requires a surrounding wall to make it as complete an hospital as this island can afford; it is two stories high, and capable of accommodating forty patients in six wards. It also contains a surgery, small store-room, and an apartment for the sergeant: it has a good cook-house detached from the building. The only serious inconvenience which attends it is that it does not contain within itself a supply of water. A house formerly occupied in the centre of the town has been abandoned as an hospital for the sick, but is occasionally occupied by convalescents, and cases of contagious disease as ophthalmia, which require separation. In one of its apartments diseased prostitutes are occasionally accommodated. It consists of two wards, one capable of containing twenty, and the other five beds. There is no hospital at Lixuri, but the sick are conveyed by water to Argostoli.

I am indebted to Assistant-Surgeon McArthur for the following account of the hospital in the citadel of Fort St. George. "It contains several apartments, only two of which appear to have been used as wards; the others were occupied as quarters by the medical officers, and for store-rooms. On the north and west it is well sheltered from the cold winds by a wall, and from the rays of the sun by a gallery. On the south it has no defence from the weather, and the windows, which are not glazed, are all on the south side, which is a great disadvantage, as it must cause a necessity for closing the shutters to prevent

the admission of the sun's rays during the day, and the circulation of air is consequently obstructed. It is supplied with water in the same way as the barracks."

DISEASES OF THE TROOPS.

Remittent and intermittent fevers are the prevailing diseases of this island, as might be naturally supposed from a perusal of its medical topography. On some occasions the former disease has been productive of the most striking mortality, heightened by a contrast with the results of the same disease among the natives. In the epidemic of 1816, for instance, out of a garrison of three hundred and seven men, there were upwards of eighty deaths; but although twelve thousand of the inhabitants were attacked, no more than fifty died.

The baneful effects of a residence in this island, when the troops are either of a worn out description, or much addicted to excess, are often felt long after the removal of a corps. This is exemplified in the 36th regiment, which not only suffered excessively while quartered in the island, but continued to suffer long after its removal.

Fever.—Though disease most generally prevails nearest the marsh, as we should naturally suppose, yet there are some spots in the centre of the town where remittent fever has not only been most violent in its attacks, but very fatal in its effects. The 36th regiment furnishes us with an illustration of this fact also. The two flank companies of that corps, quartered in a building, in itself a good one, yet without any other ostensible reason than their vicinity to the burying-ground in a ruinous church, which I have already mentioned, afforded a proportion of sick nearly double that of any other two companies of the regiment. Out of seventeen fatal cases, no less than seven were admitted from that building.

It unfortunately happens that the records in the Inspector's office are far from being as complete as could be wished; but such as they are, they are sufficient to shew the great prevalence of fever in this island. Of fevers of the various classes, I find, on a collation of all the documents, that 1049 have

been admitted from 1815 to 1821, of whom have died as follows:—

Common continued fever, admitted,	418,	died	10,	or	1	in	$41\frac{8}{10}$
Typhus	2	„	1	„	1	„	2
Quotidian . . .	115	„	2	„	1	„	$57\frac{1}{2}$
Tertian	215	„	1	„	1	„	215
Quartan . . .	19	„	0	„	0	„	0
Unclassed intermittents . .	280	„	0	„	0	„	0
	1049	„	14	„	1	„	$74\frac{13}{14}$

No returns are extant, showing the particular species of intermittents prior to the year 1817. This is unfortunate, because it might have afforded us an opportunity of comparing the relative frequency of each species of that disease with remittent fever, the great epidemic of the year. But we have from those imperfect documents some glimmering light with regard to the relation of intermittent (collectively) and remittent fever to each other. In 1815, 23 remittents appear upon the returns, and 21 intermittents; in 1816, 213 remittents, and 202 intermittents. This we might offer as an additional confirmation of the opinion that the cause of both these diseases is one and the same, but that the type of the disease is influenced by the circumstances or constitution of the patient; but I am unwilling to trust myself with reasoning from such imperfect data, because it must be confessed that there is something in the returns which afford internal evidence that they have been drawn up with but little attention to nosological correctness, or even to numerical accuracy.

As the deaths could scarcely have been misrepresented, they may afford a ground for calculating on the general mortality of fever during that fatal year 1816. Of 213 admissions, 75 died, or very close upon 1 in 3. Of the intermittents in that year, none are reported to have died. Of continued fevers, 41 were admitted in that year, of which 2 died, or somewhat more than 1 in 20. If I am to assume the returns before me as affording anything like correct views, I must suppose that all the sufferers were cut off at once by the violence of the disease; for of the usual sequelæ of remittent and intermittent fever, diseased viscera, chronic hepatitis, or chronic dysentery, I only find one fatal case recorded during the year, and this patient appears to

have been admitted from the very first under the head, Diseased viscera.

Mr. Warren, inspector of hospitals, who visited Cephalonia a few months after the fatal epidemic of 1816, was unable to obtain any accurately detailed cases. After bearing testimony in his report for March 1817, to the humanity of the medical officers who treated this fever, (although there seemed to be some difference of opinion between them, inasmuch as one used the lancet more freely than the other,) he goes on to say, that, as far as he could discover, "the remittent pursued its course in spite of all that was done to arrest its progress, in the same sort of way it is found now and then to do in the West Indies, in situations that are at other times deemed tolerably healthy."

On looking over the various reports of the state of disease in Cephalonia, I find some striking illustrations of the last part of Mr. Warren's practical remark. Some of the medical officers, especially Staff-Surgeon Tully *, found that a removal of the troops to Lixuri was attended with the most beneficial effects, and left no doubt on his mind that that situation was far healthier than the capital; but Mr. Muir, who has resided for many years in Cephalonia, states, in his report for June 1819, that for the preceding three years, Lixuri had proved much more unhealthy than Argostoli.

These anomalies in locality are similar to, and equally inexplicable, as those which we observe in regard to the peculiar character of epidemics in different seasons; in some years one class of febrile affections will prevail, and be altogether unobserved in a succeeding season, although there is no appreciable difference in the circumstances of either. In some cases the lancet can scarcely be borne, while perhaps the very year before it was the physician's sheet anchor. We have a strong illustration of this in the report last alluded to. The intermittents for the June period were less obstinate than they were for the corresponding period of the preceding year, and the remittents required a much freer use of the lancet, which was rarely, if ever necessary, in the same class of diseases of the

* Report for December 1817.

former year. It is singular, that in this very season, there were fewer intermittents and remittents in Cephalonia than had ever previously been observed, and yet more rain fell in the months of March, April, May, and June, than had fallen for thirty years before. These, and many other facts that might be adduced, bring most forcibly to our minds, the justice of Sydenham's remark upon the subject of epidemics. "Though I have carefully observed the different constitutions of different years, as to the manifest qualities of the air, that I might from thence discover the causes of the so great dissimilitude of epidemic diseases, yet I must confess I have hitherto made no progress; having found that years perfectly agreeing as to the manifest temperature of the air, have nevertheless produced very different tribes of diseases, and vice versâ *."

Dysentery.—Dysentery in the acute form is the disease which appears next in frequency to fever. For the seven years from 1815 to 1821, the following is the state of admissions and deaths:—

Acute dysentery, admitted,	208,	died 9,	or 1 in 23⅛
Chronic . . .	4	„ 1	„ 1 „ 4

Syphilis.—The diseases caught by sexual intercourse, have been very insignificant, numerically considered. During the period above alluded to, the following only have been treated in the hospitals, and of these many appear to have been discharged, cured within the time of the periodical returns.

Syphilis primitiva . .	44
——— consecutiva .	3
Gonorrhœa . . .	57
Ulcera Penis non Syph. .	10
Bubo simplex . . .	13
Unclassed venereal diseases	37
Total	170

Miscellaneous Cases.—I do not meet with any other diseases particularly worthy of special remark in the returns of Cephalonia. Neither variola, rubeola, nor scarlatina, appear on the returns. Cholera morbus appears to have been severe in degree, though not very extensively spread in the year 1817;

* On Epidemics, class 2nd, section 3rd.

for of four persons attacked, three died. In 1815, 1816, 1818, and 1819, it was unknown. In 1820, of six who were attacked, all recovered; and in 1821, of nine attacks, only one proved fatal. It is somewhat remarkable, that in the year 1818 and 1819, when cholera morbus was unknown, cholica was very prevalent. In the first of these years, twenty-four cases were reported, and in the next, ten.

Skin.—Of the diseases of the skin, although psora is common among the inhabitants, I find, on inquiry, that it has little affected the troops.

Eyes.—Of diseases of the eyes, the admissions for the same period have been ninety-eight. I have no documents before me to allow of my classifying these affections. They all appear to have terminated favourably.

Many of the diseases which appear on the returns, have been produced from drunkenness as a predisposing cause, and a great number have proceeded directly from it, viz. contusions, casualties, and punishments. In the appendix is given a general statement of the admissions, discharges, and deaths in the military hospitals of Cephalonia for a period of six years.

TREATMENT OF DISEASES.

I SHALL now offer a few remarks upon the treatment of the principal diseases of Cephalonia.

From all that I can collect, bleeding has, since the year 1816, been less generally employed in remittent fever in Cephalonia, than in any of the other islands. The practitioners in Cephalonia look up to the administration of bark as the chief, if not the only means of cure; and, if I am not mistaken, they have been less anxious to prepare the patient for this remedy than in any of the other islands. A free evacuation of the bowels, by calomel and cathartic extract, diluting the bilious contents of the stomach by large draughts of camomile tea, chicken water, or toast and water; assisting the operation of these by repeated injections, and sponging the body, when circumstances admitted of it, with vinegar and water, was the only preliminary treatment adopted; the bark was then thrown in, in as large quantities as the stomach could bear.

In a report made by Mr. Muir, in the latter end of 1818, he states, that in hardly any instance had the disease proved fatal, except when accompanied by some organic affection, or in persons previously much reduced by chronic disease; and so much was his opinion of the value of bark confirmed, that he has no hesitation in asserting, that it alone is sufficient to cure the remittent fever of Cephalonia. He used the infusions of gentian and quassia as a substitute, in the early stages of convalescence, but he invariably found, that those cases in which bark was continued for the longest period, suffered less from relapses than the others.

In a subsequent report, Mr. Muir gives his testimony against the propriety of blood-letting, notwithstanding the symptoms which so strongly evinced the determination to the head. His chief objection to it is, that it increases the debility of the convalescent stage, which is great, under all circumstances, to a degree which, if it does not prove fatal, at least retards the cure. Emetics he has great objections to, under any circumstances, both on account of the determination to the head, and the great irritability of the stomach which they produce.

Assistant-Surgeon Goodison, in his report for December, 1819, speaks more favourably of venesection than any of his predecessors. A new body of troops, at that period, were brought from Parga. These men indulged in considerable excesses; they had not been long exposed to the operation of marsh effluvia, and their attacks evidently partook of an inflammatory nature. It was only in the commencement of the season that Mr. Goodison had recourse to bleeding; and as the season advanced, he substituted emetics for that evacuation, nor was this contrariety of practice, to that of his predecessors, unauthorized by success: for of twenty-two cases of remittent fever, one only proved fatal, and this in the person of a man who had committed an enormous excess in wine.

The practice of this gentleman is another convincing proof, if any were wanting, of the absurdity of prescribing to the name of a disease, instead of to its symptoms, and of establishing any general rules, without leaving to the discretion of the practitioner, the unlimited right of exception. Like his predecessors, Mr. Goodison had early recourse to bark, when

remissions were produced, but in his hands the powder was found much more valuable than the decoction.

In the epidemic of 1820, Mr. Goodison found that the remittents, admitted about the latter end of May, commenced with symptoms of a decidedly inflammatory nature, but the determination, instead of being to the head, as on former occasions, was now in a remarkable manner to the lungs. It is a curious fact, that in the early part of the year hooping cough was extremely prevalent among the children, and Mr. Goodison, with some degree of plausibility, assumes that the constitution of the air which had produced protracted and severe cases of pertussis in infants, might have disposed to this determination to the lungs of adults. The weather, he says, was excessively hot; a long drought had prevailed, and hot winds set in, usually, every day, producing a suppression of the discharges. Such was the inflammatory affection of the chest, that bleeding was followed, in almost every case, with decided advantage. The quantity drawn, was from twenty ounces to two pounds on the first attack, and a second bleeding was in many instances called for within the first twenty-four hours. The blood often presented a dense buffy coat, and was strongly cupped. In addition to this evacuation, the bowels were kept open with calomel and jalap. This was occasionally followed up by neutral salts, diaphoretics, expectorants, &c., and blisters were occasionally had recourse to, and when the cough was extremely troublesome, after the subsidence of the inflammatory symptoms, the tincture of opium was used in a few cases. In fact, we seem rather to be reading an account of pneumonia than of the remittent fever of a marshy country.

In 1821, the 36th regiment was quartered in Cephalonia, and whether from a different constitution of the air, as physicians call it, or a difference in the constitution of the men, the remittent of that year showed itself in the genuine character of the product of marsh miasmata. A heavy fall of rain, accompanied by unusually violent thunder and lightning, took place in the early part of July, followed by a great and sudden atmospheric change. Fever, under various forms, crowded the hospitals, and extended itself to all classes, ages, and sexes of that corps which had been previously healthy. An immense body

of water being exposed to the action of the sun's rays, seemed sufficiently to account for the prevalence of the epidemic; but the native practitioners assigned, at least as a remote cause, the neglected state of agriculture in the Morea, owing to the political distractions of that country, and even contagion was called in, to explain the extension of the disease. I avail myself of the surgeon's words, to describe, in a summary way, this formidable epidemic. He says, "Under the head of Remittents were admitted 129; discharged to duty 119, and died 10, or 1 in 13 nearly. Many cases admitted with intermittent and continued fever, changed their character and became remittent, and *vice versâ*."

"The symptoms which usually ushered in this disease, were rigors, languor, loss of appetite, disinclination to exertion. The rigors alternating with violent sensations of heat, accompanied by nausea, vomiting, acute pain in the head, particularly across the forehead, pains in the back, limbs and large joints; great anxiety and restlessness. The thirst became most urgent, the tongue and lips parched, the skin hot and dry, the pulse full and strong, the urine scanty and high coloured. After a continuance of these symptoms, for a shorter or longer period, a remission of all, or an alteration in some of them ensued, and this was commonly preceded by a moisture of the skin; but on an interval of a few hours, an exacerbation more violent than the first followed. In many, the symptoms were more severe than above detailed. Great determination of blood to the head existed, and as dissection fully demonstrated the frightful injuries done to the brain, I was led, in those cases, to take away blood, both by opening the temporal artery, by leeches and cupping; and I have the satisfaction to state, that it in general proved highly beneficial, though the convalescence became more protracted. I am, however, led to believe, that in those cases which had a fatal termination, the injury done to the brain was almost synchronous with the first attack of the disease.

"In addition to the acute pain over the eyes, with intolerance of light, which was an invariable attendant on the disease, the face was always flushed, eyes suffused, features swollen and prominent; intense heat of skin, intolerable pain

in the great joints; sometimes indistinct articulation, and a staggering gait, as if under the influence of liquor. My chief object was to produce as soon as possible a remission, so as to enable me to give as much bark as the stomach could bear, previously administering an active purge composed of calomel and jalap, aided by neutral salts in combination with the liquor ammoniæ acetatis. Cold applications to the head, previously shaved, afforded great relief, and generally produced beneficial effects. The early use of mercury, both internally and externally, proved, occasionally, useful; but it sometimes failed to produce any effect on the system. The cold affusion I also found useful, as it often put a stop to the hot stage of fever, and was invariably followed by a moderate diaphoresis. Purgatives were indispensably necessary throughout almost every stage of the disease. A mild nutritive diet was also invariably requisite, as well as a prudent allowance of wine.

"On examining the bodies of those who died of remittent fever, the following were the general appearances presented. The dura mater was thickened, the medullary substance of the brain studded with numerous bloody points, and the vessels of the brain and its membranes generally distended with florid blood. In some, the quantity of serum found in the head, under the membranes of the brain, and at the very base of the skull, was surprisingly great. In every case the spleen was diseased; I may add, disorganized; often soft and pulpy, resembling a mass of grumous blood. In one case, this organ was found, in length, 11½ inches, in breadth, 6½, and weighed 2 lb. 4 oz. In most cases, the liver was found much larger than natural. The gall-bladder seldom contained healthy bile; and in those cases where an absorption of that fluid had taken place during the fever, the bile that remained in the gall-bladder was of a tar-like consistence and colour."

Notwithstanding all Mr. Boucher's exertions, his loss was great, and the squalid countenances and frequent relapses of his patients, together with the very extensive visceral disease, which long existed among many men of his regiment, showed that their constitutions had been deeply injured, and remind us more of what we have seen after the expedition to Walcheren, than any other of the sequelæ of disease I have hitherto seen.

I can find nothing peculiar in the treatment of any of the other diseases of Cephalonia, and shall therefore proceed to an account of Zante, first premising the Appendices already alluded to. In Appendix I. is given the Flora of Cephalonia, compiled from a list furnished me by Hospital-Assistant Muir, and from the work of Dellaporte, to which I have added some notices on popular medicine. In Appendix II. is given a return of the diseases which occurred in the military hospitals of Cephalonia, from July, 1815, to December, 1821, to which is appended the average strength of the garrison; and, in Appendix III., a general table of the weather during that period.

APPENDIX TO CEPHALONIA.

I.

Catalogue of the Plants of Cephalonia.

Class.	*Order.*	*Name.*	*Remarks.*
1	1	Salicornia herbacea	
2	1	Jasminum officinale	
—	—	„ grandiflorum	
—	—	„ odoratissimum	
—	—	Olea europæa	
—	—	Veronica officinalis	
—	—	„ beccabunga	
—	—	Verbena officinalis	
—	—	Rosmarinus officinalis	The spirituous distilled water is constantly and successfully used in recent chancres, externally applied.
—	—	Salvia officinalis	Greatly in use among the natives in asthma.
3	1	Iris germanica	
—	—	„ biflora	
—	2	Avena sativa	
—	—	Arundo donax	
—	—	Lolium temulentum	
—	—	Secale cereale	
—	—	Hordeum vulgare	
—	—	Triticum hybernum	
—	—	„ repens	
4	1	Rubia tinctorum	
—	—	Plantago major	
—	2	Cuscuta epithymum	
5	1	Anchusa officinalis	
—	—	Cynoglossum officinale	
—	—	Symphytum officinale	
—	—	Borago officinalis	
—	—	Cyclamen europæum	The juice is occasionally rubbed to the abdomen as a purgative.
—	—	Plumbago europæa	A poultice of the bruised leaves is a frequent application to scirrhous tumours; it vesicates and produces an abundant discharge.
—	—	Convolvulus sepium	The expressed juice, in the form of an extract, is used as a substitute for scammony in doses of from 20 to 30 grains.
—	—	Hyoscyamus niger	

Class.	*Order.*	*Name.*	*Remarks.*
5	1	Nicotiana tabacum	The leaf is applied to the pubis in cases of suppression of urine.
—	—	Atropa mandragora	
—	—	Physalis alkekengi	
—	—	Solanum tuberosum	
—	—	„ lycopersicom	
—	—	„ nigrum	
—	—	„ melongena	
—	—	Capsium annuum	
—	—	Rhamnus catharticus	
—	—	„ zizyphus	
—	—	Hedera helix	
—	—	Vitis vinifera	
—	—	Nerium oleander	The powdered leaves made into an ointment are used in itch.
—	2	Asclepias vincetoxicum	
—	—	Beta vulgaris	
—	—	„ cicla	
—	—	Ulmus campestris	A decoction of the bark is in use in cutaneous diseases.
—	—	Caucalis grandiflora	
—	—	Daucus carota	
—	—	Conium maculatum	
—	—	Peucedanum officinale	
—	—	Crithmum maritimum	
—	—	Coriandrum sativum	
—	—	Scandix cerefolium	
—	—	Smyrnium olusatrum	
—	—	Anethum graveolens	
—	—	„ fœniculum	
—	—	Pimpinella anisum	
—	—	Apium petroselinum	
—	—	„ graveolens	
—	3	Sambucus nigra	
—	—	Tamarix gallica	
—	5	Linum usitatissimum	
6	1	Allium sativum	
—	—	„ porrum	
—	—	„ cepa	
—	—	Scilla maritima	
—	—	Asphodelus	The juice is applied externally in cutaneous diseases.
—	—	Asparagus sylvestris	
—	—	Agave americana	
—	3	Rumex patientia	
—	—	Colchicum autumnale	Used as a diuretic, but not much esteemed.
7	1	Tropæolum majus	
8	3	Polygonum bistorta	
9	1	Laurus nobilis	
10	1	Senna italica	
—	—	Ruta graveolens	

Class.	*Order.*	*Name.*	*Remarks.*
10	1	Tribulus terrestris	The decoction is used in calculous complaints.
—	2	Saponaria officinalis	
—	—	Dianthus caryophyllus	
—	10	Phytolacca	The expressed juice, brought to the consistence of an extract, is looked upon as a specific in cancer. The whole of the diseased parts are covered with it for twenty-four hours. Excessive pain and inflammation are produced, and several cures are reported to have been effected in the course of six or eight weeks.
11	1	Asarum europæum	
—	—	Portulaca sylvestris	
—	2	Agrimonia eupatoria	
—	—	Cataputia minor	The leaves dried and powdered, after having been kept for a whole year, are used as a substitute for jalap; the juice formed into an extract, and powdered, is used as a substitute for scammony.
—	4	Sempervivum tectorum	The leaves slightly bruised and soaked in vinegar are in constant use for corns.
12	1	Cactus opuntia	
—	—	Myrtus communis	
—	—	Punica granatum	
—	—	Amygdalus dulcis	
—	—	,, amara	
—	—	,, persica	
—	—	Cerasus sylvestris	
—	—	Prunus domestica	
—	4	Pyrus communis	
—	—	,, malus	
—	—	,, cydonia	
—	5	Rosa	
—	—	Rubus cæsius	
13	1	Capparis spinosa	
—	—	Papaver hortense	
—	—	,, rhæas.	
—	2	Pæonia officinalis	
—	3	Delphinium consolida	
—	—	,, staphisagria	
—	7	Pulsatilla nigricans	
—	—	Flammula jovis	
—	—	Ranunculus arvensis	
—	—	Helleborus niger	
14	1	Teucrium chamæpitys	
—	—	,, scordium	
—	—	Hyssopus officinalis	
—	—	Lavandula spica	
—	—	Mentha sativa	
—	—	,, pulegium	
—	—	Betonica officinalis	
—	—	Marrubium vulgare	
—	—	Origanum vulgare	
—	—	Thymus vulgaris	
—	—	Melissa officinalis	The expressed juice is used for specks on the cornea.

Class.	*Order.*	*Name.*	*Remarks.*
14	1	Ocimum basilicum	
—	2	Euphrasia officinalis	
—	—	Antirrhinum linaria	
—	—	Scrophularia nodosa	
—	—	Sesamum orientale	
—	—	Vitex agnus castus	
15	1	Draba Alpina	
—	—	Cochlearia officinalis	
—	2	Raphanus rusticanus	
—	—	Cardamine pratensis	
—	—	,, hirsuta	
—	—	Sisymbrium nasturtium	
—	—	Erysimum officinale	
—	—	Brassica capitata alba	
—	—	,, cauliflora	
—	—	,, radice napiformi	
—	—	,, eruca	
—	—	Sinapis nigra	
—	—	Raphanus sativus	
16	2	Geranium robertianum	
—	3	Althæa officinalis	
—	—	Malva arborea	
—	—	,, vulgaris	
—	—	Gossypium herbaceum	
17	1	Fumaria officinalis	The decoction is used as a bitter, and as a diet drink in cutaneous diseases.
—	3	Spartium junceum	
—	—	,, scoparium	
—	—	Ononis spinosa	
—	—	Phaseolus	
—	—	Lathyrus sativus	
—	—	Vicia faba	
—	—	Cicer arietinum	
—	—	Colutea arborescens	The dried leaves are used as a substitute for senna, and are reported to be equally effectual.
—	—	Trifolium	
—	—	,, ornithopodioides	
18	2	Citrus medica	
—	—	Aurantium	
—	3	Hypericum perforatum	A decoction of the leaves in wine is used in phthisis.
19	1	Tragopogon pratense	
—	—	Scorzonera humilis	
—	—	,, orientale	
—	—	Sonchus oleraceus	
—	—	Lactuca sativa	
—	—	Leontodon taraxacum	
—	—	Cichorium intybus	
—	—	Arctium lappa	
—	—	Cynara scolymus	
—	—	Carlina acaulis	
—	—	Atractylis gummifera	
—	—	Carthamus tinctorius	

Class.	*Order.*	*Name.*	*Remarks.*
19	1	Santolina	
—	—	Tanacetum vulgare	
—	—	" balsamita	
—	—	" incanum	
—	2	Tussilago farfara	
—	—	Senecio vulgaris	
—	—	Chrysanthemum leucanthemum	
—	—	Matricaria parthenium	
—	—	Chamæmelum vulgare	
—	—	„ romanum	
20	1	Orchis	
—	5	Aristolochia longa	
—	—	„ rotunda	
—	7	Arum maculatum	
21	4	Betula alba	
—	—	Urtica urens	
—	—	Morus alba	
—	—	„ nigra	
—	5	Amaranthus albus	
—	—	„ tricolor	
—	—	„ oleraceus	
—	8	Quercus ilex	
—	—	„ robur	
—	—	„ cerris	
—	—	Juglans regia	
—	9	Pinus pinea	
—	—	„ abies	
—	—	Cupressus sempervirens	
—	—	Ricinus communis	This plant grows abundantly, and especially near Livadi.
—	10	Momordica elaterium	The extract is used as with us. The leaves are externally applied to inflammatory tumours.
—	—	Cucurbita pepo	
—	—	„ citrullus	
—	—	Cucumis melo	
—	—	„ dudaim	
—	—	„ sativus	
—	—	Bryonia alba	
22	3	Pistacia vera	
—	—	Spinacia oleracea	
—	5	Tamus communis	
—	—	Smilax sarsaparilla aspera	
—	7	Mercurialis annua	
23	1	Parietaria officinalis	
—	—	Atriplex hortensis	
—	3	Ficus carica	
24	1	Polypodium vulgare	
—	—	Filex mas	
—	3	Lichen pulmonarius	Is employed as a substitute for Lichen islandicus.

II.

No. 1.—*Statement of Diseases, Admissions, Discharges, and Deaths, in the Military Hospitals at Cephalonia, from 21st July, 1815, to 20th December, 1821.*

DISEASES.	1815.			1816.			1817.			1818.			1819.			1820.			1821.		
	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.
Feb. Quotid. Intermittens.	..	..	..	..	..	..	12	15	1	2	2	..	6	6	..	6	6	..	89	87	1
„ Tertiana „	..	..	..	..	..	..	36	37	1	81	84	..	16	16	..	..	..	..	82	82	..
„ Quartana „	..	..	..	..	..	..	13	18	..	..	..	..	..	..	..	4	4	..	2	2	..
„ Remittens „	23	28	..	213	84	75	76	67	2	62	65	..	32	31	1	..	1	..	113	103	10
„ Cont. Coms.	13	13	..	41	23	2	..	..	..	..	..	..	34	31	..	87	88	..	243	233	10
„ Synochus.....	..	..	..	..	..	..	..	..	..	3	2	..	1	..	1	..	..	..	..	..	..
„ Typhus.....	..	..	..	2	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Phlegmon et Abscessus...	..	..	..	..	..	..	..	..	..	1	..	..	19	20	..	29	29	..	15	13	..
Paronychia.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..
Cynanche Tonsillaris.....	..	..	..	..	..	..	..	..	..	..	..	..	3	3	..	1	1	..	4	4	..
„ Parotidea	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..
„ Pharyngea.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..
Pneumonia.....	4	4	..	4	5	..	8	6	..	1	3	..	14	14	..	4	4	..	18	18	..
Enteritis.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	6	..
Hepatitis Acuta	..	..	..	4	4	..	3	2	..	..	..	..	..	..	..	..	..	..	4	4	..
„ Chronica.....	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	4	4	..

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DISEASES.	1815.			1816.			1817.			1818.			1819.			1820.			1821.		
	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.
Gonorrhœa	..	..	..	..	..	..	7	7	..	6	6	..	19	19	..	9	9	..	12	14	..
Hernia humoralis	1	1	..	..	..	..	1	1	..	3	3	..	2	2	..	..	..	..	2	2	..
Strictura urethræ	..	..	..	..	..	..	..	1	..	..	..	..	1	1	..	2	2	..	..	..	..
Sarcocele	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	1	1	..	..	..	..
Obstipatio	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12	12	..
Ischuria	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	1	..	..	..	..
Dysuria	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	3	3	..
Varix	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Tumores Alii	..	..	..	1	..	..	5	5	..	4	8	..	7	7	..	1	1	..	2	2	..
Verrucæ	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Fistula in Perineo	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..
Luxatio	..	..	..	..	..	..	..	..	..	1	1	..	2	2	..	3	3	..	2	2	..
Subluxatio	..	..	..	..	..	..	..	..	..	..	..	..	3	3	..	8	8	..	2	2	..
Vulnus Sclopit.	..	..	..	..	..	..	..	..	..	1	1	..	2	2	..	1	..	..	..	..	..
„ Incisum	..	..	..	..	..	..	..	..	..	3	2	..	2	3	..	1	..	..	8	8	..
Contusio	..	..	..	..	..	..	9	7	..	34	31	..	59	58	..	25	28	..	29	29	..
Ambustio	..	..	..	..	..	..	..	..	..	..	..	..	3	3	..	2	2	..	1	1	..
Ulcus	1	1	..	39	26	..	56	24	..	32	32	..	22	20	..	9	11	..	38	36	..
Fractura	..	..	..	..	..	1	3	3	..	2	2	..	..	..	..	..	..	..	3	3	..
Polypus Nasi	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Punitus	1	1	..	20	16	..	15	20	..	21	20	..	42	42	..	45	44	..	65	60	..

Morbi Oculorum	7	8	..	45	45	.	14	20	..	..	..	..	..	..	..	4	4	..	28	27	..
Cutis	2	1	..	13	17	..	62	62	..	..	..	..	10	9	..	2	3	..	4	4	..
,, Febris Intermitt.	21	23	..	202	241	..	57	67	..	..	..	..	..	..	..	..	..	..	..	..	..
Hepatitis	3	3	..	1	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Rheumatism	1	1	..	8	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Pulmonic	2	3	..	5	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diseased Viscera	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
,, Spine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	1	..
Lumbago	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..
Tinea Capitis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Œdema	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..
Coup de Soleil	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Convulsions	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Venereal	8	13	..	25	22	..	4	4	..	..	..	..	..	..	..	..	..	..	..	..	..
Wounds	5	5	..	9	10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Casualties	2	2	..	23	22	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	100	112	..	702	566	87	448	456	8	341	338	2	365	363	5	345	339	7	1014	981	24

No. 2.—*Average Strength of the Garrison of Cephalonia, from* 21*st July,* 1815, *to* 20*th December,* 1821; *and of the daily Number of Sick.*

Years - - - - - - -	21st July to 20th Dec. 1815	1816	1817	1818	1819	1820	1821
Strength of the Garrison	334	396	270	211	266	250	535
Average daily Number of Sick	13	34	26	12	13	13	41

III.

General Table of the Weather from June 1818 *to December* 1821.

Years	Thermometer		Prevailing Winds, and State of the Weather.	General Remarks.
	Max.	Min.		
1818	98	44	Wind easterly. June and July calm and dry. August very sultry and close. Strong gales from 5th to 9th September. Much rain and heavy gales the middle of October, and 4th to 20th November. December wet and stormy.	Frequent severe shocks of earthquake.
1819	92	44	Easterly. End of January sharp frost. Heavy rains from 28th February to 6th March, succeeded by dry weather. Some heavy rain about the middle of May. June sultry, with some showers. Clear weather, except two days' rain in August and five in September. October fine. Much rain from 24th November to 16th December. Remainder fine.	Several shocks of earthquake.
1820	95	50	S.E. and S.W. Beginning of the first quarter fine, succeeded by rain and storms. Second quarter variable. July and August clear, with two or three heavy showers. September generally cloudy. Last quarter variable.	Earthquakes very frequent.
1821	82	46	N.W. and S.E. Rain, with high winds in January and February. March cold and stormy; hail. Second quarter very variable. Strong gales, with rain and thunder the beginning of April. May dry and mild. Heavy rain from the 1st to the 6th June. Remainder fine. October stormy with rain.	Frequent earthquakes.

THE

MEDICAL TOPOGRAPHY

OF

ZANTE.

THE

MEDICAL TOPOGRAPHY OF ZANTE.

Jam medio apparet fluctu nemorosa Zacynthos.—*Æneid.* iii. 270.

——————— "The curving strand,
Where foaming waters beat the golden sand,
And Nature's bounty sheds profusely round
Each varied beauty o'er the unequal ground;
The deep worn channel of the mountain rill,
The blooming garden and the cultured hill."—*Horæ Ionicæ*, p. 39.

SECTION THE FIRST.

NAME, SITUATION, EXTENT, &c.

Pliny states that this island was formerly called Hyria; but I am not aware that, in more recent times, it has ever been generally known by any other name than that of Zacynthos, or Zacynthus. If we are to believe ancient mythologists, this appellation was bestowed upon it from being the burial-place of one of the Bœotian followers of Hercules. It is universally known among the Mediterranean nations under the name of Zante: from its exquisite beauty, it is by common consent called "Zante, il fiore di Levante."

Zante is situated in the Ionian Sea, in 37° 42′ of north latitude, and about 18° east longitude. It lies opposite the Gulf of Lepanto or Patras, towards the western angle of the Peloponnesian province of Elis, the nearest point of which, Cape Chiarenza, is distant about fifteen miles. The western extremity of the island is only ten or twelve miles distant from Cephalonia. The shape is trapezoidal, or rather irregularly oval, indented with a deep bay at its south-eastern extremity. In its greatest length, which lies N.W. and S.E., it measures

about twenty-one English miles. Its breadth, at the broadest part, is about eighteen, and its circumference is said to be seventy, the same at which it was estimated by Strabo.

DIVISIONS, MOUNTAINS, &c.

THERE are only two divisions of the island, and they are particularly striking; viz. the mountains and the plain. An extensive ridge of mountains occupies the whole of the western side of the island, and runs along its entire length from N.W. to S.E. Occasional rising grounds skirt the shore. The most striking, as well as the loftiest of these detached eminences, is the Monte Scopo, the "Mons elatus nobilis" of Pliny, which rises out of the plain at the south-east end of the island. It is washed by the sea on its southern and eastern faces, and gradually is lost on the land side. Towards the northern extremity of the plain, and the town of Zante, a range of lofty cliffs extend for some distance, at the foot of which is a remarkable well, called Krio Nero, which supplies the city and shipping with water. On a detached offset of these cliffs, which were formerly known under the appellation of Acroteria, the castle is situated.

The mountains of Zante, I believe, have not been accurately measured. Dr. Holland estimates the western range from 1000 to 1300 feet high, and this, I should imagine, comes pretty close to the truth. The elevation of the hill on which the castle is built, he states at 350 feet, and that of Mount Scopo at 1200; but, by a report from Staff-Surgeon Thomas, the latter is said to be 1300 feet above the level of the sea. The mountains to the west, as well as Scopo, are formed of calcareous rock, with an occasional mixture of gypsum, principally of the grey foliated kind, with a proportion of selenite. The castle hill is composed of a loose friable calcareous matter, mixed with clay and sand. The mountains may occupy about three-fifths of the island, and the great plain the remaining two-fifths.

RIVERS, LAKES, MORASSES, BOGS, AND OTHER SOURCES OF MALARIA.

THERE are no streams in the island of Zante deserving the name of rivers, nor any permanent collection of water that can with justice be denominated a lake. To the southward of the town there is an inconsiderable stream, or "fiumare," nearly dry in summer, but affording copious exhalations of a deleterious nature at that season of the year. To the northward of the town there is another, which I shall more particularly describe hereafter. The moisture of the island proceeds from numerous sources. On the first view, it appears very probable that at one period the great central plain was covered by the sea. The soil of which it is composed is of that species denominated alluvial, and the copious underground moisture renders it, in the hands of an industrious peasantry, a rival in fertility to spots much more rich by nature.

From the lofty ridge of limestone rock which bounds the plain in a westerly direction, innumerable rills flow down, which the Zantiot cultivator detains on his land by every artifice of irrigation and damming: indeed, the ground is so little above the level of the sea, that a very trifling labour is sufficient for this purpose, and, in several instances, banks of sand are thrown up, either by the gradual action of the wind and waves, or by the more sudden operation of earthquakes, which, overtopping the mouths of the drains, forces back their contents, and augments them with a large admixture of sea water. In the town, where the sewers are but slightly covered, they, from this cause, often overflow the streets; while, in the more open drains in the vicinity, the nature of the deposits left upon their banks sufficiently attests that they have been inadequate to the disgorging their contents into the sea. Of actual swamp, there exists, comparatively, but a minute proportion in this island.

Extensive salines are situated on the western coast. A marshy piece of ground, about a mile in circumference, but which in winter is considerably larger, lies at the southern point of the great plain, about a mile from the town: a small meandering stream flows from it into the bay. Another smaller

marshy spot lies somewhat more to the westward, which has no outlet. Both these spots are dry in summer, in which season the wind blows from the north-east to north-west, and cannot carry any malarious vapour from them to the town. Another swamp lies more distant, in the neighbourhood of Chieri bay, which can scarcely affect the town at any period of the year.

A more fertile source of malaria, and one much more likely to affect the troops than those I have mentioned, appears to me to exist in the immediate vicinity of the town, amid the deep gullies formed in the surrounding clay hills, by the conjoint influence of earthquakes and winter torrents. Linnæus* was intimately acquainted with the fact, that intermittents prevailed most in clayey soils; but he mistakingly attributed them to obstructions occasioned by the water drank in such places, which, he supposed, was impregnated with particles of clay; while he overlooked the retentive quality of the soil with respect to moisture. Now the water drunk at Zante is extremely pure: to miasmata, therefore, arising from the water, and not to its internal use, I would entirely attribute the production of intermittents in Zante, as well as in all other countries.

As a description of one of the situations in which a very striking mortality took place during the autumn of 1822, in the island of Zante, will serve fully to illustrate my opinion on the generation of malaria, the grand cause of fever as it affects the troops in this country, I shall here extract from a report made by me to his Excellency the Commander of the Forces, from notes which I took on the spot:—"At the northern extremity of the town of Zante, a deep ravine commences about half way up the Castle Hill. At this spot it merely assumes the character of an indentation in the stiff clay soil of which the hill is composed. As it advances towards the level of the sea, however, it expands into a deep irregular basin, into which another ravine pours its waters, which are still further increased from many sources on the precipitous sides of the basin, as well as from some mountain gullies, two of which, in particular, flow very rapidly from the summit of the Castle Hill. The

* See Linnæus, "Amœnitates Academ." vol. i.

accumulated waters work their way towards the sea through a narrow cleft, the passage of which is much impeded by large masses of rock which divide the bed of the stream into numerous detached pools. The free fall of the water is still further impeded as it flows towards the sea, for the offal of the houses which are built on the banks where it enters the town, form large and putrifying masses of a most offensive compost of animal and vegetable matter. This compost accumulates still more towards the mouth of the stream, where it is confined between walls of stone, and where, being little above the level of the sea, it is continually choked up by sea-weed and sand. The sides of the ravines and the adjacent hills are thickly planted with olive trees; and in the summer, grapes, plums, oranges, and figs are produced in the greatest luxuriance. I observed many bamboos growing in the bottom of the basin, a sure indication of water beneath. The surface of the ground is covered with a rank vegetation, which has proceeded to maturity and decay in an uninterrupted course, apparently for ages. In short, the sources of moisture and vegetable putrefaction exist in great abundance all around; while, from the depth of the ravine, and from the want of ventilation, the malarious vapours generated in it are retained without the possibility of being diluted and dispersed by the wind, or rarefied and elevated by the sun. In a country house, beautifully but treacherously situated, on the western side of this ravine, where it expands into a basin, the Fort Adjutant, Lieutenant Miles, of the 8th regiment, took up his abode. On each side of his house a mountain stream ran down into the main channel; one of these was dammed up for horticultural and domestic purposes, and supplied a tank which lay immediately below the house. Above, the Castle Hill arose abruptly; and around, the olives grew so thickly as almost to touch the walls. In this habitation the mistress, her child, her maid, and three male servants, were violently attacked with autumnal remittent fever, the genuine product of malaria. The master was also unwell, but not to such an extent as materially to affect his health: of the other individuals, *all* died with the exception of one male servant, who, after repeated struggles with the disease and its consequences, died from a third attack of visceral disease, accom-

panied with dropsy. Though the spot which I have now described is the largest in size of any in the neighbourhood of the town, yet the clay hills which nearly surround it, and on which the castle is built, abound in many smaller gullies of a similar character, and, from the retentive nature of the soil, a constant source of malarious vapour is presented to the action of the summer sun. I may here observe, that it is of great importance, in the selection of military posts, to be aware of the fact, that elevation is not, in warm climates, any security against miasmata, if the adjoining ground be clayey and retentive of moisture. The hill fevers of India prove this in an indisputable manner. It was in the neighbourhood of spots like that now described, where our army suffered so dreadfully from the autumnal remittent of Spain, on their march to Talavera. So surely as they were seduced to encamp or bivouac in the hilly ravines which had previously been water-courses, so surely did they leave numerous cases of fever behind them; and in the retreat which succeeded the battle, although the bed of the Guadiana presented only a broken chain of detached pools, and all the lesser streams were dried up, the troops which prosecuted their march along its banks acquired the germ of remittent fever, which, in its development, seriously threatened the very existence of the army."

In the island of which I am now treating we have a strong additional proof of this fact. On referring to the reports on the remittent fever prevalent among the troops employed, in 1816, in forming a cordon round the island for its protection from the plague, which ravaged the adjacent shores, I find that the most unhealthy spots were not those where there was much evaporating moisture, and where much vegetable matter existed: on the contrary, the most severe and the most fatal cases were admitted from sandy and almost barren flats near the sea.

I examined some of these situations with Dr. Cartan, of the 8th regiment; and we were perfectly satisfied of the existence of underground moisture, by the appearance of various reeds, and other aquatic plants, in many places on the surface of the ground. Although the surface appeared baked, as it were, by the heat of the sun, even at that early season (March), yet, in

riding along, our horses' feet frequently broke through the exterior crust, and they sunk several inches, forcing up from beneath a thick, discoloured, and offensive mud. Indeed, I have been long convinced that the most dangerous of all exhalations are those which are exalted from beneath the surface, where, according to Chalmers, they have been long pent up, and may be supposed to have contracted vicious qualities, which have become concentrated in consequence of want of agitation or dilution by the wind. These facts are fully confirmatory of the opinions of that excellent officer, Dr. Fergusson *.

Another great source of malarious vapours, which have proved particularly injurious to the health of the troops, exists at the Mole, of which I shall speak more fully when I come to describe the barracks. There is a very offensive morass at the south-eastern end of the island in the neighbourhood of Chieri bay. Its exhalations cannot affect the troops in the garrison; but, as it is in the neighbourhood of Martonissi, the quarantine island, a military guard is occasionally exposed to its vapours when circumstances render it necessary to establish a post in the vicinity.

CLIMATE, SOIL.

In winter the climate of Zante is extremely variable and wet. In summer the heat is very oppressive in the city, principally in consequence of the reflection from the high stone walls, which are generally plastered and whitewashed, and from the streets, which are paved with broad flags. The thermometer, in the streets, often rises, during the summer months, to 116° or 120°. The maximum in the shade, for a period of four years, was 91°, to which it attained in the month of August 1820: the minimum was 50°, to which it fell in January and December 1818.

The winds are extremely variable: in some of the winter months we find them northerly and dry; in others, westerly, hot, and rainy. In the months of June, July, August, and

* See his paper in the Transactions of the Royal Society of Edinburgh for 1820; and Chalmers on South Carolina, vol. i. p. 6.

September, for the four years under review, they appear to have blown almost uniformly from northern points, generally from the north-west. The winds from the northerly points are generally cool and refreshing, while, from the southerly, especially from the south-east, all the inconveniences of the sirocco are felt in a very striking degree. Mr. Thomas, Surgeon to the Forces, who has passed several years at Zante, observes, "Snow seldom falls here, and never lies on the ground, excepting on the mountain tops for a few hours. I have scarcely heard an instance of water freezing, although I have felt the northerly wind bitingly cold when it passes over the Arcadian mountains while covered with snow." The prevailing winds are the north-westerly in the spring; northerly in summer; southerly (or damp sirocco, with a dense atmosphere) in autumn; and south-westerly in winter, from which quarter it blows occasionally very violently, but not of long continuance.

The first rains generally fall about the latter end of September or beginning of October, and very heavy falls occur for several days together throughout the winter, (but with fine intervening weather,) when violent discharges of electrical matter occasionally take place with very awful explosions, particularly about the period of the spring and autumnal equinoxes. In the month of March 1817, several houses were materially damaged in the town and country by them, but happily no lives were lost. It seldom rains after the month of May, and when any does occur subsequent to that period, a sickly season is immediately prognosticated, generally upon good grounds, there being no doubt of the direct effects of the atmosphere on diseases, which evidently keep pace with or follow its different changes. Thus it is that phlegmasiæ prevail when rain and heat are succeeded by cold northerly winds; pyrexiæ and exanthemata succeed the damp and hot southerly sirocco, and pyrexeæ of the febris intermittens and typhus mitior type, succeed the damp, cold, westerly winds; but this last and typhus gravior are diseases little known in this country, although it is a name frequently but erroneously given, in many instances, by the native practitioners, to the febris remittens, in its last stage. In the Appendix will be found some meteorological observations for this island for four successive years.

The soil of Zante is of three different kinds: a strong clay in the plain, calcareous on the rising ground, and sandy near the shore. The pasture land is scanty, the principal part of the soil being under olives, currants, and grapes. A proportion of two-fifths of the island is cultivated. The plain, although alluvial, is not naturally so rich as deposits of this description usually are, but cultivation and the incessant industry of the inhabitants have made amends for the deficiencies of nature.

EARTHQUAKES.

THERE is no part of the globe in which earthquakes are so frequent as in Zante; a week scarcely passes without a shock, greater or less in degree, and they seem to have increased considerably in frequency of late years. It was a popular idea, formerly, that the shocks of the same violent description were felt only once in twenty-five years. The most severe shocks on record occurred in the years 1514, 1664, 1710, 1742, 1769, 1791, 1809, 1810, 1816, 1818, and 1820. Perhaps, the most severe of all was that of the 29th December, 1820. This last appalling visitation took place at four o'clock in the morning, and is thus described by Staff-Surgeon Thomas, an eye-witness:—

"The concussion was first felt in quick perpendicular and then in horizontal vibrations, and so very violent, that the houses rocked to and fro like a ship in a heavy sea; their tiles were either shaken off, or altogether loosened; the beams forced their way through the walls, and many of the roofs fell in with terrific crashes. The dismay caused thereby was rendered doubly horrific from the extreme degree of darkness that prevailed at the moment, preventing the people seeing the fearful devastation occurring around them.

"Seven new houses were completely thrown down by the concussion, and 860 so materially damaged, that two-thirds must be levelled with the ground; nor has a single church or house in the town, however strongly built, escaped injury more or less, although many of them resisted the great earthquakes of 1767 and 1791. Prince Comuto's house, with several others,

now so much damaged, continued unhurt for more than two centuries; for the ancient *noblesse*, being aware of the liability of their little island to those adventitious visitations, built their habitations accordingly,—a precautionary measure much neglected by the present generation.

"The losses sustained on this awful occasion are estimated at half a million of dollars; and, allowing this overrated, even half the sum will be long felt by the most opulent of the Zantiots, on whom, as proprietors of the houses, the principal loss must fall.

"The earthquake was preceded, during the previous day, towards the evening, by a dense state of the atmosphere, a strong wind at the sirocco point, with a heavy rumbling sea; and about half an hour before the concussion took place, a meteor was seen by several shepherds who were visiting their flocks, of a considerable size, resembling a circular ball of fire, descending, as it were, to the southward of Mount Scopo, the horizon appearing at the same time, and in the same direction, in a blaze, at which the men were so much frightened that they returned home with all possible speed, telling what they had seen.

"Several slight shocks continued to succeed throughout the course of the morning; and a little before noon a very severe one took place, while the constituted authorities, with the Proto Papa and the whole of his clergy, together with a vast concourse of the people were assembled in one of the principal churches, returning thanks for their recent deliverance, which shook the building in the most terrific manner, threatening destruction to all within; yet not a soul attempted to escape from the menaced danger during this awful scene of solemn thanksgiving. Half an hour previous to this (at eleven o'clock) there fell the heaviest shower of hail ever witnessed in this island, or perhaps in any other country. The hailstones were solid pieces of compact ice, of irregular and various forms, and so hard that they could not be easily broken by the hand, weighing from three to four ounces avoirdupois, and measuring from seven to eight inches in circumference. To this tremendous shower succeeded a gale of wind, still blowing from the sirocco or south-east point, accompanied with thunder, very

vivid forked lightning, and rain, which, towards evening and during the night, fell in such torrents, that immense quantities of earth and clay were washed away from the Castle Hill, and coming down with irresistible force, several houses, with their inhabitants, were swept off by the flood, many of whom were dreadfully bruised, and two persons were actually carried into the sea and drowned.

"During the whole of this melancholy night, we were all in a state of the utmost anxiety, fearing a return of the earthquake; and to add to the horror of our situation, the rain poured through the roofs of the houses as through a sieve, in consequence of the tiles having been loosened, and every apartment was drenched in wet. Providentially, only ten lives were lost altogether; viz. eight by the falling in of the houses, and two drowned, as above stated. Twenty-nine persons were severely wounded.

"By accounts received from Malta, the Morea and the neighbouring islands of Cephalonia, Ithaca, and Santa Maura, it would appear that the phenomenon must have been general as it prevailed at all those places at the same time that it was felt here.

"I was, myself, the night of the great shock, on board a government schooner, then at anchor in the bay; and being awake at the time, I was perfectly aware of what was going on when I first perceived the guns on deck thumping or jumping up and down, as it were, over my head, and then the vessel was so much shook that I feared she was going to pieces." So far Mr. Thomas*.

It is not to be wondered at, that in a moment of such dreadful confusion as must occur during an earthquake, the accounts of different individuals should vary, and that the attention of those few who can command their feelings, should be directed to different points. Many Zantiots with whom I have conversed are quite contradictory in their reports; and in the *Journal de Physique*, tom. xcii., p. 466, an account somewhat different from Mr. Thomas's will be found in a letter from Count Mer-

* In a letter to Deputy-Inspector Porteus, dated 8th January, 1821.

cati, also an eye-witness. A translation of this paper is given in the Edinburgh Philosophical Journal for January 1822.

Major Brandreth, of the Royal Artillery, a most intelligent eye-witness of this awful visitation, stated to me that although so many houses were so seriously damaged, yet scarcely a pane of glass was broken. Had the electrical properties of glass any share in the production of this singular exception?

Zante has unquestionably within itself a prolific source of earthquakes, but it is sometimes affected by those of other countries. Those of Lisbon and Calabria were felt strongly in all the Ionian Islands, but especially in Zante.

VEGETABLES, ANIMALS, MINERALS, AND EXHALATIONS.

Horticulture is much practised at Zante, and many of their vegetables are excellent, especially the cucumber, or zuchelte. Irrigation is much employed by the gardeners. The principal vegetable production is the Corinth grape, or currant. The crop of this fruit for the year 1819, amounted to upwards of 60,000 pounds weight, of the value of from seventy to eighty Spanish dollars per thousand. The plant flowers in June, and the fruit is collected in August, and then cleaned and dried for exportation. Olives are abundant. In the two years terminating in 1819, the produce of oil was 29,543 barrels, or upwards of 500,000 gallons. The grapes are excellent and abundant. In 1819 the produce of wine was 58,500 barrels. Apples, almonds, lemons, oranges, and other acid fruits abound. Liquorice root is produced in large quantities. Thirty thousand pounds weight was prepared for sale in the year 1819. Cotton and hemp are also produced in considerable quantity. The produce of wheat and other grain, and of the leguminous plants, is not sufficient for the consumption of the island.

Zante abounds so much in aromatic plants, that in an evening, with a gentle land breeze, the odour is perceptible at a league's distance from the shore.

The animals are the same as have been already mentioned under the head of Corfu; game abounds. Bees are much

attended to by the Zantiots, and the numerous aromatic plants contribute considerably to the excellency of the honey. In 1819 the produce of purified wax was 4106 pounds.

In the time of St. Sauveur there was a fishery for the sea calf, for the sake of the oil. The smell was intolerable, but it is said to have burned purer than olive oil. I do not know whether the manufacture is now continued. The principal captors of the animal resided at the village of Agala, on the southern side of the island.

The minerals of Zante are generally of the same nature as those of Corfu. I am not aware that any metallic ores have been found in the island. The great mass of the mountains consists of calcareous rocks. Scopo is interspersed with masses of gypsum, and with some tolerably hard marble; and on its south-west side, and around the villages of Agrassi and Sarachira, there are immense masses of selenite and foliated gypsum. But the most remarkable mineral curiosities of Zante, are the celebrated tar springs, which have suffered so little alteration from time, that at this distant period the description of Herodotus is in several particulars nearly as applicable to them as at the period it was written *. These springs are situated on the edge of a marshy spot about a quarter of a league from the sea, near the shore of Chieri bay. Three only remain; the others mentioned by Herodotus, having probably been filled up by some of the earthquakes with which the island is so often harassed. The largest of these pools is on the south side of the morass, of a circular form, paved with stone, about fifty feet in circumference, and about one deep, to the surface of the tar. The two others are smaller; they are situated on the northern side of the morass, at the distance of two hundred paces. The petroleum, or mineral tar, lies on the bottom and sides of the pool, from which it is collected to the amount of about fifty or sixty barrels annually, and is applied to the purposes of smearing boats and out-of-door work, as railings, &c. It is said to cement stones together with singular cohesiveness. On this principle I have recommended that an experiment should be tried, of covering the ground floors of

* See "Beloe's Herodotus," 8vo. vol. iii. p. 106.

the new barracks (after they are paved with coarse stones) with a composition of this mineral tar and lime, or limestone gravel, as a means of preventing the exhalations of underground moisture. It has been attempted to employ it for cordage, but it is said not to answer the purpose, as it rots the hemp, and renders the cables friable.

The surface of the water which lies above the tar, is iridescent in clear weather, occasioned probably by a minute portion of naphtha, or the finer parts of the tar floating on it. The body of the water is limpid, and by those who have tasted it, is said to be by no means unpleasant, although sensibly impregnated with the bituminous matter *.

Mr. Thomas informs me that no inhabitants reside near the tar springs, as the neighbourhood is considered peculiarly unhealthy, especially in the autumnal months, and that they extend their influence to a small island in the bay. St. Sauveur says, that these springs seem to rise in the interior of the island in an easterly direction ; to the westward they communicate with the sea. He observes, that the tar is thrown up as it were in the act of boiling, but that the superincumbent water remains at rest ; both the water and the tar are quite cool even in the hottest weather. The bottom of these springs, he says, has never been sounded, and any buoyant substance sunk by art in them, is found floating on the surface of the sea shortly afterwards. In April the springs fill nearly to overflow, at which period the peasants skim off the tar as in the time of Herodotus, not however by means of myrtle boughs, but by pails.

The water of the springs, as has already been stated, is limpid ; that from the largest, is transparent, and smells strong of tar ; that from the smaller is as limpid as the other, but

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* The following analysis of the water of one of the springs (the northern) is given in "Travels in various Countries of the East," edited by the Reverend Robert Walpole. A. M. 4to. London, 1820. Sulphate of magnesia 90 grs., sulphate of soda 40 grs., selenite 10 grs., muriate of lime 28 grs., muriate of magnesia 24 grs., muriate of soda 172 grs., resinous matter 8 grs., loss 4 grs., total 372 grs. Eight ounces of the tar yield by distillation 2 ounces of oil similar to that known under the name of petroleum.

sweet, and not so strong smelling. This water is used by the peasants as a cure for fever; it is said to purge without violence, and to promote digestion. In venereal diseases (gonorrhœa and gleet, I presume) St. Sauveur asserts that it is useful in exciting the urinary and cuticular discharges, and in drying up internal ulceration. The same author states that the English sailors were in the habit of using it, and with success, against scurvy.

Besides the effluvia from marshes, &c., sulphurous exhalations arise from many spots, some of which will be enumerated in speaking of the wells. The steeping of flax, which is very general, is also an abundant source of deleterious exhalations. This is a fact long known, and adverted to by Lancisi (the first authority upon the subject). If steeped in running streams, although destructive to fish, it appears innocuous to man, but in stagnant or shallow waters, as those of Zante, it is beyond doubt injurious to the human frame. The *Urbs vetus*, in Etruria, was infested with fevers until the steeping of flax was prevented in the year 1705, after which they never occurred; and to this day at Naples, fever is constantly observed to occur in situations of this description.

AGRICULTURE, MANUFACTURES.

Although the soil of Zante is not by nature so rich as that of some of the other islands, yet by an improved system of agriculture, it has been rendered fully as productive. The instruments of this art are not much superior to those in ordinary use in the other islands, but they manure the ground more highly, and irrigation, or at least damming back the rivulets, is more practised than elsewhere, much to the improvement of the low land crops, but from mismanagement, and the neglect of letting the accumulated waters off in the autumn, considerably to the detriment of the health of the inhabitants. The ground is in many places so little above the level of the sea, as I have already observed, that some art is required to prevent the waters from stagnating in the brooks and streamlets; and this is often aggravated by the winds and the earthquakes,

which frequently and suddenly throw up the banks of sand at their mouths. I witnessed an extensive formation of this kind to the northward of the town, within the short space of ten days, where the depth of water suddenly decreased from six feet to one foot.

Horticulture, as I have already observed, is on a very respectable footing, at least so far as we may judge by the produce of the markets. As for the recent inventions and delicate practices of modern English horticulturists, they are altogether unknown, nor, in a climate so favourable to vegetation, are they, perhaps, necessary.

A coarse but very excellent carpeting of goats hair is made at Zante, and this is generally reckoned its principal manufacture after wine and oil. A very strong silk is also manufactured here, much used of late years by the British officers, particularly of the navy. Soap is also manufactured in considerable quantity. Besides the persons employed in those works, we find in the city, goldsmiths, jewellers, tinmen, gunsmiths, coopers, dyers, distillers, and the more ordinary kind of workmen, as tailors, shoemakers, &c.

ROADS AND COMMUNICATIONS.

These most important sources of comfort and cultivation are more numerous, and I think better (on the plain at least) than in any of the other islands which I have hitherto visited. The public attention has been lately attracted to the subject, and a few years, it is to be hoped, will bring about a considerable improvement under these heads, throughout the whole septinsular union.

POPULATION.

In the returns made by the French Government in 1807, the number of inhabitants was stated at 40,000 in round numbers; and the anonymous critic in the "Quarterly Review," No. 46, gives a similar estimate. But from the most authentic sources, I am enabled to give the population as it actually

existed in 1819, when it stood at 15,092 in the city, and 19,873 in the country, or not quite 35,000 souls.

TOWN, VILLAGES, &c.

THE city of Zante is very imposing in its external appearance, viewed from the sea. It is an open unwalled town, and stretches along a gently curved bay for about a mile and three-quarters. At about half a mile from the northern extremity is the point of Crio Nero, jutting into the sea, from whence the town and shipping are supplied with water. Close to its southern extremity flows the little river or fiumare already mentioned, which serves to discharge some of the waters of the plain into the bay. This end of the town is considered much less healthy than the northern extremity, from the damp and vapours which arise from this fiumare.

In breadth the town no where exceeds 300 yards, except where the houses stretch up the hill, upon which the castle is erected. In 1819 the city contained 3730 private houses, 65 churches, 5 private chapels, 2 convents of monks, and 2 of nuns, and 27 public edifices of various descriptions, including 2 Jewish synagogues. Some of the houses are four or five stories high, built of stone, and strongly clamped together with iron. These edifices are on the Venetian plan of architecture, with triangular lattices to the windows, and many of them are very splendid in their external appearance. The principal streets run parallel to the bay, and are intersected in various directions by lesser lanes and alleys. The Via Larga, or great street, would not disgrace any city in Europe. The houses are very handsome, and are furnished with piazzas in front, which afford a shady walk. Under these are the principal shops, which are extremely well stocked with the various products of England, the Continent, and the Levant. The streets are paved and are furnished with sewers, which, however, are not so well covered over as might be wished. There are no regular market-places, consequently the streets are obstructed by the sellers of various articles of provisions, &c.

In the country there are forty-eight villages and many scattered houses. The external appearance of the houses is

very picturesque. Several of them are two stories high, and the peasants pride themselves much in ornamenting them. As in all the other islands, there are no fire-places in the houses, and the majority of them are without necessaries or proper drains. Upon the whole, however, it may be fairly stated that the inhabitants, whether in the town or the country, are to all appearances much more comfortably lodged than in any other island of the Septinsular union.

In their furniture, fuel, clothing, and diet, they are similar to the natives of Corfu and Cephalonia. Their employments, customs, and morals, are nearly the same; and in the system of education and rearing of children there is very little difference. There are some few miscellaneous particulars, however, which I may here notice, as they may affect the health of the inhabitants. And first, of the water used for dietetic and culinary purposes, to which I shall add those which are considered by the inhabitants as medicinal or curious.

WATER, WELLS, &c.

THERE are in the town of Zante, 44 cisterns, 1288 public and private wells, and 3 springs and fountains, as appears by statistical tables with which I have been favoured by the Government. The water in all these is so highly saturated with sulphate of lime, or sulphate of soda, as to be unfit for culinary purposes; besides which, from the porous nature of the soil, proper cisterns cannot be constructed to retain the rain water; and owing to this cause, as well as to the proximity of the town to the sea, and its very small elevation above it, the water in the cisterns becomes brackish. Luckily for the inhabitants, there is a never-failing and copious supply of water obtainable from the fountain of Crio Nero, which is no more than about half a mile from the northern end of the city. It would not be difficult to convey this water over arches, and, by means of pipes, to distribute it to all parts of the town. At present, however, it is brought in boats. The troops are supplied with a ration of one gallon per man per day, and the natives purchase it at the rate of one penny sterling per Venetian barrel of eleven gallons.

Mount Scopo, to the northward of the town, at a few miles distance, abounds in excellent springs. An attempt was made, on the first occupation of the island, to supply the city from that source, but it was laid aside after some progress had been made in it, owing, I believe, to the great expense. The greatest value of this plan is, that, from the elevation of Scopo, the castle could be abundantly supplied with a never-failing stream, the want of which is severely felt in the summer months, when the tanks within the fortress are soon dry, and this necessary of life is conveyed up the hill by mules.

In many parts of the island, according to St. Sauveur, springs of an oily taste and smell are found; some of them on the shore, though covered with sea water, still retain their sweetness to a certain extent, when drawn up, and the sea water removed from the surface. All these springs have been greatly neglected, and many of them have been destroyed by the earthquakes.

There formerly existed in the great plain near the village of Geracario, between the mountains and the shore, a mineral spring called Bromonero, or fetid water. It was in full flow in the days of St. Sauveur, who describes its mouth as about ten or twelve feet in circumference, pouring forth a limpid water somewhat brackish, but of a very highly offensive sulphureous smell. Mr. Thomas tells me that it has been purposely filled up on account of its fetor. The natives employed the water as a lotion against the rot in sheep, and for the cure of itch. St. Sauveur states, that to the northward of Bromonero, nearer the mountain, there existed another spring of a sulphureous quality, supposed also to be chalybeate, and much used in obstinate obstructions.

It was supposed that the Bromonero spring had a subterraneous communication with a cave or grotto at the point of Schinari, which has been much talked of under the appellation of the "grease spring." From the grotto there issues a substance of a whitish filmy nature, which floats on the surface of the water. It in some degree resembles tallow, but when rubbed between the fingers, it imparts no oily or greasy feel. The smell is sulphureous and very offensive. St. Sauveur says, that it is used by the natives externally for diseases of their

cattle. When kept in a bottle, he states that it is quickly dissolved into a yellowish water of a very fetid smell. I have now, on the passage from Zante, specimens of this substance, some for our infant collection of natural history, and some which I propose to forward home for analysis, an operation which I believe it has never been subjected to *. Mr. Thomas tells me that he gave some of the matter of the grease spring to Mr. William Allen, druggist of London, for a similar purpose. That very excellent person suggested that it is of the nature of an hydroguretted sulphur. The air of the cave from whence it issues is most strongly impregnated with sulphuretted hydrogen gas.

DIET, &c.

Fresh fish is not so much an article of diet among the Zantiots as in some of the other islands, for the fish is not so abundant, nor is it considered so good, except in the months of October and November. In other respects their diet is similar to that of the people of Corfu and Cephalonia. The peasantry, however, drink a larger quantity of good wine than persons of the same class among the other islands. They are often seen to assemble in groups at the wine-shops and eating-houses dispersed throughout the city, preparatory to their return to their villages after the sale or purchase of the various domestic articles, &c., in which they deal.

Zante presents a scene of activity and commercial bustle much superior to what is met with in the capitals of the other islands; and the peasantry, especially those of the hilly districts, are of a much more healthful and robust appearance than those we see elsewhere. The life of the latter is almost solely pastoral and agricultural. Unlike the Corfiots, the natives of the more distant country districts are in general much healthier than those in the towns. From two to three thousand of the peasantry were, previous to the late disturbances, in the habit of emigrating annually to the Morea,

* Since writing the above, the specimens have arrived, but were all dissolved, as described by St. Sauveur.

during the harvest season; they brought home the pecuniary produce of their labours, but too frequently they also imported with them the germ of fever of the remittent kind, occasioned by their exposure to the sun, sleeping in the open air, and feeding on bad bread and other food devoid of nutrition, while subjected to the malarious vapours arising from marshy ground, especially in the districts of Elis and Arcadia.

POLICE, MARKETS, POOR, &c.

The police of Zante, as respects the cleanliness of the town, is very defective. Those abominable depots of filth, which I mentioned as existing at Corfu, under the name of "calle morte," are to be frequently met with. Few native houses have proper drains or privies attached to them, and the streets, though cleaner than in any other town I have yet seen in the islands, are not as correctly kept in this respect as they should, and as they very easily might be.

There are no regular markets as at Corfu, but all articles of provision are exposed in the streets, and the shambles and slaughter-houses are indiscriminately mixed with the habitations. The necessaries of life are cheap and good in Zante, although when I was there the English inhabitants began to complain very much of the scarcity of many luxuries, as fowls, and especially turkies, which used to be imported in vast quantities, and at a very moderate price from the Morea. For the best species of fish also, the fishermen are obliged to proceed to the opposite continental shore, where they abound much more than on the coasts of the island. The vegetables and fruits of Zante are very fine in appearance, and although inferior to similar articles in England, they are, I think, superior to those of Corfu; but an article in which Zante is unrivalled is mutton, which forms so large a proportion of the soldiers' diet; it is small, but fat, and extremely tender and well flavoured. The lamb is also excellent.

The following are the market prices at which the various articles of food were furnished to the military hospitals at the period of my visit.—Beef per lb. 6 oboli of 100 to the dollar of 4*s*. 6*d*. sterling; mutton by the carcass from 2 to 3 dollars;

bread 4 oboli per lb., wine 4½ oboli per pint, milk 5 per pint, rice 5 per lb., macaroni 5½ per lb., eggs 1½ obolus each, fowls 28 oboli each, flour 5 per lb., tea 80 per lb., sugar 11 per lb., vegetables abundant for soup for one man, ½ an obolus.

There are but few poor to be seen in the streets, for I understand that all who are able to work get employment, and their wages are amply sufficient for their support. But there is an institution for this class of persons, connected with the Foundling Hospital, and known under the name of Orphanotrophion, the general principle of which is excellent, although the details certainly admit of considerable improvement.

The house was erected a few years ago at the expense of Government; it is situated near the northern extremity of the town. As a building it is respectable, but the plan is bad, and the filth of the surrounding premises, when I visited them, was excessive. Two native gentlemen act as visitors or inspectors, and serve gratuitously; one physician and one surgeon are attached to the establishment, the former at 12, the latter at 10 dollars per month. The establishment is divided into three branches. The orphan hospital, the hospital for poor women, and the hospital for poor men; it is supported by Government, but it has also some funds of its own, and there are poor-boxes established at all the churches for the purchase of medicines, &c.

From 1809 to the latest period of making up the books, some time before my visit, the following was the distribution of the orphans:—

Admitted Orphans	216	
Of whom died	84	or 1 in about 2½
Claimed by their parents	6	
Adopted by different people	23	
Out at nurse	86	
In the house	17	
Total	216	

The orphans occupy the upper part of the house, where there are accommodations for thirty-four children. In the lower part or ground-floor, there were thirty-seven paupers, male and female. The personal appearance of those I saw, as

well as their rooms and bedding, was far from being prepossessing. I went into the kitchen where dinner was preparing. It was very meagre indeed—a sort of vegetable soup, with abundance of peas, and some bread of a coarse quality; the utensils were very miserable. But at this I could not wonder, as I was informed that the manager or prior, who is an apothecary in the town, contracts, for four dollars per month, to feed them, find one shirt, bed and bedding, washing, shaving, kitchen and other utensils, cooks and servants! It is to be observed, however, that there is no regulated diet, and the paupers are fed as the prior thinks proper.

Besides the Orphanotrophion, there is a very charitable institution, supported entirely at the private expense of Prince Comuto; it is a lodging-house for destitute poor, where they may sleep and cook their victuals. There is no regular distribution of food to those who avail themselves of the shelter afforded by this establishment.

DISEASES OF THE INHABITANTS.

The peasants, especially of the mountainous districts, are a very hardy race, and are as exempt from disease as any peasantry on earth, except when they catch remittent or intermittent fevers from exposure to marsh miasmata in their descent to the plains, or when they chance to emigrate to the continent, as already mentioned. The natives of the plains and the citizens suffer greatly from remittent autumnal fevers. They are also subject to cholera morbus, to hepatitis and dysentery. Dyspeptic complaints are common, from a custom universally prevalent among the Greeks, of alternate long fasting and excessive gormandizing, which the periods of their Lent and other fasts and vigils of the Church encourage.

Worms, especially the teretes, are very prevalent among all ranks, particularly among the peasants who resort to the Morea. Mr. Thomas, who has had numerous opportunities of observation, tells me that the quantities passed at the Lazaretto by this description of persons on their return from the harvest, almost exceeds belief. The tænia is rare. Neither species of worms

seems to produce much injury to the general health, and never has been known to endanger life.

As in the other islands, the diseases of the winter and spring are of an inflammatory nature, and those of the summer and autumn of the typhoid type. The last period is peculiarly unfavourable for those who have been reduced by previous disease.

Small-pox is now very rare, owing to the introduction of vaccination. It raged with some violence in one of the distant villages in 1817. By vaccination its further ravages were checked; and it may be worthy of remark, that the crusts were on this occasion found more useful than the dried lymph.

Births, Marriages, and Deaths.—I could procure nothing satisfactory under these heads, in consequence of the non-existence of proper registers. Many natives are long-lived, and persons of ninety years of age, in the full possession of their senses, are not unfrequently met with.

Epizooties and Diseases of Plants.—I could acquire no peculiar information under these heads. They differ, I understand, in no shape from the same class of diseases observed in the other islands, as already noted under the heads of Corfu and Cephalonia.

Popular Medicines and Hospitals.—Under the first of these heads I have found nothing peculiar, and the only civil hospital in the island I have mentioned under the head of poor. As in the other islands, the Proto Medico visits the distressed poor, and reports to the head of the Sanita on all points connected with the public health.

Quarantine Establishment.—This is placed under the care of a staff-surgeon, with a salary of 100 dollars per month. The Lazaretto is situated about a mile and a half to the southward of the town. The regulations are the same as in the quarantine establishments of Corfu and Cephalonia, and similar improvements have been effected in this respect in Zante as in the former islands.

Prison.—The prison of Zante is of a very bad description indeed, the same that existed under the Venetian government. On visiting its dirty, low, and ill-aired cells, it was to me a

matter of astonishment that any prisoner could escape disease. Happily, under the present government active measures are now in progress to remove this serious nuisance. A most airy and healthful spot has been pitched upon for the site of the new prison.

STATE OF PHYSIC AND SURGERY, VACCINATION, EMPIRICS.

THERE exists no medical school in the island of Zante. The education of the better order of medical men has been conducted at some of the Italian universities. Their practice, as far as I have been able to ascertain, is similar to that adopted by the same class of men in the other islands; that is to say, inert in our English view of the subject, but probably much better adapted to the diseases of the native Zantiot, than if they were treated by the same active depletory means, as the sanguineous, high fed, and intemperate English soldier. At all events, the span of human existence is not shorter among the inhabitants than in any other part of the globe, similarly circumstanced in point of climate and locality.

Small-pox, as I have already remarked, has committed no ravages since vaccination has been introduced. The employment of that prophylactic is in full force, and daily performed by the English, and the prejudices of the natives have gradually yielded to the precept and example of their protectors.

Of empiricism I have little to communicate beyond what I have already stated while treating of the other islands, with the exception of the practice in one disease, which St. Sauveur reports to be eminently successful; a report which has since been confirmed to me by several practitioners worthy of credit who have adopted it. The disease to which I allude is rachitis, and the empirical mode of cure is as follows. On the first appearance of the disease, the patient is placed on a strict regimen, and is immediately purged with a light decoction of senna. A syrup is then made from a decoction of Aristolochia longa, Carduus benedictus, Scolopendria and Verbena, of each equal parts. These herbs are boiled for half an hour, and the decoction when

fully impregnated is properly strained, evaporated and sweetened. The dose is six ounces three times a day; viz. in the morning, three hours after an early dinner, and four hours after a light evening meal. The affected parts are bathed by gently rubbing some of the syrup over them, and this operation is repeated three times a day. After the bathing, a small quantity of powdered aloes is strewed over the part, and some of it is secured to the wrists. During eight days the treatment is regularly persevered in, the patient keeping his bed all the time. In some cases the parts are compressed by a plate of lead moistened with the syrup and strewed over with powdered aloes*.

WORKS CONNECTED WITH MEDICAL TOPOGRAPHY, &c. &c.

I AM not aware of any works dedicated, either solely or incidentally, to the topography or diseases of Zante.

So far as I have been able to discover, Zante has given birth to no individual eminent in physic, surgery, or the accessary sciences. It has, however, been the grave of one of the most celebrated physicians of his day. The incomparable Vesalius, when forced by the Inquisition to make a pilgrimage to the Holy Land to expiate the crime of opening a Spanish gentleman's body, perished by shipwreck upon the coast in 1564. I inquired in vain for information as to the precise spot: none of my respondents knew of the fact, even from tradition, nor could I find, in looking through the various churches, that even a single stone marked where he lay.

The only islander who has produced any medical work that I can discover, was Vendoti, who, in 1780, printed at Venice, in 8vo. a translation of Tissot's "Avis au Peuple sur sa Santé."

No library is to be found at Zante; and I think medical books are more rare among professional men of this than of either of the other islands I have described.

The number of medical men in the town and country of

* St. Sauveur, tom. iii. p. 177.

Zante I have been able to ascertain from the statistical tables already so often referred to. They are as follows:

	Town	Country	Total.
Physicians and Surgeons .	18 ..	17 ..	35
Assistant-Surgeons . .	12 ..	57 ..	69
Apothecaries . . .	16 ..	5 ..	21
Total of all descriptions .	46	79	125

SECTION THE SECOND.

BARRACKS.

THERE is only one military post in Zante, viz. that in the capital. The barracks are divided into those within the walls of the old fortress or castle, and those in the town. The latter have been hitherto temporary, but arrangements are now going forward for a permanent structure of this description.

The castle is of considerable antiquity. It crowns the top and one side of the hill of clay and calcareous stone, already spoken of as known formerly under the name "acroteria." This hill rises immediately behind the town to a height of between 300 and 400 feet. Several deep gullies indent its sides; and, to the southward, a very large mass is divided from the main body by a deep and impassable fissure, said to have been occasioned by an earthquake. The town stretches up the side of the hill to within about 100 paces of the entrance of the fortress. The fortress is an enclosure of nearly a triangular shape, containing within its area twelve or fourteen acres. The entrance presents somewhat the appearance of modern military architecture, but the remainder is simply a strong old wall, occasionally loop-holed, turreted or battlemented, without any regularity of plan; consequently, without any military strength. The approach winds so much along the face of the hill, that the ascent from the town is sufficiently easy, but it

necessarily exposes the guards, fatigue and provision parties, to a very long exposure to the sun daily.

The barracks consist of four separate stone buildings, fitted up for military purposes, and usually occupied by three companies, and a detachment of artillery. Besides these barracks there are a number of gardens and private houses within the enclosure; several of the latter are occupied by married men, and one of them is occasionally used as an hospital, but was unoccupied when I visited the island.

The garrison is supplied with very good water from tanks and wells, but unfortunately it is quite inadequate to the consumption of more than six or eight months in the coolest part of the year. Within the enclosure, near the entrance, are several cells used for solitary confinement. Speaking in general terms, and considering local circumstances, the castle barracks of Zante are very fair; but where there is no regularity of plan, an attempt at description would be useless, and indeed the most laboured execution could convey no correct idea of the buildings described. The locality was formerly considered more unhealthy than the town; but Mr. Thomas informs me, that a residence of more than four years has proved to him that the reverse is the case, and from external appearances I am greatly inclined to coincide with him.

I had prepared many notes on the barracks in the town, which are now rendered unnecessary by the intended commencement of new ones. I may, however, state in a general way how the troops were formerly accommodated, and how they must remain until the new barracks are finished.

A plain stone building at the northern end of the town and on the water's edge, called Santa Trinita barracks, has long been occupied by the troops. It was originally a private house and store, but has been conveniently fitted up for military purposes. The situation has always been considered healthy; it is open to the northerly breeze, and protected by the castle-hill from the strong westerly gales of winter. It is proposed that the new gaol shall be built on the site of these barracks.

At about 300 yards to the southward, and close upon the mole, are a set of barracks within a defensible line wall, commanding the mole-head and landing-place, which, from their

situation, are decidedly the worst in the island. In front of them is a beach constantly covered with an accumulation of marine exuviæ, mixed with putrid animal matters, and in the rear there is a half stagnant branch of the harbour, used for quarantine purposes, and crowded with boats and coasting vessels. The following extract from my report to his Excellency the Commander of the Forces will illustrate this subject:—

"Another very striking cause of disease among the troops at Zante is to be found at the mole barracks, which obviously proceeds from the noxious exhalations of the stagnant water in the quarantine harbour. Fever raged in these barracks during the last autumn, and out of 182 men quartered there, 127 were attacked, while of 523 men stationed in the castle and Trinita barracks, only 192 suffered from the disease. Out of 32 fatal cases occasioned by the fever, 23 occurred in men who had been quartered at the mole barracks. That it was peculiarly unhealthy is therefore incontestable; the nuisance, however, is now in progress of removal, and the most offensive part of the harbour will be completely filled up. If this does not succeed, I would recommend the evacuation of the mole barracks altogether during the summer months. It would be a most desirable improvement if the whole of the quarantine harbour was filled up, and that establishment transferred elsewhere. This, however, must be a work of time."

For military purposes it is necessary that the barracks should be in the vicinity of the mole, and so formed, as to serve for a convenient point of military assembly, or as a *place-d'armes*. The plan of the new barracks is excellent. Some little alteration in the site originally fixed upon has been proposed, and some delay has arisen in commencing the building. I, therefore, will defer to another opportunity giving a description of the new barracks, but I may mention that I have strenuously advised, that if built near the present site, the ground floor should be raised at least six feet above the surface; that the ground beneath, after being properly trenched and covered with gravel, lime, or dry rubbish, to a few feet deep, should be paved, and that the pavement should be then covered with a composition of the native pitch and lime, to act as a sort of tarras or cement, impenetrable to the rising moisture. Even after all these pre-

cautions, I have offered my opinion that during the autumnal months the ground floor should never be occupied by the troops; and that even at other periods of the year they should, as much as possible, be used solely for store-rooms and similar purposes. I have further recommended, that the seams of the lower floors should be completely calked and rendered air and water tight; and above all, that no part of the foundation of the new erection should be laid upon "made ground," as it is called. As some ground of this description, taken in from the quarantine harbour, must of necessity be within or close to the barrack enclosure or the parade, I have advised that it should be well trenched, that the surface should be raised an additional foot or two above the old level, and that it should then be covered with dry gravel, or lime rubbish, and effectually paved or flagged.

Some detached houses in the town are occasionally used for barrack purposes: there is nothing peculiar in them which calls for any remark. I shall finish this part of the subject by transcribing what I have already stated in my report to His Excellency the commander of the forces.

"The barracks are, with the exception of the mole, as good as the island can afford, and the order and cleanliness observed in them is most exemplary. I have nothing to propose or suggest for their improvement, beyond the general hints that I have ventured to offer on the management of barracks in my report on those of Corfu. If the service admitted of it, the preference should certainly be given to the barracks in the castle; but as the duties require that a part of the troops should be quartered in the town, it would be idle to speculate upon the superior advantages they might possibly enjoy elsewhere."

HOSPITAL.

By the violence of the earthquake of December, 1820, the old hospital was destroyed; and when I visited the island, the sick were in temporary accommodations in the neighbourhood. Were the troops quartered solely in the castle, hospital accommodation could easily be found within its walls, but so

long as the town is occupied, an hospital must be provided in it. The plan of the new hospital is very fair, and the situation not bad, although both might certainly have been improved upon with little, if any, additional expense. However, as the foundations were laid before I saw it, I could only offer some few hints on the plan previously fixed upon, of which His Excellency the commander of the forces was pleased to approve, and ordered a very serious addition to the size of the hospital yard, greatly to the promotion of ventilation, and to the increase of accommodation for stores, offices, and other necessary appendages to an hospital.

DISEASES OF THE TROOPS.

I SHALL now very briefly touch upon the prevalent diseases of the island of Zante, which, from what I have already said of the locality of the island, must obviously be fever of the remittent and intermittent type. Much of what I might say has already been anticipated under this head, in the report on Corfu and Cephalonia. I shall, however, offer some few remarks from the official reports, especially from that of Dr. Cartan, whose corps (the 8th regiment) suffered in a peculiarly severe degree in the autumn of 1821.

I shall first give a slight comparative view of the occurrence and mortality of the different species of fever for five years and a half, from June, 1816, to December, 1821.

	Admitted.	Discharged.	Died.
Continued fever . .	746 . .	673 . .	40, or 1 in $18\frac{26}{40}$
Remittent	707 . .	619 . .	50 „ 1 „ $14\frac{7}{50}$
Intermittent . . .	335 . .	334	

Proportional mortality 1 in $19\frac{78}{50}$.

It would be most desirable to ascertain the causes which render one year more productive of fever than another. I have long turned the subject in my mind; but when I reflect upon the impossibility of collecting the relative state of corps in different years, particularly in past years, when little attention was paid to those subjects, and when but very imperfect documents are in existence, I have given up the pursuit from a conviction that it would be useless, and that the most

laboured attempt could only demonstrate what great pains had been taken to arrive at conclusions, which, from the falsity of their premises, must be altogether worthless. Indeed, even among much smaller numbers of subjects than are to be found in a regiment, and where a great conformity of diet, clothing, exercise, and modes of living have existed for years, we find it altogether beyond our ability to account satisfactorily for the greater prevalence of fever in one year than in another. It is, however, a remark of the natives of the Ionian islands, which appears to be sufficiently confirmed by the observations of the Venetian, Russian, French and English residents, that, on an average of five years, the mortality by fever is nearly uniform. One year, or even two, in succession, may be unusually healthy, but the alternate years are generally found to be strikingly the reverse, so that upon the whole, in every five years, fever destroys its accustomed number of victims.

I have not had access to the returns of the French and Russian army, but I have been made acquainted with the general result, which speaks strongly in favour of those medical philosophers, who assume, that on an average of years, mortality by fever is nearly the same, whatever the mode of treatment adopted may be. For I have every reason to suppose, that among the French troops, where the "medecine expectante" was generally the order of the day, there occurred, upon the whole, no greater proportion of deaths than among the English, who met the fevers of the country with mercury and the lancet in all the activity, and all the orthodoxy of the schools. And among the Russians, whose practice was as rude and barbarous, and their apathy, as to the event, as impenetrable as that of their Turkish neighbours, the results were similar.

The most unhealthy years noticed by the British, at Zante, have been the years 1816 and 1821. Of the medical history of the former, very little remains to us, and that little is far from satisfactory. The principal diseases of that year were remittents and intermittents, which appear to have been of a milder grade than those of Cephalonia; the causes were apparently the same, viz. marsh miasmata, and the consequences were similar, viz. great mortality, and obstinate visceral obstructions among the survivors. It would appear, that the

troops quartered on the high ground of the castle were, on this occasion, equal sufferers with those on the lower grounds of the town. Indeed, it was considered that the cases from the fort were rather more violent than the others.

Whether it may have proceeded from peculiarities in the opinion of the prescribing medical officers, or peculiarities in the disease in 1816, I am not prepared positively to assert; but the expenditure of extra articles of solid food, and of wine, by the convalescents, was, on that occasion, so enormous, as to be designated by Mr. Warren, my very respectable predecessor, "a lavish expenditure;" and judging from this, as well as from what I have myself witnessed on like occasions, I should be disposed to say, that although convalescence from the fevers of Zante is slower than in the British islands, or in Malta, and calls for a somewhat more nutritive and stimulant diet, yet that such a diet is neither demanded nor justified in the generality of cases, although, from this extent of stimulation being early adopted, and indiscriminately used in all cases, there can be little doubt that an artificial necessity for its continuance has frequently been created, and that the treatment of the physician has established a necessity for a procedure, which in a great majority of instances was never called for by the original nature of the disease. To those who can recollect Brunonianism, when at its height, or even in its expiring struggles in the British islands, it will not be difficult to conceive how this artificial change is effected upon the natural form of disease. The constitution which can survive negus in the first week of fever will live under the administration of port wine in the second; will demand brandy in the third, and will, perhaps, die from the want of support in the fourth, if the diffusible stimulus is not increased in quantity.

I have had opportunities of conversing with many medical men upon this subject, but more particularly with Staff-Surgeon Tully, who, in his capacity of surgeon of the 35th regiment, was quartered in the island of Zante, from the year 1809 to the year 1813. He found that the Mole barracks were the most unhealthy, as was natural to be anticipated from their situation already described, and fevers were frequent during his residence. Among the Calabrese and Sicilians,

who were attached at that period to our army, these fevers appeared in the form of intermittents, while, among the British, they put on the remittent type; but there never was any year especially remarkable for its mortality, nor did Mr. Tully ever observe a greater necessity for the adoption of the excessively stimulant plan, or, indeed, for more than an ordinary administration of stimuli at Zante, than at any other quarter where he had been stationed in the Mediterranean.

The history of the fever of 1821, as it occurred in the 8th regiment, is much more tangible than that of the disease, as it has been observed among the British troops at any preceding period. I shall give some account of it from the report of Dr. Cartan, surgeon of the 8th regiment, and as nearly as possible in his own words.

Dr. Cartan commences his report by stating, that, although he calls the disease continued fever, yet, after the end of July, it frequently assumed the remittent character. Of the symptoms he observes, "This fever was often ushered in by rigor, more frequently by alternate heats and chills, succeeded by heat without chills; there were tension and soreness of the epigastrium, gastric irritability and vomiting, bowels generally bound and extremely torpid (in a few cases there was dysenteric irritation), congestion and pain of the head, suffusion of the eyes, pain across the loins and in the great joints, more especially the knees, and here referred by the patient to the patella; many complained of soreness of the whole surface, the pulse was rapid and invariably small, respiration hurried, skin pungently hot, thirst, tongue moist and furred; in a few cases it was clean and florid; in some, it was brown and dry in the latter stage of the disease, more particularly as we advanced in the autumn; in many instances the countenance was sallow, and the conjunctiva tinged." "These were the symptoms that usually marked the disease for the first two days, making allowance for the treatment; the fever then assumed a remittent form, and, if not arrested, went on to a fatal termination.

"On the third day usually, sometimes later, delirium and indistinct articulation supervened, deglutition became somewhat difficult, the pupils were dilated, the hands and fore-arms

were fixed by the convulsive tension of the muscles, the men always wishing to get out of bed, and appearing to take advantage of the absence of the orderlies to do so. I have seen them thus get out of bed, and deliberately wrap the rug about them, and walk as if intent on some particular and important business; and when arrested, return quietly, unable to give any account of their object in leaving their bed.

"There was great want of sleep, the torpidity of the bowels continued, the alvine evacuations were dark, fetid and watery, and in the afterpart of the disease had a substance floating in them like chopped tobacco leaves,—in others a substance like the white of eggs, boiled hard, and broken down in them; in many instances lumbrici were ejected per anum, sometimes by the mouth; the urine was dark and turbid, as if clotted blood had been dissolved in it; the pulse was always feeble: some of the patients had epistaxis, others threw out blotches, which receded, and re-appeared, from time to time, on the surface of the body and extremities, as if stung with nettles; many of the men became suddenly yellow during the treatment.

"As the disease proceeded there was an evening exacerbation with intolerable heat of skin, and morning remissions with a profuse and useless sweat; the skin remaining hot; at length the exacerbation was succeeded by collapse, attended by hurried and anxious respiration, a thready intermittent pulse, the patient picking the bed-clothes, involuntary colliquative stools, impeded deglutition and cold clammy sweat, proclaiming the paralyzed state of the exhalants and sphincters, and approaching dissolution. In some cases a considerable quantity of blood, at first clotted, afterwards fluid, was discharged per anum, immediately before death. In a few cases the high action appeared in the morning, and remission in the evening, which was a dangerous irregularity; but perhaps the most singular feature in this disease was the extraordinary desire the men had for food, and the quantity of fluids they consumed, throughout the disease, till deglutition became totally impeded immediately before death."

Of the *post mortem* appearances Dr. Cartan observes, that they "afforded no evidence of inflammation in any of the

cavities; in the abdomen there was certainly diseased structure, but apparently nothing incompatible with life, or that accounted for death. The spleen, in most cases, was enlarged, and its structure unusually soft and tender; the liver, in some cases, was enlarged, sometimes not; in a few cases I thought it was diminished in size, and in one case, that does not come exactly within this period, it was very much diminished; and, that physiologists may speculate fairly, I think it necessary to state, that, in this particular case, the spleen was of its natural size, and its structure appeared healthy and consistent. Viewing the liver superficially, its colour was in every instance altered, and the alteration was generally in proportion to the duration of the disease. In some cases it presented rather a marbled appearance, the ground a dark green; in others there were large blue spots, as if made with indigo, on the green ground; in others, again, there were patches of little red spots and streaks on the green ground, resembling specimens of bloodstone. On cutting into this viscus, in every direction, and in every case, its structure was consistent throughout, but firmer when diminished in size, and the cavæ hepaticæ bloodless. On dividing the sinus venæ portæ, or any of its principal branches belonging to the floating viscera, the cavity of the belly was deluged with blood. The brain was healthy, but I conceived the veins on its surface were more turgid than they ought to be. The lungs were healthy in every instance."

In the cure, Dr. Cartan commenced with brisk cathartics of calomel, combined with extract of colocynth or scammony, or with calomel in simple doses, and castor oil alternately. Throughout the disease he kept the bowels open. After the first twenty-four hours he endeavoured to excite the action of the skin, but his great object was to excite the action of the liver by mercurials; cold sponging, effervescing draughts, and the other ordinary remedies were used as occasion demanded. Venesection, after the latter end of July, he found "entirely out of the question;" and, indeed, he says, he had little occasion to bleed even before that period.

A very urgent and a very constant symptom of convalescence was depraved appetite; in many cases amounting to

bulimia. Dr. Cartan informed me, that he did not conceive that the extra food acted medicinally upon the men, although, at the same time, he did not observe that it injured them. He gave it to dying men, rather as an act of humanity, to allay the extraordinary and craving calls of appetite. The extra meat was exhibited in the form of soups and beef tea, and the patients even called loud for tripe, bacon, &c. &c., almost to the hour of their dissolution.

I cannot find anything further, which demands insertion in this report, that I have not already spoken of in treating of the diseases of the other islands. I shall, therefore, here close my account of Zante, and proceed to the medical topography of the other islands of the Union.

In the annexed Appendices will be found, in addition to the Meteorological Table, Appendix I., the following, viz. Appendix II., a Catalogue of the Plants, Shrubs, and Trees of the island of Zante, by Staff-Surgeon Thomas. Appendix III., a Statement of Diseases, Admissions, Discharges, and Deaths in the Military Hospitals of Zante, from the 21st of June, 1816, to the 20th of December, 1821.

Appendix IV. gives a Table of Marriages, Births, and Mortality among the native inhabitants for four successive years. I fear the numerical correctness of this table cannot be *implicitly* relied upon, as it was not made from records kept by British officers.

APPENDIX TO ZANTE.—I.

Meteorological Observations for Four successive Years.

Years.	Months.	Range of Thermometer.		Prevailing Winds and State of the Weather.
		Max.	Min.	
1818	January	59	50	N. cold and dry.
	February	61	54	W. dry and sharp.
	March	63	58	W.
	April	74	62	N.E. fine.
	May	74	69	E. settled.
	June	80	75	N.
	July	87	77	N. and N.W.
	August	89	75	Do. do.
	September	76	73	Variable.
	October	73	66	S.E. damp.
	November	67	60	Do. and rainy.
	December	66	50	Do. do.
1819	January	58	55	W.N.W. rainy.
	February	63	55	W. and S.W. squally and wet.
	March	68	60	N.E. dry and fine.
	April	70	64	S.W. rainy.
	May	75	68	N.W. fine.
	June	85	75	N.W. and S.E. fine.
	July	83	80	N. fine.
	August	82	76	N. latter part rainy.
	September	77	73	N. fine.
	October	75	66	S.W. rainy.
	November	73	62	N. cold and snowy.
	December	65	57	S.W. wet and damp.
1820	January	64	57	S. rainy.
	February	63	58	S.W. rainy, with hail.
	March	66	58	N.E. fine.
	April	70	65	S.E. slight rains.
	May	84	70	N.E. very hot.
	June	83	75	N.W. cool.
	July	87	69	Do. do.
	August	91	77	N.E. very hot.
	September	74	71	Westerly, fine.
	October	74	68	S.W. generally dry.
	November	68	60	Do. do. rainy.
	December	65	54	S.E. do. rainy, windy, great earthquake.
1821	January	64	53	N.E. high winds.
	February	60	54	S.W. rainy.
	March	66	60	N.E. fine.
	April	69	65	W. rainy.
	May	79	69	N.W.
	June	82	73	W. unsettled.
	July	84	77	N.W. cool.
	August	82	79	Do. rainy.
	September	76	71	Do. dry.
	October	72	65	N.E. lightning and rainy.
	November	68	58	W. dry.
	December	65	59	N. fine.

II.

Catalogue of the Plants, Shrubs, and Trees of the Island of Zante.

Acanthus mollis
Acer sempervirens
Aconitum lycoctonum
Adiantum capillus
Adonis flammea
Agrimonia eupatoria
Alcea rosea
Alisma plantago
Allium cepa
„ porrum
„ sativum
Althæa officinalis
Amaranthus blitum
„ tricolor
Amygdalus communis
„ amara
„ fragilis
„ persica
Anagallis arvensis
Anemone coronaria
„ hepatica
Angelica sylvestris
Anthemis nobilis
Antirrhinum majus
Apium graveolens
„ petroselinum
Arbutus unedo
Aristolochia longa
„ rotunda
Artemisia abrotanum
„ absinthium
Arundo donax
Arum dracunculus
„ maculatum
Asparagus officinalis
Asplenium adiantum nigrum
„ ceterach
„ ruta muraria
„ scolopendrium
Asarum Europæum
Asphodelus ramosus
Aster novæ angliæ
Ballota nigra
Bellis perennis
Betonica officinalis
Borago officinalis
Brassica (multæ species)
Buxus sempervirens
Cactus ficus indica
Calendula officinalis
Capparis spinosa
Capsicum annum
Cardamine pratensis
Carthamus tinctorius
Centaurea calcitrapa
Ceratonia siliqua
Cerinthe major
Cheiranthus cheiri
Chenopodium vulvaria
Chrysanthemum leucanthemum
„ indicum (flore pleno)
Clematis vitalba
Cicer arietinum
Cichorium intybus
Cineraria maritima
Citrus aurantium
„ medica
Cochlearia armoracia
„ officinalis
Colchicum autumnale
Colutea arborescens
Convolvulus arvensis
Coriandrum sativum
Corylus avellana
Crocus officinalis
Cucubalus behen
Cucumis melo
„ sativus
Cucurbita citrullus
„ lagenaria
„ pepo
Cupressus sempervirens
Cuscuta europæa
Cynara scolymus
Cynoglossum officinalis
Cyperus longus
Datura stramonium
Delphinum Ajacis
Dianthus caryophyllus
Dipsacus laciniatus
Euphorbia dendroides
„ lathyrus
Ervum lens
Eryngium maritimum
Erysimum officinale
Fagus castanea

Ficus carica
Fragaria vesca
Fumaria bulbosa
„ officinalis
Galium aparine
„ verum
Gentiana centaurium
Geranium phæum
„ inginnans
„ moschatum
„ robertianum
„ triste
Gladiolus communis
Glycyrhiza echinata
Gossypium herbaceum
Hedera helix
Helleborus niger
Hippuris vulgaris
Hyacinthus comosus
„ orientale
Hyoscyamus aureus
„ niger
Hypericum perfoliatum
„ perforatum
„ quadrangulare
Hyssopus officinalis
Jasminum azoricum
„ grandiflorum
„ odoratissimum
„ officinale
Ilex aquifolium
Iris florentina
„ germanica
Juglans regia
Lapsana zacintha
Laurus nobilis
Lavandula spica
Lemna minor
Leontodon taraxacum
Lepidium sativum
Lichen (plures species)
Lilium candidum
„ chalcedonicum
Linum usitatissimum
Lonicera caprifolium
Lychnis flos cuculi
Lythrum salicaria
Malva rotundifolia
Marrubium vulgare
Matricaria chamomilla
„ parthenium
Melia azedarach
Melissa officinalis
Mentha arvensis
„ crispa
Mentha pulegium
„ sylvestris
Mercurialis annua
„ perennis
Mespilus germanica
Mimosa farnesiana
Momordica elaterium
„ balsamina
Morus alba
„ nigra
Musa paradisiaca
Myrtus communis
Narcissus jonquilla
„ orientalis
„ minor
Nerium oleander
Nicotiana tabacum
Nigella sativa
Nyctanthes sambac
Nymphæa alba
„ lutea
Ocymum basilicum
„ crispum
Olea europæa
„ sylvestris
Ononis spinosa
Orchis morio
Origanum heracleoticum
„ majorana
„ vulgare
Osmunda regalis
Oxalis corniculata
Papaver rhœas
„ somniferum
Pæonia officinalis
Parietaria officinalis
Passiflora cærulea
Pastinaca sativa
Phaseolus caracalla
Phlomis fruticosa
Phœnix dactylifera
Phytolacca decandra
Pinus cedrus
„ cembra
„ picea
„ pinea
„ sylvestris
Pisum sativum
Plantago coronopus
„ cynops
„ major
„ media
„ psyllium
Platanus orientalis
Polyanthes tuberosa

Polygonum aviculare
„ bistorta
Polypodium filix mas
Polytrichum commune
Populus alba
„ nigra
Portulaca oleracea
Potentilla reptans
Prunus armeniaca
„ austera
„ brignola
„ cerasus
„ cerea
„ damascena
„ domestica
„ hungarica
„ juliana
„ pernicona
Pulmonaria officinalis
Punica granatum
Pyrus communis
„ cydonia
„ malus
Quercus robur
Rhamnus zizyphus
Raphanus rusticanus
„ sativus
Reseda luteola
„ odorata
Ricinus communis
Rosa alba
„ centifolia
„ gallica
„ lutea
Rosmarinus officinalis
Rubia tinctorum
Rubus fruticosus
Rumex acutus
Ruscus aculeatus
Ruta graveolens
Saccharum officinarum
Salsola sativa
Salix alba
„ babylonica
„ pentandra
Salvia officinalis
„ pomifera
„ pratensis
Sambucus ebulus
„ nigra
Scabiosa arvensis
„ succisa
Scandix cerefolium
„ pecten
Scilla maritima
Scirpus lacustris
Scolymus hispanicus
Scorzonera humilis
Scrophularia nodosa
Sedum acre
„ album
„ telephium
Sempervivum arboreum
Senecio jacobæa
Sesamum orientale
Sinapis nigra
Sisymbrium nasturtium
„ sophia
Smilax aspera
Solanum melongena
„ nigrum
„ sodomeum
Sonchus oleraceus
Spartium junceum
Spinacia oleracea
Statice limonium
Symphytum officinale
Tagetes patula
Tanacetum balsamita
„ vulgare
Teucrium chamædrys
„ polium
„ scordium
Thlaspi bursa pastoris
Thymus serpyllum
„ vulgaris
Tribulus terrestris
Trifolium melilotus officinalis
Triticum repens
Tropæolum majus
Tussilago farfara
Typha angustifolia
Ulmus campestris
Urtica dioica
„ pilulifera
„ urens
Valeriana rubra
Verbascum nigrum
„ thapsus
Verbena officinalis
„ triphyla
Veronica beccabunga
„ officinalis
„ spicata
Viola odorata
„ tricolor
Vitex agnus castus
Vitis apyrena
„ vinifera
Xanthium strumarium
Zea mays
Zinnia multiflora

III.

Statement of Diseases, Admissions, Discharges, and Deaths, in the Military Hospital a Zante, from 21st June, 1816, to 20th December, 1821, distinguishing each Year.

DISEASES.	1816.			1817.			1818.			1819.			1820.			1821.		
	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.
Febris Quotid. Int.	84	84	..	124	124	..	38	38	..	23	23	..	25	25	..	41	40	..
„ Remittens	360	328	32	40	31	9	53	47	6	6	6	..	247	206	3	1	..	1
„ Cont. Com.	55	55	..	26	26	..	55	53	2	13	11	..	160	145	2	437	384	36
„ Typhus	..	..	..	2	1	1	..	..	..	..	..	..	..	..	..	..	..	..
Phlegmon et Abscessus	11	11	..	3	3	..	..	..	..	1	..	..	23	22	..	25	26	..
Ophthalmia Simp. M. Acuta	13	13	..	16	16	..	3	3	..	5	4	..	12	11	..	19	23	..
„ „ Chronica	1	1	..	1	1	..	1	1	..	..	..	..	..	..	..	..	..	..
Cynanche Tonsillaris	1	1	..	1	1	..	..	..	..	1	1	..	3	2	..	2	4	..
Pneumonia	16	16	..	7	7	..	5	5	..	7	6	..	3	1	1	10	10	..
Peritonitis	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gastritis	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Enteritis	..	..	..	1	1	..	1	1	..	..	..	..	..	..	..	..	..	..
Hepatitis Acuta	10	9	1	..	..	..	4	3	1	1	..	1	1	..	1	1	1	..
„ Chronica	5	4	1	8	7	1	2	2	..	..	..	..	2	2	..	9	7	2
Splenitis	1	1	..	4	4	..	..	..	..	..	..	..	8	6	2	..	..	..
Rheumatismus Acutus	11	11	..	7	7	..	1	1	..	4	4	..	1	1	..	5	5	..

DISEASES.	1816.			1817.			1818.			1819.			1820.			1821.		
	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.
Rheumatismus Chronicus	7	7	..	5	5	..	..	..	..	2	2	..	..	..	..	3	3	..
Erysipelas	8	8	..	..	..	..	..	..	..	1	1	..	..	..	..	1	1	..
Epistaxis	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
Hæmoptysis	..	..	..	..	..	..	2	2	..	1	1	..	..	..	..	1	1	..
Phthisis Pulm. Tuber.	11	8	3	4	2	2	..	..	..	..	..	..	7	5	2	..	..	..
Hæmorrhois	1	1	..	..	..	..	..	..	..	..	..	..	2	2	..	4	4	..
Catarrhus Acutus	5	5	..	2	2	..	..	..	..	3	3	..	7	5	..	16	18	..
Dysenteria Acuta	29	29	..	20	20	..	13	12	1	20	15	3	80	80	2	40	37	1
Apoplexia	1	..	1	1	..	1	1	1	..	..	..	..	..	..	..	..	..	..
Mania	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..
Paralysis	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
Epilepsia	2	2	..	..	..	..	2	2	..	.	..	..	3	3	..	..	..	..
Cholera Morbus	25	25	..	8	8	..	..	..	..	3	2	..	3	3	..	6	6	..
Diarrhœa	9	9	..	18	17	1	7	7	..	5	5	..	3	3	..	21	20	..
Anasarca	1	..	1	1	..	1	1	1	..	..	..	..	..	..	..	..	..	..
Ascites	..	..	..	2	2	..	..	..	..	1	1	..	..	..	..	..	..	..
Scrofula	..	..	..	1	1	..	2	2	..	..	..	..	..	..	..	..	..	..
Syphilis Primitiva	35	35	..	38	38	..	11	11	..	12	7	..	6	9	..	4	4	..
Bubo Simplex	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	8	5	..
Ulcera Penis non Syph.	1	1	..	..	..	..	..	..	..	6	4	..	..	..	..	..	..	..
Icterus	1	1	..	4	4	..	..	..	..	..	..	..	2	2	..	2	..	..
Gonorrhœa	12	12	..	17	17	..	6	6	..	8	7	..	9	9	..	14	13	..

Hernia Humoralis	7	7	..	3	3	..	7	7	..	2	2	..	1	..	..	4	5	..
Fistula	1	1	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..
Otitis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Luxatio	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	5	5	..
Vulnus	4	4	..	10	10	..	15	15	..	2	2	..	11	13	..	12	11	..
Contusio	10	10	..	12	12	..	21	21	..	11	11	..	59	59	..	31	27	..
Asthma	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
Ambustio	..	..	..	..	..	..	1	1	..	1	1	..	1	1	..	..	..	..
Amputatio	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..
Ulcus	29	29	..	18	18	..	20	20	..	27	26	..	23	26	..	41	42	..
Fractura	1	1	..	..	..	..	1	1	..	..	..	..	1	1	..	3	2	..
Diabetes	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..
Psora	9	9	..	42	42	..	5	5	..	5	5	..	..	..	..	..	..	..
Punitus	16	16	..	25	25	..	14	14	..	14	13	..	30	30	..	76	74	..
Dysuria	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..
Obstipatio	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	13	12	..
Scarlatina	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	4	1
Hydrothorax	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Strictura Urethræ	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Tumores Alii	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Concussio Cerebri	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
Verrucæ	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Morbi Cutis	..	..	..	..	..	..	..	..	..	..	..	..	4	4	..	..	..	..
Total	794	754	40	474	458	16	295	285	10	185	163	4	741	679	13	869	802	43

IV.

Table of Marriages, Births, and Mortality, amongst the Native Inhabitants, for Four successive Years.

MARRIAGES.				BIRTHS.			
1818.	1819.	1820.	1821.	1818.	1819.	1820.	1821.
301	319	314	296	882	981	1064	938

DEATHS.				
Years.	From Infancy to Ten Years of Age.	From Ten Years of Age to Twenty.	From Twenty Years of Age and upwards.	Total.
1818.	236	62	314	612
1819.	167	51	256	474
1820.	499	66	380	945
1821.	571	56	428	1055
Total.	1473	235	1378	3086

THE

MEDICAL TOPOGRAPHY

OF

SANTA MAURA.

THE

MEDICAL TOPOGRAPHY OF SANTA MAURA.

"Lo! next, where Acarnania's shores extend
Leucate's pale and broken rocks ascend.
* * * * * * *
What, though thy long forsaken steep retain
No mould'ring vestige of its marble fane,
Yet shall thy cliffs derive eternal fame
From Sappho's plaintive verse, and hapless flame."—
Horæ Ionicæ, p. 29.

SECTION THE FIRST.

I SHALL now proceed to a consideration of the smaller islands of the Septinsular Union, beginning with the most important of them—Santa Maura.

In preparing an account of this island I have to acknowledge my obligations to the official reports of Mr. Goodison, assistant-surgeon of the 75th regiment, and to the personal kindness of Major Temple, commandant of the island, in whose company I sailed to it from Corfu. He took me to the most interesting spots in the neighbourhood of the fortress and the town, and furnished me with much valuable information connected with the health of the troops.

SITUATION AND NAME.

THE ancient name of this island was Neritos; it was afterwards called Leucas, or Leucadia. This appellation is said to have been derived from the splendid whiteness of its rocks (λευκος).

The modern name of Santa Maura has, I believe, been given to the island by its late Venetian masters. It lies nearer to the continent of old Greece than any other of the Ionian islands. At one point, not far from the military position, the

distance from the main land does not exceed a hundred yards; the channel is fordable, and both history and tradition concur in informing us, that the separation is artificial, having been cut by the Corinthians for the purpose of navigation. At four or five miles distance, and full in our view, lies the mouth of the gulf of Arta, the site of the celebrated battle of Actium.

The island lies, according to the common geographical accounts, in latitude 39° north, and in 20° 30′ eastern longitude. Its shape is somewhat of a prolonged oval, its larger extremity being towards the north. Its greatest length from north to south is about thirty miles, and its main breadth, from east to west, about twelve. To the south is Cephalonia, its nearest point distant about ten miles; the nearest point of Corfu is about thirty-five miles to the north-west.

MOUNTAINS.

The whole island consists of a chain of mountains composed of calcareous rock of various degrees of hardness; they are reported by geologists to be precisely in the direction of the great chain of Pindus. At the south western extremity of the island they form the "Juga Leucatæ" of Strabo, and terminate in the bold promontory of Cape Ducato, the celebrated leap of Sappho. It is from the reported whiteness of this promontory that the island is said to have been called Leucate in ancient times; the colour, however, must have changed most materially since, for it is very far indeed from being of a splendid whiteness, except where the earth is removed and the rock fractured, when it discovers a white saccharoid surface. I have seen it at all times of the day in the native state, and close to the shore; and were I called upon to name its colour, I should denominate it an iron grey, studded with occasional whitish points, which are in many spots surrounded by strongly defined lines of an ochreous colour, apparently proceeding from water, impregnated with a chalybeate, oozing through the clefts and crevices of the rocks.

Dr. Holland estimates St. Elias, the most elevated part of the mountain chain, at 3000 feet above the level of the sea, but the leap itself is little more than 100 feet high.

RIVERS, FOUNTAINS, AND FRESH-WATER LAKES.

THERE are no rivers in the island worthy of the name. Numerous mountain rills flow in winter leaving nothing but bare channels in the summer months. The fountains and wells are numerous throughout the island, and the water is, in most places, said to be remarkable for its goodness. The town is supplied very plentifully, by means of an aqueduct, with water of excellent quality, which flows from a fountain about a league's distance called Melagavrisi.

A lake of stagnant water is annually formed in a valley about two leagues from the town, in a southerly direction. The valley is surrounded with mountains. The lake is about a league in circumference; it begins to appear about the end of October, but by the end of the month of May the waters entirely drain off, leaving a very fertile plain of alluvial soil. Still more to the southward is another lake, smaller in size, and entirely surrounded by mountains.

SALT-WATER LAKES AND SALINE MARSHES.

THE principal feature in the Medical Topography of Santa Maura is the great salt-water lake, or rather lagoon, on the banks of which the fort and the town are built. Before the channel was cut by the ancient Corinthians, this lake was a sort of *cul de sac*, extending from the extremity of the arm of the sea, which ran between the present island of Santa Maura and the main land. The depth of the water is much influenced by the winds, but it generally varies from three feet to six inches. The extent of surface which may be fairly called lagoon may be about six or eight square miles, of an irregular figure, expanded into a sort of shallow basin towards the town, but drawn out into a narrow channel as it passes the fort.

The ancient cut made through the isthmus, although originally sufficient to admit of the passage of ships, has long since been nearly filled up with mud and calcareous detritus brought round by the action of the winds upon the rocky bases of the mountains. The extremity of the long isthmus itself is con-

jectured, and with much probability, to owe its formation and shape to this cause.

This isthmus, when it springs from the north eastern foot of the mountains, is about three miles broad, and it extends about four or five miles, its general direction tending towards the Acarnanian shore, until at length it terminates in a narrow slip which runs parallel to the main land for nearly half a mile, at a distance not exceeding 300 feet.

It has been proposed to cut this isthmus through at the extremity nearest the mountains, in the same way as the ancients cut it across at its connexion with the main land, with a view to give a full and free entrance to the waters, and thus to insulate that little expansion on which the fort stands, and to surround it with flowing instead of with nearly stagnant water. It is said, however, by some engineers that this would infallibly inundate the town, which lies lower than the Mediterranean high sea. This is doubted by others; but however the case might be, it is not probable that the effects would be permanent, or that it would at all repay the immense labour and expense which must necessarily be incurred in putting it into execution.

A cut of a different kind has been effected, which I shall presently notice.

The borders of this lagoon afford several shallow spots conveniently circumstanced for the manufacture of salt, by the process of evaporation under the heat of the sun.

Five or six hundred souls are occupied in this work, and it is a confirmation of what has been already stated, under the head "Salines," in the account of Corfu, that Mr. Goodison assures us, on the authority of the inhabitants, that the persons thus employed are not more unhealthy than the other inhabitants.

CANALS.

The ancient cut, which separated Santa Maura from the main land, being utterly useless for navigation, a small canal was projected and commenced under the auspices of the British Government; when finished, this work will afford a passage for vessels not registering more than fifty tons. It is carried

through a narrow part of the isthmus, under the walls of the fort, and thence a channel is deepened through the mud of the lagoon, by throwing up an embankment on each side, and facing it with stone.

This work, which will be of great benefit for the transport of country produce, will, I fear, have little or no effect upon the lagoon, as it is not sufficiently extensive to create any general current through it. I may here mention that the health of the soldiers who erected this embankment does not appear to have been materially affected by their employment, at any season of the year. I saw them at work on it in 1823, and though it was a very laborious employment, and exposed them to heat and moisture, they were, and had been, during the whole preceding year, as healthy as any other men in the garrison.

The following facts, in confirmation of this opinion, are stated by Mr. Lavens, assistant-surgeon, 28th regiment, in his report for December, 1819:—"During the summer every precaution, consistent with the service, was resorted to by Sir Frederick Storin, with regard to the health of the garrison, by preventing as much as possible intemperance, unnecessary exposure to the sun, night dews, &c., yet we have had a considerable number of fever cases, which in the autumn became of a very serious remittent type. Though the propriety of these precautionary measures must be indisputable in a climate like this, yet from June last to the present period I have minutely observed the excellent state of health of some men belonging to the detachment, somewhat differently situated, which, when compared with that of the rest of the garrison, appears rather extraordinary.

"Twenty men have been constantly employed in the lake since June last, where they were not only exposed the whole of the day to the intense heat of the sun, but to the exhalations arising from the deep mud through which they were constructing a canal, with the lower extremities constantly immersed; yet it is a remarkable circumstance that *not one man*, while so employed, was attacked with fever during this period. Some changes took place, such as a few men sent to their duty from misconduct, or by their own request, and they were replaced by others who remained perfectly healthy; but there

are several now who have been constantly at this work since our arrival, others three or four and five months, and so on. This party was not tasked, but paid according to the work they had to perform, and could generally earn about ten pence per day each.

"One of these sent to duty was dismissed in consequence of drunkenness early in the morning of the 14th of September, and had an attack of fever the same day; he drank an immense quantity of spirits that morning, and took suddenly ill in the evening. When in his barrack-room he dropped down in a state of insensibility, which was quickly succeeded by high delirium; he was bled immediately, and soon became sensible, and passed, without an alarming symptom afterwards, from this stage of excitement, to a state of convalescence.

"Another, who was sent to his duty, was seized with fever about a week after, but soon recovered. Those were the only two in whom the predisposition might be supposed to have been excited, in consequence of their previous exposure.

"A man named Inglis, aged forty-one years, of the 75th regiment, who was employed at the same work for a length of time, died suddenly. When first reported to me, I was told he had the ague, a complaint he was very subject to. I ordered him to be sent to hospital, and saw him immediately after. Upon examination, I could not discover anything requiring particular attention; he had no head-ache or fever whatever, and said, that he only then felt a slight pain towards the left side. His bowels were opened with a dose of infusion of senna and salts. At night he felt better, the pain, which was slight, had shifted to the back; and, in the evening, he told his comrade that he would be able to go to his work next day; however, about two o'clock in the morning, he was heard breathing for a few minutes with great difficulty, and expired almost immediately. Upon minute inquiry, I found that a few days before he fell asleep, after dinner, and when he awoke was in a profuse perspiration; but fearing he was too late for his work, he ran to it immediately, when his lower extremities were immersed in water for several hours after.

"On dissection no marks of disease could be discovered in

the head. Tubercles were found in the lungs, and large livid scirrhous substances, in several places, with firm adhesions on both sides. The heart was completely surrounded with a thick layer of fat. Liver hard in substance, and much enlarged. The coats of the stomach were considerably thickened, and exhibited marks of inflammation; kidneys larger than usual, other viscera natural."

The same gentleman further remarks upon this very interesting question, in his report for June, 1820, thus furnishing us with the additional experience of an entire year: his words are as follows:—

"In my last report, I mentioned the progress of a canal, which opens a direct communication between the lake and sea on the northern side of the Isthmus, and which, I consider, will be of such high importance to the health of this station; it is still carried on with great forwardness, being now better than half finished. I have before mentioned, in my report of December last, the excellent state of health enjoyed by the party employed at this work all last summer, (so far superior to that of the rest of the garrison,) notwithstanding their constant exposure, the whole day, to the intense heat of the sun, and the offensive effluvia arising from the mud, through which they were constructing the canal; and I have now equally to mention the healthy state in which they have continued during the winter, no intermittent fever, pectoral, or bowel complaint having appeared among them, nor have I observed that any of those sent, either through misconduct or by their own choice, to duty, have since suffered in any way by disease that could be attributed to their previous exposure, with the exception of one or two cases of rheumatic affections, which I think it probable may have been influenced by it. These men all mess with their companions, and do not differ, in any respect, from the rest of the detachment in their mode of living. They have hitherto, from choice, been permitted to work through the heat of the day, and, finding they enjoyed all along better health than the other men, they were allowed to go on without any reference to the fatigue hours established during the hot weather, for the rest of the troops, who were kept in their barrack-rooms as much as possible during the heat of the day, and when on sentry protected from the sun

by sheds erected on each post; and yet, these men (with whom it has been found necessary to adopt every precaution, in order to guard them from fever in the hot weather) I have found frequently taken ill when employed occasionally, perhaps, upon a common fatigue, or any other of their usual duties, although exposed as seldom as possible to the exciting cause. So that it would appear to me, as far as I have been able to observe, that the influence of the sun's action upon those continually under it, whose mind and body are kept in a state of employment (but not harassed), is by no means of so injurious a nature, as its effects upon those who are only partially or occasionally exposed under other circumstances."

These quotations are so important, that I shall make no apology for their length.

TRIBUTARY ISLANDS.

THERE are several islets and rocks scattered in the southern entrance of the channel of Santa Maura, on that arm of the sea which separates it from old Greece. The principal of these are Meganisi and Kalamo; the latter has recently come into notice from having been made an asylum for the refugees from the continent; a small British garrison and a medical officer have been for some months stationed there. It is said, in some places, to produce the finest wheat in the islands; the former produces a considerable quantity of barley and flax, and large supplies of goat's-milk cheese. This island is very mountainous; it is about twenty miles in circumference, and has about 600 inhabitants. No British troops are quartered there.

CLIMATE.

THE climate of Santa Maura does not essentially differ from that of the islands already spoken of. During a period of four years, viz. from 1818 to 1821, the thermometer did not descend below 46°, nor ascend beyond 92°. The greatest difference in one year was 41 degrees between winter and summer.

Mr. Goodison, who long resided in Santa Maura, and from whose manuscript reports some of the statements with regard to the range of the thermometer have been taken, states, in

his publication,* that, in most years, the maximum of the thermometer was 80°. It sometimes sinks to the freezing point in severe winters, while, as in the other islands, it frequently exhibits a variation of 20 degrees in the course of twenty-four hours.

The prevalent winds of Santa Maura are northerly and westerly; but the baneful sirocco often blows, and often continues so to do for sixty or eighty hours, to the serious inconvenience and injury of the sick and convalescents.

The fact to which I alluded, in my account of the winds of Corfu, is to be observed in a very striking manner at Santa Maura; viz. the regularity of the morning and evening breezes, which prevail through the gulf of Prevesa from an easterly point from sunrise to noon, and from a westerly point from noon to sunset. Mr. Goodison notices a modification of this fact, which takes place in the Santa Maura channel; viz. the blowing of a southerly wind up the southern entrance, and of a brisk north-wester at the same time through the opposite extremity of the channel. This variation, as I have already explained when speaking of Corfu, entirely depends on the formation of the adjacent mountains, which throw off the winds that strike against them, at an angle always influenced by the angle of incidence.

During the winter months the fall of snow on the mountains of Santa Maura is considerable, and the winds which blow over them are then piercingly cold. The heat of the summer months is particularly oppressive, and in the autumn the sudden changes of temperature are so marked, that after the first rains, there is often a variation of from 10 to 20 degrees in the twenty-four hours.

The quantity of rain which falls annually is very considerable; it is not confined to any particular month, as there are few during which showers, and even heavy torrents, do not occasionally fall. From September to March, however, are the most rainy months. The heavy summer rains of 1822 fell before the end of July, and the first autumnal about the beginning of September.

* "Historical and Topographical Essay upon the Islands of Corfu, Leucadia, Cephalonia, Ithaca, and Zante, 8vo. London, 1822."

Earthquakes are very frequent occurrences in Santa Maura; they are generally unconnected with those of other places, but the great earthquake of Calabria affected the island very severely. In 1820, from the middle of February to the end of March, these shocks were so frequent as greatly to damage the town and fortress.

The following is an account of them by Assistant-Surgeon Lavens of the 28th regiment, an eye-witness.

"Between the 12th of February and 31st of March, there were sixty-three severe shocks of earthquakes, which placed in ruins about seventy houses in the town, and left most of the others in a tottering condition. During the above period there were also about eight hundred slight shocks, according to the most accurate accounts kept, and sometimes the earth continued trembling for the space *of twelve or fourteen hours together*, without any perceptible cessation.

"Two or three days prior to the first shock on the 12th of February, the weather was exceedingly oppressive, a number of fiery meteors were passing among the clouds, and the salt-water lake situated between this fortress and the town was almost dry, a phenomenon which has always been considered by some of the oldest inhabitants as a forerunner of earthquakes. The same was observed previous to the dreadful earthquake in Sicily and Italy in 1783, which was felt severely in Santa Maura, and ruined several houses in the island.

"The atmosphere during these late earthquakes was in continual variation, and the wind veered to all points of the compass, but the shocks were observed to be more frequent when it blew from the south-west; all the slighter ones were preceded by a distinct hollow rumbling noise, but some of the greater shocks came on without any previous notice. The inhabitants of the town were in a deplorable condition all this time, being obliged to seek shelter in miserable huts of temporary construction, not venturing to sleep in their houses for upwards of two months, fearing the shocks would increase in violence; and the minds of the superstitious were kept in a constant state of alarm and agitation by ridiculous prophecies from time to time in circulation, that the town was to be totally destroyed. They are now, however, tolerably tranquil, and most of the

houses have been repaired; but, in consequence of this sudden change from their usual habits in guarding themselves with extreme precaution from the night air, to a state in which they were completely exposed to its influence, they have been visited (as might be expected) with unusual sickness. Their chief complaints are fevers of the continued form, affections of the chest and bowels, and the mortality has been considerable.

"On the 17th of March, the day on which the severest shock was felt, a death somewhat extraordinary occurred. A very healthy middle-aged woman, living in the east part of the town, who had not been previously indisposed, took a sudden fit immediately after the shock, and expired in about ten minutes. It would appear, from what I could learn, that her death must have been occasioned by the bursting of a blood-vessel; the fact, however, could not be ascertained, on account of the bigoted objections the people have to dissection, and they could not in this instance be persuaded to sanction any anatomical examination of the body."

The caves with which the rocks and mountains abound, are said to have emitted a very thick sulphureous smoke, attended with a rumbling noise in the earth, during the shocks of 1790, which were very generally and severely felt on the island.

SOIL, ROCKS, PEBBLY BEACH, &c.

In the valleys and other cultivated spots, the soil is a rich loamy earth tenacious of moisture, but the far largest portion of the island is a rocky surface, which lies uncultivated, and serves as an extensive sheep-walk. The present very intelligent commandant, Major Temple, informs me, that in sinking the foundation of a new church in the year 1822, at about four hundred yards from the lagoon, he found the depth of alluvial soil fully eight feet. On penetrating this, the borer went through two feet of fine sand, and then came upon a solid crust of agglutinated pebbles. The depth of this crust I could not ascertain, but in penetrating it, the borer all at once plunged into a stratum of mud eight feet deep. The crust of pebbles above-mentioned was of the same nature as the material of which the isthmus already spoken of is composed, and which

is in various states of aggregation, from a fine gravel, the grains of which are no larger than a mustard seed, up to masses of solid stone, evidently composed of the smaller materials, united by some agglutinating medium.

I have received from Dr. Clarke of the 51st regiment, who resided at Santa Maura for some time, very beautiful cabinet specimens of these agglutinated pebbles. When cut into proper forms, it is difficult to distinguish between them and some of those cakes studded with comfits which we see in the shops of the confectioners. Dr. Clarke has submitted them to the action of muriatic acid, in which they dissolve with effervescence, and without leaving any residuum, thus showing that they are pure limestone. They are in general oval-shaped, beautifully polished, and of different shades of colour, though all generally whitish.

Some rough angular pieces of flint are occasionally intermixed with them, as if casually acted upon by the agglutinating medium; they are very easily distinguished from the general mass, and have all the appearance of extraneous matter.

Some of these masses are composed of much larger materials than those above described, and they form a very remarkable ledge at the extremity of the isthmus. Mr. Goodison's account of this ledge is so accurate, that I shall here quote it. "The ledge," he remarks, "is about half a mile in length, and from twenty to thirty feet wide, with deep water at each side. Its breadth and direction are nearly uniform throughout, which gives it so much the appearance of a work of art. The rock of which it is composed, consists of gravel and sand, accumulated there by the water, and formed, according to the size of the particles so brought together, into sandstone and pudding-stone. The substance which unites them is becoming as hard as the particles themselves, for upon breaking the mass with a hammer, the fracture goes through them equally with the interstitial matter. The whole forms an exceedingly hard stone, capable of taking a certain degree of polish. It is used for building, as also for making stones for flour mills and oil presses. The isthmus seems to have been formed upon this rock as a basis; the latter is found along its whole line under the loose gravel, at the sea-water edge, and appears to be

rapidly advancing. In October 1818, the men employed in raising stones out of the sea, for the construction of the new mole, took up the splinter of a shell which was covered with an incrustation of breccia above three inches thick. The iron of the shell was oxidizing, and the red oxide gradually incorporated with the stone as it formed. The splinter had lain there probably since the siege in 1810.

"This process seems to be effected by a deposition of the calcareous matter which had been washed away from the mountains, and held suspended or dissolved in the water. Masses of the rock are found in a state of decomposition from the disintegration of the connecting medium, which appears to be pure carbonate of lime.

"A shelf of gravel which had been left by the water, and was for several days exposed to a strong sun, was observed to feel crisp upon the surface, a white matter being deposited amongst the particles, which dissolved upon the tongue, giving the flavour of common salt. Here the formation of the stone was probably detected in its infancy, and the connecting matter may be always in the first instance muriate of soda and carbonate of lime. Specimens are to be seen where the larger particles of gravel are united by minute intermediate particles of sand, themselves cohering by means of this matter. The pure common salt is found crystallized in all the little cavities in the rock along the beach, where the sea-water had been left after a high wind or tide, and was afterwards evaporated. This becomes enveloped by the stone as it forms, and hence may be accounted for the deposits of sea salt found in the heart of stones of this species. All the masses of rock formed in this way, and more particularly the remarkable ledge above described, have an inclination to the horizon, forming an angle to the surface of the sea the same as that of the beach in general."

EXHALATIONS.

From the lagoon above alluded to, the exhalations are in the summer deleterious. As there are no regular tides, the quantity of water in this lagoon depends almost entirely on the state of the winds. The southerly winds increase it; the

north-westerly, which generally prevail in summer, have a contrary effect, and consequently at that season a larger surface of half dried margin is left to be acted upon by the sun. As the bottom is a very thick mud copiously interspersed with marine exuviæ, the exhalations are extremely offensive, especially before the sun has rarefied them; hence, exposure to them at night is particularly to be avoided.

It is asserted by the inhabitants, as well as by the British medical officers, that the effect of the malarious exhalations from the adjoining gulf of Arta are severely felt in the autumnal months, when their transit is favoured by the blowing of the easterly winds. As in the other islands, the vicinity of a "fiumare," or bed of a winter torrent, dry in summer, is always more or less unhealthy in the autumn; but perhaps there is none of the islands in which the salubrity of the same village differs more in different years than it does in Santa Maura.

The commandant, Major Temple, who had taken great pains to ascertain the most eligible spot for quartering the troops in the unhealthy season, assures me, that he could never depend with certainty upon the permanent healthfulness of the same village for two seasons in succession; those which were free from disease one year, proving pestiferous the succeeding, and *vice versâ*.

As we are fully authorized to assume, that, on the quantum of malarious exhalation in the neighbourhood, the proportion of health enjoyed by the inhabitants depends, we must refer for the explanation of the variation to the various minute and little known causes which may affect this process. Great agricultural improvements produce striking effects on the health in other parts of the world, but in this we in vain seek for a solution of the difficulty from this cause: we must, therefore, for the present, either confess our ignorance at once, or have recourse to the established refuge of "unknown states of the atmosphere." One fact is ascertained,—that the villages in the northern part of the island are always much more healthy than those in the southern and south-eastern.

It is a fortunate circumstance for the inhabitants of the fortress, which lies in the former division, that the prevalent

winds in the autumnal season are from the north and north-west, and, consequently, that the malarious exhalations from the lagoon are blown to leeward of their barracks.

VEGETABLE, ANIMAL, AND MINERAL PRODUCTIONS, &c.

The vegetable, animal and mineral productions of Santa Maura do not materially differ from those mentioned already under the head of Corfu. In winter, the lagoon is covered with immense flocks of waterfowl, and at the same period, when the cold is severe upon the continent, pelicans are said to abound. Woodcocks are in vast abundance, as well as quails and other migratory birds.

Trees do not appear to flourish here as in Corfu; but within the fortress, on an expansion of the isthmus so often spoken of, is a cluster of palm trees (*Phœnix dactylifera*), said to be the finest in the Ionian Islands. The olives and almonds of Santa Maura are highly esteemed. The wine, however, is very indifferent.

Of the vegetables, artichokes are celebrated for their excellence.

The fish are abundant and good, especially the soles, mullet and eels.

In the channel between Acarnania and the isthmus, there are said to be some banks abounding with fine specimens of most of the Mediterranean shells. I have directed the attention of the resident medical officers to this circumstance for the purpose of enriching our collection of natural history.

There have been no mines of any description hitherto discovered in the island, and I believe it has not yet been attentively examined by any skilful geologist or mineralogist. The whole island appears to consist of limestone in its different forms, compact, granular, &c. variously stratified, and occasionally deeply tinged with the oxide of iron. It is said that native sulphur has been found near the village of Porro in the interior. Masses of pyrites and bog iron ore are occasionally met with on the surface of the ground in various parts of the

island. A sulphureous chalybeate water is reported to exist at a short distance from the fortress. It flows from a rocky fissure near the root of the isthmus, and is resorted to by the natives for cutaneous diseases.

Agriculture is conducted in the same imperfect manner as in Corfu.

Their manufactures consist merely in extracting the produce of the vine and olive, and in raking up the salt produced by the action of the sun on the sea-water deposited in rude reservoirs made for it in the mud and rocks on the sea-shore.

ROADS AND COMMUNICATIONS.

In Santa Maura, as well as in all the other Ionian Islands, great attention has of late been paid to the improvement of the old roads, and to the construction of new. I have traversed some of the latter in company with the commandant: they are planned on the best principles, and the execution is good.

The communication between the fortress and the town is effected by boats and by means of an old aqueduct, the top of which being about three feet broad, and covered with smooth stones, admits of the passage of one person with considerable facility. It was thrown up by order of the Emperor Bajazet. It is upwards of half a mile in length, and is raised on 370 arches from one to three feet above the surface of the water: it no longer serves the purpose for which it was originally intended, the pipes having been long since destroyed by an earthquake; and as some of the larger stones of which it is built have been removed for the purpose of building, it is not improbable that before many years it may entirely run to decay: at present, it is a great convenience to the garrison, though occasionally an intoxicated soldier falls from it into the shallow water beneath: fatal accidents, however, scarcely ever happen.

POPULATION, TOWNS, VILLAGES, DWELLINGS, &c.

The population of Santa Maura is stated by St. Sauveur to have been 16,000, three-eighths of whom lived in the town,

and the remaining five-eighths in the villages in the country. The returns presented to the French Governor-General in 1807 make the number of inhabitants amount to 20,000. The writer in the Quarterly Review, No. 46, states them, in July 1820, at 18,000. I believe that we shall be more correct if we take the population at 16,000, the number at which I find it rated by official documents in my possession.

This population is dispersed in the little town of Amaxichi, and in thirty-two inconsiderable villages scattered throughout the island, some of them on the very tops of the mountains. Amaxichi is situated on the southern side of the lagoon, on a very beautiful plain, thickly covered with olives, about two miles long and one broad. The soil of this plain is alluvial, and produces very luxuriant crops of vegetables: it was on it that the commandant ascertained, by boring, the nature of the subsoil as already mentioned.

Amaxichi is somewhat more than a mile in circumference. It contains about 1400 houses, with an average of 4½ inhabitants to each, or above 6000 souls. The town is very wretched, wood being a predominant material in the houses. There is one tolerable street running its whole length, and at its broadest part about fifteen feet wide; but the other streets are mean, narrow, irregular, and extremely dirty. The butchers expose their meat in the streets, as also do the venders of bread, fruit and vegetables, there being no regular market for those articles.

A new fish-market is built near the water's edge. Fish abounds, and is said to be of excellent quality.

Drains, sewers, and necessaries are greatly required in this wretched place, which, upon the whole, appears to me the most miserable, and is allowed by all to be the most unhealthy town in the Septinsular Union. It enjoys, however, a never-failing supply of excellent water.

The dress, furniture, and dwellings of the inhabitants do not differ from those of the other islands already mentioned, except in being in external appearance worse.

The diet, generally speaking, is much the same, but in the article of bread it is superior.

The supply of the articles of food is tolerably good, chiefly

occasioned, however, by the demand for them by the British. The following are the prices as paid in the military hospitals:—meat 4½ oboli per lb., bread 2 ob. per lb., fowls 15 ob. each, flour 5 ob. per lb., tea 72 ob. per lb., sugar 8¾ ob. per lb., milk 4 ob. per pint, common country wine 3 ob. per pint, soap 9 ob. per lb., eggs 12 ob. per dozen.

Eggs and butter are freely consumed by the inhabitants, but they are prejudiced against milk.

A squalid and unhealthy aspect characterizes the natives of the town; while those peasants, whom I saw in the streets or met in my excursions through the country, appeared peculiarly wild and uncultivated in dress and manners, though in their persons more robust and less languid in their gestures than persons of a similar class in Corfu. The employments, amusements, and customs are the same as in that island, and morality is at as low, if not a lower ebb: this latter, I think, may with justice be attributed, in a principal degree, to the ignorance and bad example of the clergy. The Bible is a prohibited book among them; and on my visits to the civil prison, I found a priest among its inhabitants, confined there for an attempt at violating the person of an infant female of his flock! To these wretched priests is confided the education of the rising generation.

MORALS AND EDUCATION OF THE NATIVES.

Assistant-Surgeon Griffin, of the 32d regiment, who resided in Santa Maura for some time, gives me the following account of the existing state of morals and education in the island:—"Although there is a total want of morality, yet these people always appear devout and pious: this must be ascribed to one of two reasons—superstition or hypocrisy: the first appears to have the sway over the females, the latter over the males. The clergy are by far the most scandalous, and are altogether the worst part of the community; they are ignorant in the extreme, and at the same time free from that superstitious dread which, with the ignorant, acts as a check to the commission of crime. Except as leaders to vice and its consequences,

they have but little influence over the peasantry; with the better order of people they have still less. Indeed, in the various acts of rebellion, &c. committed within my remembrance in this island, four priests have suffered capitally, and this is not peculiar to the present times; for, during the Venetian and Russian governments, instances have been related to me of their continual immorality and violation of the duties they ought to inculcate, and disobedience to that order which it should be their peculiar endeavour to teach the necessity of obedience to. The general character of the Greeks is not altered in this article; they fully justify ancient writers as to their cunning, duplicity, and revengeful disposition. With respect to the last, I believe they are not singular; and in some parts of Europe they, like them, hand over from father to son real or fancied injuries, which they never fail to revenge. The maiming of cattle and the destruction of vines and olives by night are the means they usually employ to accomplish this, to them, gratifying object. In the island of Santa Maura this has been carried to so great a height, and was productive of such mischievous results, as to claim the most serious attention of government, and since martial law has been in force it has been nearly checked altogether. It was mentioned to me by the inspector of one of the villages, that within a certain time, I believe about six months, the village to which he belonged was in possession of sixteen horses, and that twelve of these animals were sacrificed within that time to this horrible passion. They are litigious in the extreme, and this receives continual food from the local circumstances of the neighbourhood and intermixture of property: for, when you consider that almost every inhabitant of a village is a proprietor of land, it will excite less surprise that frequent disputes arise between people so ready to take advantage of trifles to gratify this extraordinary feeling.

"The education of children is left almost entirely to the priests, and this is confined to reading and writing; they are constantly employed to sing at the church service; by this means most of the peasantry read and write."

I am happy to say that the Lancasterian system is likely soon to be pursued with vigour in this island.

POLICE. POOR.

The municipal regulations of Santa Maura, though greatly improved since the arrival of the British, are still in a very incomplete state, from circumstances chiefly referable to the inhabitants themselves, and consisting in a combination of ignorance, sloth, depravity, and poverty.

The main street of Amaxichi is paved, and there are gutters on each side to carry off the superfluous water, which is supplied to the town by five or six different fountains, to which it is conveyed by earthen pipes. By proper management, this water might be made to cleanse all the streets and houses, and to assist in conveying the filth from the different houses into subterranean sewers, instead of flowing "sub Jove" into the lake. I could not ascertain that such a thing as a public necessary exists in the town; and I am informed, that even in private houses they are of great rarity. Improvements in these particulars are projected. There is a slaughter-house outside the town, but, as I have already observed, the meat is exposed in the streets. Burials, as in Corfu and the other islands, are universally performed in the churches. The poor are numerous, but I could not ascertain that there were any establishments in which they were received, with the exception of the civil hospital.

DISEASES OF THE INHABITANTS, BIRTHS, DEATHS, &c.

The great endemics of Santa Maura are intermittent and remittent fevers; they are universally prevalent in autumn, and although scarcely any inhabitant of the town is altogether exempt, those who live in the outskirts, near the lagoon and olive grounds particularly, and who sleep on the ground-floors of the houses, are the most severely affected. From its vicinity to the continent, and from the great temptation to smuggling, contagious diseases are to be dreaded, and especially plague: nothing but the utmost vigilance in the observance of the quarantine laws could prevent its introduction into the island. Since it has come into the possession of the British, the disease has not developed itself, nor has it committed any serious

ravages since 1742, when it was imported from Messina and carried off 3000 souls.

In 1819, scarlatina anginosa carried off an immense number of the native children. In the spring of 1821, the same disease appeared among the children of the soldiers in the fortress. Assistant-Surgeon Griffin gave me the following report upon its nature. "Thirty-eight children were ill; the two first of which died: in both these instances the tonsils suppurated, and in both of them the febrile symptoms ran high, and the eruption thick and extensive. One of these children was my own; and having at that time heard that it had appeared two years before in the city as an epidemic of a formidable character, I consulted a practitioner of the town, who, though the fever ran high with considerable eruption on the skin, and high inflammation of the tonsils, persisted in the impropriety of taking away blood. Purgatives and sudorific medicines were the remedies advised; the local disease was treated by blistering; the result was fatal in both instances. Three more of my children were attacked, and I determined immediately on general and local blood-letting, with purgative medicines at intervals; this practice was attended with the most decided advantage, and although every child in the fort was the subject of this malady in succession, they, under this treatment, all recovered."

Of the births, marriages, or deaths of the inhabitants for past years, I could obtain no certain or satisfactory accounts. The government, however, are about to enforce the keeping of registers.

The Santa Mauriots are, generally speaking, the least healthy of the islanders, although some remarkable instances of longevity are to be found among them, especially in the villages in the northern and north-western parts of the island. In 1822, there were no fewer than three persons, in one of these villages, who had arrived at the very advanced age of one hundred and nine years.

From Mr. Griffin I have received a half-yearly return of the admissions on the books of the civil hospital. I would not offer any return from this establishment as a document implicitly to be relied on, in a professional point of view, for the

ignorance of the native medical men is most profound; but it may afford some idea of the comparative state of disease among the people. Taking it in one point of view, we find, that of 210 cases, 163 were febrile, viz. 24 continued, 1 infantile, 2 ephemeral, 5 quotidian, 10 quartan, and 121 tertian fevers. For the accuracy of the distinctions, or of the nomenclature, I cannot vouch. From the want of regular registers, or returns, it is in vain to attempt any general comparison between the health of the inhabitants and the garrison; a few insulated facts may, however, be gleaned.

Dr. Clarke, of the 51st regiment, gives me the following information with regard to the town of Amaxichi, for the year 1822.

"The population is about 4500. Examining the records at the Sanita office, the number of deaths this year I find to be 237, being about 1 in 19: the least mortality exists in the months of February and May. August, July and November are marked as the most fatal. Fever is the prevailing complaint during this period; but it appears difficult to judge of its nature, owing to the different terms given to it by the different medical men, some calling it febris acuta, others febris gastrica biliosa, and others febris adynamia (febbre di debolezza); from the period of the year, the weakness of the body, and gastric affection indicated by the above names, it seems likely that it is febris remittens. It is impossible to estimate the proportion of deaths to those treated, as the latter are not registered. It appears that thirty-eight fevers have proved fatal this year. The treatment, in this, as in almost every other complaint, consists in venesection from 4 to 8 oz. Purgatives are not much used, emetics are in great estimation; bark is used, but never, I believe, conjoined with mercury. I have not seen the fever, among the few inhabitants I have visited, assume so concentrated or severe a form as amongst the soldiers of the garrison.

"I cannot say whether the proportion of recoveries be greater in the former. One cause alone must operate powerfully against them: whenever a native is taken ill, all his relations, friends, and acquaintances and neighbours make it a rule to visit his sick-bed, and never leave him till he parts either with his disease or his life. When we consider the importance

of quiet and of pure air in remittents, it is easily calculated how much this custom must impede recovery. A Santa Mauriot always dies amid companions and visiters, however neglected he might be during life, or little thought of after death. If the number of deaths and of inhabitants be correct, it follows that there is a much less mortality among them than of the soldiers of the garrison, the one being as 1 to 19; the other 1 to 13. If we consider, too, that the inhabitants of the city comprise a greater number of children and aged persons, in proportion to what is found in a regiment, and that those two classes are most subject to mortality, the difference becomes more remarkable; in fact, ninety of their deaths, last year, occurred in children under ten years of age, which makes more than one-third of the general mortality; in the garrison, one child in eight has died; this, compared with the mortality of the adults, is not the one-fifth.

"It would appear, then, that disease attacks children with greater severity, and spares the indigenous adults in a greater degree than strangers. This may be accounted for easily, I think, considering that a child of the natives must possess from nature a very strong constitution to resist disease—the meagre diet, the poverty, bad air, and perhaps the absurd custom of swathing a child when born, as an Egyptian mummy, must materially affect its health. They who live in despite of those causes are naturally less liable, at an adult age, to receive or suffer from the maladies of the country, than those who are submitted to their influence for the first time. A late municipal regulation, which is meant to enforce the exact register of marriages, births, and deaths throughout the island, will render Santa Maura, in time, a favourable spot for the study and investigation of a subject not thought unworthy of interest by some of our most eminent philosophers."

The garrison of this, as well as of all the other islands, having, since the peace, been composed exclusively of English troops, no data are furnished for comparative estimates of health and mortality between British and natives of the island and other parts of the world, collected together under a similar code of military regulations. Mr. Goodison, however, has calculated, and apparently on good grounds, that the propor-

tional liability to fever of the latter classes, is as two to three, and that the proportional mortality, when attacked, is as one to three—a difference most unfavourable to our countrymen.

Of *Epizooties*, or diseases of plants, I could collect no peculiar or important information.

Popular Medicines.—I have not been able to collect any facts upon this subject, nor could I discover that the natives had any peculiar practices different from the other islanders. Bark, in large quantities, is their universal remedy.

Mr. St. Sauveur, in his work so often referred to, says, that the inhabitants conceive that, when bit by any reptile, they have only to look at the island of Paxo, without leaving home, and they are cured. This is founded on a tradition that St. Paul once resided at Paxo, and freed that island from all venomous reptiles. The natives conceive that all danger from summer fever ceases on the 20th August, but this is altogether erroneous.

CIVIL HOSPITAL.

There is in the town of Amaxichi a building under this denomination. It is a wretched dwelling-house in a by-street, capable of holding twelve or fourteen beds. There were no patients in it when I visited it, and it has for some time been almost exclusively used as a dispensary. Prostitutes are examined here monthly, and if diseased, are admitted. They must bring their own bedding, but their medicine and food are supplied by the public.

The principal consumption of medicine is in the articles of bark, calomel, and neutral salts, of which a minute account is submitted monthly to the commandant. A British medical officer generally performs the duty of surgeon, for which he receives twenty dollars a month, and he has under him an assistant at twelve dollars a month. The latter is generally a native.

Into this hospital foundlings are received at an allowance of three dollars a month for nursing and maintenance; this sum is paid by the government, who also engage to put out the children to trades when arrived at a proper age, but such is the mortality among those unfortunate creatures, that the com-

mandant informs me he only knows of two who had grown to a proper age to be so disposed of.

Vaccination is regularly performed at the civil hospital; and when I visited it, the house was crowded with the natives pressing to have their children vaccinated. However averse they may have been to the operation, on its first introduction, they are now eager to adopt it, as, on the first alarm of small-pox, their families are immediately placed in strict quarantine.

While on the subject of vaccination, I may mention some circumstances observed by Dr. Clarke, the assistant-surgeon of the 51st regiment, who was acting as surgeon to the civil hospital on my visit. He stated to me that he had vaccinated some patients who laboured under obstinate cutaneous affections, and with a view to induce a more healthy action, although well aware at the time of Dr. Jenner's opinion, that the genuineness of the vesicle was greatly endangered by the co-existence of any other cutaneous eruption. Dr. Clarke, however, found it otherwise. The vaccine vesicle went through all its stages regularly; and without positively asserting that the subsequent event followed the vaccination in the due order of cause and effect, it so happened that the previous cutaneous affection was removed. Tinea capitis was thus removed in one instance, and an anomalous eruption of the extremities in another. The fact is well worthy of recording, and Dr. Clarke is so impressed with the importance of it, that he purposes to prosecute his investigations with more minuteness when an opportunity occurs.

QUARANTINE ESTABLISHMENT.

The quarantine establishment, like everything else in the island, is on a small and mean scale, but its regulations are most strictly enforced, a strictness which is rendered indispensable by the vicinity of the continent. In the lifetime of Ali Pacha, he had established a very active police on this subject on the opposite coast, but since the invasion of his dominions by the Turks, plague has broken out in several places, but fortunately its ravages have been confined to the Acarnanian shores.

The officers of the quarantine establishment at Santa Maura may be looked upon as the vedettes for the rest of the Ionian

islands, and hitherto they have performed the duty in the most exemplary manner. No instance of the appearance of the disease is on record since its importation from Messina in 1742.

A small sandy islet, about two miles to the northward of the north-eastern extremity of the isthmus, is fitted up for the purposes of quarantine; it is called the island of Saint Nicholas.

PRISONS.

Prisoners are confined in bomb-proofs within the fortress; the erection of a proper building for their reception is in agitation.

STATE OF PHYSIC AND SURGERY, &c.

The practice of physic and surgery is at a very low ebb indeed at Santa Maura, and the profession allowedly of an inferior description, and very badly educated. There is nothing like a public library or medical society, and I know of no native author in the profession, either ancient or modern, except we press into the service Philoxenes of Leucadia, who composed a treatise on cookery.

Of the mode of treating the endemic remittent of the autumnal months, the following summary is derived from the report of Assistant-surgeon Lavens, 28th regiment:—"In the first place they bleed from the arm to the extent of four or five ounces (it should be observed that this is the usual complement), and repeat it every four or six hours, so long as they consider the urgency of the symptoms demands it, followed by an emetic and some diaphoretic medicine, according to circumstances, or perhaps a purgative, after which the bark is relied on. But from everything I can learn, the state of the bowels is never materially considered, nor is mercury used even in the worst cases, or, if resorted to at all, never pushed to an extent that might be expected to check the disease, or prevent its ill consequences."

SECTION THE SECOND.

BARRACKS.

The garrison, with the exception of one company in the town and a few detached outposts of from two to six men, are accommodated within the fortress. This is of an irregular six-sided figure, its largest diameter running north and south, and is built on an expansion of the isthmus which once connected the island with the continent of Acarnania. It was erected by the Venetians in the thirteenth century. On the north and north-west is the open sea; on the south-south-west and east is the lagoon; and, by means of wet ditches, on the other points it is completely insulated. The barracks are of stone and covered with tiles; they are old, but kept in habitable repair.

The troops are in general supplied with good water from tanks within the fortress, but on its failure an inexhaustible supply is procurable daily from the town by boats. The water of the wells within the fort is quite brackish.

The exercising ground is of an irregular shape, its greatest length 200 paces, its greatest width about 90; though sombre in appearance, it is abundantly sufficient for its purpose, and in the summer and autumnal months great advantages arise from confining the soldiers within it, and not allowing them to roam along the borders of the lagoon, or through the streets of the adjoining town, where the heat and effluvia are excessive and pestilential. Although the walls are of no extraordinary height, still they screen off the first violence of the winds, which, especially from the southerly quarter, come loaded with vapour; but the grand advantage derived to the troops from being confined within the walls of the fortress is the prevention of intoxication from the poisonous ardent spirits retailed by the natives.

There is a barrack in the town capable of accommodating fifty men, in three rooms; these rooms are on the ground floor, and the building being near the lagoon, it has ever been found more inimical to health than the barracks within the fort.

The outposts, being occupied solely by two or three men,

occasionally to assist the sanita guard, I did not visit. One post, called Catechori, about fifteen miles to the southward of the fort, has been long since abandoned, in consequence of the whole detachment, consisting of sixteen persons, being taken ill of remittent fever of the most malignant type, in 1817, of whom three died, and the remainder very narrowly escaped. I have not been able to collect any satisfactory, or even consistent, accounts on the subject from resident officers.

The following is Mr. Goodison's topographical description, extracted from his manuscript report:—

"Catechori is situated upon the southern face of a peak of the mountains, on the eastern coast of the island. It is a very considerable elevation above the sea, there being a walk of about half an hour from the village, down a steep descent, to arrive at the beach. This peak is surmounted by other masses of the mountain which almost encompass it around, by which means it is exposed to the meridian sun, no current of air having access to it, excepting by an opening to the east, from which point the wind seldom blows in the hot months. That part of the mountain upon which the village is built consists of laminated or tabular carbonate of lime; the fragments of the rock are so regular, that the inhabitants have very little trouble in building their houses. The lofty ridges impending over the village are deeply streaked down their sides, indicating a softness in the mass which renders it subject to the impression of the mountain streams after rain. From this channelled appearance, as also from the darkness and blueness of the colour, it is probable that those more elevated ridges are composed chiefly of argillaceous matter, veins of which, and of soft sandstone, are met with about the village, and in the mountain beneath it. At a very considerable depth below is an inlet of water from the channel, called Porto Englimeno, with the ruins of a large city upon the shore, anciently Ellomenos. The village overhangs this basin, the water of which is very shallow and stagnating at the edges. There is no water to be procured within a mile of the town, the inhabitants having to ascend a very rough and steep mountain path to reach the wells at the village of Aptherno, or to descend an equal distance down a similarly rough and steep road to the only spring belonging to the

village of Catechori. The water in the upper village, Aptherno, was yet turbid, ten days after a fall of rain; that of the lower spring, however, was clear and well tasted at the same time.

"Various causes were assigned for the sickness of the detachment. It was by most people attributed to the exhalations arising out of Porto Englimeno; but the height of the village above the water renders this very improbable. The close situation of the place, as above described, was also assigned as the cause, but the village suffered in nearly the same proportion with the soldiers, while during the present autumn they have been comparatively free from fever. The irregularity of this party was also thought to have caused the sickness; the men were said to have drunk aqua vitæ, and immediately to have exposed themselves without caution to the heat of the sun: but again, some who did not indulge in these excesses, were equally ill with the rest, and this circumstance would still be insufficient to account for the disease prevailing in so much greater a degree among the inhabitants that season. It would appear that these latter are but occasional causes, and that there exists something in the nature of the soil itself sufficient to produce the disease added to a particular constitution of the air, which rendered the summer of 1817 so sickly throughout the whole of the Mediterranean.

"The situation and soil of Catechori, as well as the climate, with many other local circumstances, greatly resemble those of the village of Ibiso or Gesso, described by the late Dr. Irvine, in his treatise upon the Diseases of Sicily."

HOSPITAL.

This, although extremely mean in appearance, is tolerably well adapted to its purpose. It is a stone building, situated on the northern line wall of the fort, containing three wards on the upper floor, and a surgery, kitchen, store-room, and sergeant's room below.

It possesses two advantages not commonly found in hospitals in these islands, viz., a comfortable quarter for the medical officer, with an enclosed yard, and an excellent necessary close

to the hospital, hanging over the line wall, with every facility for cleanliness.

A convalescent hospital was at one time established in a convent about four miles from the fortress; it was found, however, very inconvenient, from the distance, and has not been used for some years.

DISEASES.

In the Appendix is given a return of the diseases which have been treated in the military hospitals at Santa Maura, from the year 1815 to the end of 1821. Among these, remittent fever appears so prominent as to render it almost the only disease worthy of notice. The following short abstract of this return will afford a view of the comparative frequency of the different species of fever, and their comparative mortality during that period.

I have only one remark to make upon it, viz., that it is highly probable that all the cases marked typhus, were of the aggravated remittent species, and that a great proportion returned as of the continued were of the milder form of remittent fever. This assertion, which might to some appear too sweeping for an individual who was not present at the time, I feel justified in making, from an attentive examination of a large mass of official documents, and from repeated inquiries among the best informed medical officers.

Table exhibiting a Comparative View of the Frequency and Mortality of the different Species of Fever, as returned in the Military Hospitals at Santa Maura, from the year 1815 *to the year* 1821, *inclusive.*

Species of Fever.	Admitted.	Died.	Proportional Mortality.
Common continued	185	3	1 in 61
Typhus.....	13	2	1 „ 6½
Quotidian	268	1	1 „ 268
Tertian	72	—	— „ —
Quartan	5	—	— „ —
Remittents	530	32	1 „ 16½

I cannot give any account of the fever of Santa Maura, which will afford a more accurate description of its mode of attack, treatment, and termination, as well as of the season in which its invasion under various forms is to be expected, than I find in the report of Mr. Lavens, the Assistant-surgeon of the 28th regiment, transmitted to the Director-general in December 1819: it is as follows :—" About the beginning of July, when the weather was very hot, slight attacks of fever became frequent in the garrison, but continued mild in its nature, and very easily managed, until the latter end of the month; constipated bowels or intemperance generally appearing to be the exciting cause of the headach, increased heat, and accelerated pulse; these being almost the only symptoms, which were relieved by a brisk purgative of calomel and jalap, followed by a few doses of aqua ammoniæ acetatis. In two or three days the febrile action generally ceased, and they shortly returned to their duty. Some few cases, however, were more obstinate; and towards the end of the month, the disease began to put on a very serious aspect, without any particular increased atmospherical heat or variation in the winds, or any other observable cause, but seeming (as it were of course) destined to make its attack at a certain period; for almost every case of fever admitted after the 30th July became of the true remittent type. The fever cases, then in hospital, did not seem to be influenced by whatever may have caused this very sudden change and increased severity in the symptoms of those admitted after this period.

" Between the 31st of July and 7th of August, sixteen cases of fever were admitted, of whom three terminated fatally. One of these had been stationed, with only another man, at St. Nicolo, a very small gravelly island, about two miles off, situated beyond the north-eastern point of the isthmus; it is accounted very healthy: however, these two men were taken ill on the same day, and brought to hospital in a very dangerous state. The one who survived, came two days after he was attacked (and about twenty-four hours before the other), with the usual symptoms of fever, and labouring under great dejection of spirits, depression, and loss of strength, so much so that he was scarcely able to stand or give a direct answer, and ap-

peared quite stupified; this was a very protracted case, with a tedious convalescence. The other, who died, did not appear so ill at first, but his case was combined with a strong determination to the chest, which demanded bleeding, accordingly about twenty-four ounces of blood were drawn from the arm. The relief which it afforded to the head and chest, with a considerable diminution of all the alarming symptoms for two or three days, appeared evidently to point out a favourable result; the fever, however, exacerbated on the fourth day, which was followed by an unaccountable state of debility, which terminated his existence.

"These were the two first serious cases of remittent that occurred.

"Several officers of the garrison had fever during the summer, but their attacks were in general slight and not at all complicated, and easily subdued. Two or three of the women also, of the detachment, had fever, one of whom died; but, prior to its attack, she was reduced to a very low state in consequence of a miscarriage. About twenty-four hours previous to her death, a deep yellow suffusion appeared over the whole body, and vomiting of dark bilious matter. Immediately after her death the whole body and extremities turned into the highest possible state of putridity, and swelled to an enormous size.

"The children of the detachment were remarkably healthy during the whole of the summer, scarcely any disease of consequence appearing among them.

"The fever, as I have already mentioned, was easily managed previous to the 30th of July, but immediately after assumed a very formidable and serious character. The symptoms were sometimes complicated, but usually appeared as follows. When the men were first brought to hospital, they complained of an oppressive pain in the head, chiefly about the temples, with a heavy sensation in the forehead; pain in the back and limbs; sometimes severe cramps in the thighs and calves of the legs; redness and some degree of tumefaction of the face; eyes of a red and watery appearance, and much affected by exposure to the light, occasioning a sharp deep-seated pain in the orbits; tongue white and usually covered with mucus; bad taste in

the mouth; great heat, and for the most part profuse perspiration; pulse from 95° to 112° (generally about 100, and full); bowels often costive; urine extremely high coloured and scanty. These symptoms were almost always preceded by rigors, or a sense of chillness down to the back. If the disease happened to be further advanced before they were reported, a considerable diminution of strength and stupor rendered these symptoms less sensible to the patient, giving him somewhat the appearance of intoxication, as in the case first admitted from St. Nicolo, and some others whose powers of recollection were so much impaired, that they could scarcely give the least account of their complaint. Two or three violent cases occurred during the autumn, in robust, stout men, who were suddenly seized with most alarming symptoms, without any previous notice of indisposition: while cleaning their accoutrements in the barrack rooms, they dropt down in a state of insensibility, quickly succeeded by delirium, with eyes staring and prominent, and the countenance wild. In this state they were bled to the extent of eighteen ounces each, from the temporal artery, and very shortly recovered their senses. The fever was afterwards slight, and complete remission procured in two or three days. When symptoms made their appearance in this violent and sudden way, the cause could generally be traced to previous excess in drinking, where the predisposition perhaps existed in the system.

"The first stage was seldom attended with vomiting; remission usually took place about the third day, sometimes towards the fifth or sixth; in few were the remissions more perfect on the third or fourth day, than in the cases of three men who died, two of whom were bled in the arm, in consequence of urgent pectoral symptoms.

"The exacerbation took place at irregular periods, generally, however, towards the evening, sometimes during the night, always becoming more remarkable as the disease advanced, and invariably preceded by chills down to the back and loins, and a creeping sensation all over. As the disease ran on, the foregoing symptoms were replaced by a train of nervous ones more or less urgent, according to the violence of, and means adopted in the exciting stage. The second stage was fre-

quently marked by lightness and giddiness in the head, which was much increased by any thing approaching to an erect position. Sometimes considerable drowsiness came on, which usually appeared more unfavourable in its consequences than the other. As the disease increased, vomiting of bilious matter continued, a quick feeble pulse, anxiety, incoherency, tremors and starting, sordes about the teeth, and involuntary evacuations were the usual progressive symptoms. In four of the cases which terminated fatally, a deep yellow suffusion made its appearance about twenty-four hours prior to their death, all over except the shoulders and back, which were of a dark livid colour; a few severe cases that survived, had a slight yellow tinge on the face and eyes in the course of the disease.

"Relapses seldom occurred; some severe and protracted cases were followed by a tedious convalescence; in one, there was a strong tendency to dropsy; but these men are now as robust and healthy as any soldier in the garrison.

"On examination after death, the usual appearances were a dusky yellow suffusion, externally, all over the shoulders and back, which were of a livid colour. The vessels of the brain and its membranes were generally turgid, and the substance of a firm consistence, depositions of coagulable lymph, in different places, ventricles more or less distended with fluid; adhesions were sometimes found in the thorax, with slight inflammatory appearances of the lungs, considerable enlargement and hardness of liver, which exhibited a livid hue towards the lower edge of its concave surface; gall-bladder, in two or three instances, filled with inspissated bile. Intestines distended with air, and sometimes shewing marks of inflammation. In one case, introsusception, spleen unusually enlarged, bladder containing a moderate quantity of very high-coloured urine.

"My first object in the cure was speedily to remove all possible cause of irritation that might exist in the intestines, by a brisk dose of calomel and jalap, conceiving that, after a free evacuation of the bowels, the cause of excitement and real state of the organ affected would be more accurately ascertained, and the extent of the means afterwards to be adopted for its relief calculated with more precision; and with the view of preventing, as far as consistent with the symptoms, unneces-

sary depletion, laying the foundation for a troublesome stage of debility, to which this fever is so extremely proue.

" I have latterly been a good deal in the habit of giving emetics in the first instance, when I suspected that the symptoms might be aggravated by the presence of offensive contents in the stomach, from intemperance, &c.; and certainly, in these cases, with the most beneficial effects; but I have reason to suspect, in a few instances, that the irritability which they occasion in that organ has prematurely excited the gastric symptoms attending a more advanced stage. The rending pain in the head, being the chief object of attention at the commencement, if it was not considerably relieved by the free evacuation of the bowels or stomach, leeches were immediately applied and repeated when necessary, but regulating the number carefully, according to circumstances, which I consider of great importance; for I have frequently observed, on a second or third application of the leeches, where a sensation of heaviness remained in the forehead, accompanied with dull pain, that two or three, perhaps, (except the symptom was urgent,) have completely answered the purpose, when, I am convinced, a large abstraction of blood might have, ultimately, induced a troublesome stage of debility.

" To relieve thirst and determine to the skin, I usually gave *aq. ammon. acetat.*, considering its effects, in the latter way, sufficient in most cases, by which the irritability of stomach, sometimes produced by antimonials, was avoided.

" In most cases, calomel was given from the commencement in repeated doses of three or four grains, which generally kept up an easy action in the bowels; or, if not sufficient for that purpose, it was combined with a few grains of cathartic extract, jalap, &c., or its action assisted by purging enemas; and if the mouth became affected by it early, I think the results were always favourable; but if, before this event, the symptoms shewed a determination to go on, mercurial frictions were had recourse to, and the ptyalism established as early as possible. Stupor and drowsiness frequently existed to a considerable degree in the course of the disease; in these cases, a large blister applied to the head or nape of the neck, or between the shoulders, was followed by the best effects.

"When the skin was hot and dry, sponging with cold vinegar and water was a grateful application, and attended with advantage, in relieving the headach.

"As the symptoms evinced a disposition to yield, the decrease of febrile action was narrowly watched, and, in many cases before the remissions were perfect, I found it necessary to exhibit the bark; in such cases, the decoction combined with *aq. ammon. acetat.* was administered, as long as increased heat or dryness of skin continued; after which the bark was given in substance. I have very seldom had occasion to regret giving the bark in the way I have mentioned, for obtaining a complete remission was often doubtful; and where an exacerbation might be expected, followed by a train of other dangerous symptoms, I found that in serious cases no time ought to be lost, except some particular existing symptom forbade its use.

"With regard to diet, it was regulated according to the treatment necessary to pursue in the different stages: the advanced stage requiring constant support; wine and sago were the most beneficial in that way. Much irritability of stomach usually prevailed at that time, and vomiting; in which case, the patient's fancy was a good deal consulted, with regard to the nourishment he thought would best agree with his stomach. Effervescing draughts and opium were useful here; but sometimes the irritability and vomiting were uncontrollable, rendering all attempts to nourish and support the patient unavailing in two or three who died.

"Blisters applied to the region of the stomach had often a good effect. Carbonate of ammonia and camphor combined were useful stimuli in the latter stages, when much debility existed.

"During the whole course of the disease, minute attention was paid to the state of the bowels. In order to obviate costiveness, and procure easy, moderate evacuations daily, a few grains of rhubarb best answered this purpose, mixed with each dose of bark (when necessary), until the object was effected. When the irritability of stomach was at all increased by these medicines, the bowels were kept open by gentle enemas. When the stomach rejected bark, infusion of quassia was

sometimes an excellent substitute; and in the convalescent stage of protracted cases, it was exceedingly useful as a restorative to the digestive organs.

"With regard to general blood-letting at the commencement of the fever, I was obliged, in a few complicated instances, to resort to it from necessity, where the danger to be expected from high inflammatory action was of more consideration in my mind, than the debility that might arise from the use of the lancet; yet, from the effects I observed, I should certainly resort to it with great caution in the autumnal fever here. The epidemic prevailed this season to a later period than usual, influenced by a southerly wind prevailing several weeks towards the end of autumn, by which the weather continued hot and uncomfortable; besides, the fortress is entirely exposed on that side to the effluvia from the lake.

"Towards the latter end of September and October, a few cases of quotidian intermittents came into hospital, and last month (November) eight more were admitted; some of these, who were subject to the complaint, had two or three relapses, and two others had previously laboured under remittent fever. They all, however, yielded to a steady use of the bark, with proper attention to the state of the bowels."

In Appendix I. will be found a General Table of the Weather, from June, 1818, to December, 1821.

In Appendix II. Meteorological Observations made at Santa Maura, from 21st December, 1819, to 20th December, 1821.

In Appendix III. No. 1. a Return of the Admissions, Discharges, and Deaths in the Military Hospitals at Santa Maura, from 21st July, 1815, to 20th December, 1821.

No. 2. Average Strength of the Garrison, and daily Number of Sick for the same period.

APPENDIX TO SANTA MAURA.

I.

General Table of the Weather from June, 1818, to December, 1821.

Years	Thermometer.		Prevailing Winds, and State of the Weather.	General Remarks.
	Max.	Min.		
1818	89	48	Wind westerly. Rain towards the middle of June and July; heavy rain 23d August, and continued rain after 8th September. Variable till near the end of November. December generally fine, although intermixed with occasional rain and high winds.	
1819	87	48	N. W. and S. W. Much rain and strong gales in January. February generally fair. March variable, with occasional gales. April fair and mild. May generally cloudy, with high wind, showers, and thunder. June generally hot and cloudy. Heavy rain, with thunder, the beginning of July, followed by clear weather. One or two heavy falls of rain in August, and September dry with sultry breezes. The last quarter fine, except a few heavy showers. Much rain and thunder the end of December.	
1820	92	52	E. but variable. Heavy rain beginning of February. Second quarter variable, but generally fine. Last quarter cloudy, with rain and thunder. December fine.	From the middle of February continued and heavy shocks of earthquakes throughout the quarter; town and fortress considerably damaged.
1821	82	46	S. and E. End of February and in March generally rainy. July and August fine. Rain set in the middle of September. December fine.	Frequent earthquakes.

II.

Meteorological Observations made at Santa Maura, from 21st December, 1819, to 20th December, 1821.

Period.		Thermometer.		General Observations.
From	To	Max.	Min.	
1819. 21 Dec.	1820. 20 Jan.	66	50	For twenty-eight days in this month the wind blew from the S. and S. E., with three days of rain, accompanied with thunder and lightning.
21 Jan.	20 Feb.	62	50	Southerly winds prevailed till 11th of February, from which date, till the end of the month, the wind blew constantly from the S.W. From the 10th to 20th, earthquakes were frequent, sometimes accompanied with heavy rain, thunder, and lightning.
21 Feb.	20 March	64	52	As last month, the prevailing winds were from the S. W. Earthquakes were frequent. On the 5th of April had a whirlwind, accompanied by a hail storm. Heavy rains and strong wind continued.
21 March	20 April	64	52	Heavy rain and strong wind the greater part of this month, with earthquakes daily. On the 4th, the gable end of the barracks fell. On the night of the 26th, the earth was in motion thirty minutes: great damage was done to the town. With the exception of part of seven days, the wind blew constantly from the S. W.
21 April	20 May	75	64	Wind from the N. and E., with dry weather. Shocks less frequent and weaker. From 4th till 20th May, dry weather, and no earthquakes.
21 May	20 June	82	71	Two shocks on the 22d, with heavy rain till the 9th; fine clear weather. On the 10th June, heavy rain with a dense fog. Rest of the month fine.
21 June	20 July	85	73½	Heavy rain on the 22d June, with thunder and lightning. The rest of the month clear and sultry. Prevailing wind N. W.

Period.		Thermometer.		General Observations.
From	To	Max.	Min.	
21 July	20 Aug.	90	77½	On the 21st July the thermometer was at 90; the heights were covered with fog: rest of the month fine and dry. Rain, thunder, and lightning on the 20th. Wind N.W. and N.E.
21 Aug.	20 Sept.	92	70½	On the 25th August the thermometer was 92; wind N. W. Sultry breeze on 16th September. Heavy rain, thunder, and lightning. Rest of the month fine and dry. Winds N.W. and N.E.
21 Sept.	20 Oct.	78½	69	On 22d September a smart earthquake, with heavy rain. Thunder and lightning on the 4th and 11th October. Heavy rain 18th, 19th, and 20th. Showery first part of the month. Wind N.E. and N.W.; latter part of the month southerly.
21 Oct.	20 Nov.	74	60	Heavy rain, thunder and lightning on 29th October; likewise on the 2d, 3rd, 9th and 10th; the rest of the month fine weather. Prevailing winds S.E. and S.
21 Nov.	20 Dec.	62	54	Heavy rain on the 15th, 19th, and 20th December. Fine weather the rest of the month, with easterly winds.
1820. 21 Dec.	1821. 20 Jan.	65	50	Snow fell on the 22d, 23d, and 24th. Heavy rain, thunder and lightning and hail on 25th. Earthquakes on 29th, accompanied with thunder and lightning. A severe shock of an earthquake was felt on the evening of the 6th. Winds were from N. to S., earth being in motion 45 seconds. Rest of the month fine, with successive showers. Prevailing wind sirocco.
21 Jan.	20 Feb.	57½	47	A smart shock at 9 p. m. on 26th. Weather extremely fine the whole month. Rain fell on the 4th, 6th, 7th, and 9th. Prevailing winds N.W.
21 Feb.	20 Mar.	58	48	Month ushered in with strong gales from N.E. Earthquakes on the 26th February and 2d March. Snow fell the 7th. Rest of the month fine.

Period.		Thermometer.		General Observations.
From	To	Max.	Min.	
21 Mar.	20 April	68	55	A slight shock on 28th, 2d, 5th, and 18th, accompanied each time with thunder and lightning. Month commenced with heavy gales from N.W. Rest of the month fine and clear.
21 April	20 May	68	55	Shock on 15th. Weather cloudy. Much rain fell this month, with dark cloudy weather. A tremendous gale of wind from S.E. on 1st. Prevailing wind sirocco.
21 May	20 June	82½	69½	Heavy rain, thunder and lightning on 1st June; and rain on 2d, 6th, 7th, 18th, and 19th. First part and middle of the month fine clear weather. Westerly winds prevailing.
21 June	20 July	82	68	Rain on 21st, 22d, and 19th. Fine clear weather the rest of the month. Twenty-seven days of this month the wind blew constantly from the west.
21 July	20 Aug.	84	71	A heavy thunderstorm at 6 a. m. on 26th, during which the thermometer fell 8 degrees; lightning struck a boat under the walls of the fort. Rain fell on the 10th, 14th, 15th, 16th, 17th and 18th. A shock on the 12th, at noon. Rest of the month fair and fine.
21 Aug.	20 Sept.	84	71	Rain on 31st, 18th, and 19th. A slight shock on the 2d and 14th. Rest of the month extremely dry and fine, with the exception of the afternoon of the 20th. The wind blew constantly from the west.
21 Sept.	20 Oct.	79	68	Wind from the eastward and N.W. Heavy gale of wind in the night of the 27th, accompanied with lightning, thunder, and rain. Rain fell on 28th, 1st, 2d, 11th, 12th, and 20th. Thunderstorm on 20th. Winds from eastward and N.W.
21 Oct.	20 Nov.	68	52	Heavy rain on 21st, 22d, 23d, 24th, 5th, 6th and 7th. Three shocks on the night of the 4th, with calm and sultry weather. Prevailing winds E. and N.W. Weather, for the most part, stormy with strong winds.
21 Nov.	20 Dec.	64	48	Rain fell on the 10th, and the mountains were covered with snow on the 18th. The rest of the month was fine, with calm weather, succeeded after midday by winds from N.W.

III.

No. 1.—*Return of the Admissions, Discharges, and Deaths, in the Military Hospital at Santa Maura, from 21st July, 1815, to 20th December, 1821.*

DISEASES.	1815.			1816.			1817.			1818.			1819.			1820.			1821.		
	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.
Feb. Quotid. Intermittens	..	..	..	..	..	..	22	21	..	17	30	..	44	36	..	46	52	1	26	25	..
„ Tertiana „	..	..	..	..	..	..	4	5	..	1	1	..	10	10	..	14	14	..	43	38	..
„ Quartana „	..	..	..	..	..	..	5	9	..	..	..	..	..	..	..	..	..	..	..	..	..
„ Remittens „	25	25	..	53	56	..	89	74	12	41	29	1	90	84	5	56	54	2	176	160	12
„ Cont. coms.	..	1	..	2	1	..	15	16	..	27	31	..	109	102	2	32	35	1	..	..	..
„ Typhus	..	..	..	13	10	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Phlegmon et Abscessus	..	..	..	..	..	..	7	7	..	24	23	..	30	28	..	2	2	..	17	17	..
Paronychia	..	..	..	..	..	..	2	2	..	1	1	..	3	3	..	1	1	..	..	..	..
Cynanche Tonsillaris	..	..	..	..	..	..	..	..	..	2	3	..	..	..	..	..	..	..	..	..	..
„ Maligna	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..
„ Parotidea	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..
„ Trachealis	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..
Pneumonia	1	1	..	2	2	..	7	6	..	3	4	..	22	16	..	17	22	..	15	15	..
Gastritis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Enteritis	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	7	7	..
Hepatitis Acuta	..	..	..	..	..	..	2	2	..	..	..	..	1	1	..	..	..	..	..	..	..
Nephritis	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Otitis	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	2	2	..	..	..	..

DISEASES.	1815.			1816.			1817.			1818.			1819.			1820.			1821.		
	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.
Rheumatismus Acutus...	..	..	..	..	..	..	4	5	..	7	7	..	5	4	1	2	2	..	9	7	..
,, Chronicus	..	..	..	..	..	..	..	..	..	2	1	..	1	1	..	3	3	..	..	..	..
Odontalgia	..	..	..	..	..	..	1	1	..	2	2	..	..	..	..	..	..	..	1	1	..
Rubeola	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
Erysipelas	..	..	..	..	..	..	..	1	..	7	7	..	2	2	..	..	..	..	..	..	..
Epistaxis	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
Hæmoptysis.....	..	..	..	..	..	..	1	1	..	2	2	..	4	4	..	..	..	..	..	..	..
Phthisis Pulmon. Tuber. .	..	..	..	..	..	..	..	..	..	2	1	1	8	2	2	..	..	1	..	..	2
Hæmorrhois.....	..	..	..	..	..	..	..	..	..	1	2	..	3	2	..	7	8	..	..	..	..
Catarrhus Acutus.....	..	..	..	..	..	..	3	4	..	1	..	..	15	13	..	13	15	..	2	4	..
,, Chronicus ...	..	..	..	1	..	..	..	1	..	..	..	..	1	1	..	..	..	..	4	..	..
Dysenteria Acuta.....	..	..	..	4	3	1	14	14	..	37	37	..	24	21	1	6	8	..	9	9	..
,, Chronica	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	..	..	..	..	..	..
Apoplexia.....	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..
Paralysis	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Tetanus	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..
Epilepsia	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dyspnœa Continua.....	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..
Colica.....	..	..	..	..	..	..	1	1	..	2	2	..	6	6	..	3	3	..	15	15	..
Cholera Morbus	..	..	..	..	..	..	2	2	..	1	1	..	1	1	..	2	..	..	13	13	..
Diarrhœa	..	..	..	1	1	..	..	..	..	2	..	..	17	17	..	14	16	..	20	20	..
Atrophia.....	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..
Anasarca	..	..	..	..	..	..	..	..	..	1	..	1	1	..	1	..	..	..	1	1	..
Hydrothorax.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..

Ascites	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	2	1	..
Scrofula	..	..	..	..	..	..	..	..	..	1	1	..	2	1	..	..	..	..	2	2	..
Syphilis primitiva	..	..	..	..	..	..	20	18	..	9	10	..	3	4	..	..	..	..	2	2	..
„ consecutiva	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
Ulcus Penis, non Syph.	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..
Bubo simplex	..	..	..	..	..	..	..	..	..	1	1	..	3	3	..	1	1	..	1	1	..
Icterus	..	..	..	..	..	..	..	..	..	3	2	..	1	1	..	..	..	..	2	2	..
Gonorrhœa	..	..	..	1	1	..	8	8	..	6	6	..	4	2	..	..	..	..	1	1	..
Hernia humoralis	..	..	..	1	1	..	3	3	..	..	..	..	2	2	..	2	2	..	2	2	..
Strictura urethræ	..	..	..	..	..	..	2	..	..	..	..	..	..	2	..	..	..	..	..	..	..
Obstipatio	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Hernia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Fistula in Ano	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Luxatio	..	..	..	..	..	..	..	..	..	3	3	..	1	..	..	1	1	..	..	..	..
Subluxatio	..	..	..	..	..	..	..	..	..	..	..	..	5	5	..	5	5	..	1	1	..
Vulnus Sclopit.	..	..	..	..	..	..	..	..	..	..	..	..	12	7	2	..	3	..	..	..	..
„ Incisum	..	..	..	..	..	..	4	4	..	..	2	..	11	11	..	7	7	..	12	12	..
Contusio	..	..	..	..	..	..	18	23	..	43	44	..	29	29	..	17	17	..	41	40	..
Ambustio	..	..	..	..	..	..	6	2	..	4	4	..	2	2	..	1	1	..	..	..	..
Ulcus	5	5	..	4	5	..	14	14	..	37	35	..	32	28	..	34	39	..	21	21	..
Fractura	1	..	..	..	..	..	..	..	..	2	2	..	..	..	..	2	2	..	..	..	..
Punitus	4	4	..	3	3	..	14	14	..	8	8	..	70	62	1	29	36	..	49	45	..
Morbi Oculorum	..	..	..	1	1	..	6	6	..	68	61	..	20	15	..	5	5	..	10	10	..
„ Cutis	..	..	..	3	3	..	31	31	..	21	13	..	10	26	..	..	..	..	..	..	..
Rheumatism	3	2	..	9	9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diseased Viscera	1	2	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Pulmonic	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Venereal	6	5	..	15	17	..	2	1	..	2	..	..	..	..	..	..	..	..	..	..	..
Wounds	..	1	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Casualties	..	1	..	16	14	..	5	4	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	56	59	..	220	207	3	338	326	15	394	382	4	611	562	17	325	356	5	512	480	14

No. 2.—*Average Strength of the Garrison of Santa Maura, from 21st July, 1815, to 20th December, 1821; also the daily Number of Sick.*

Years - - - - - - -	1815	1816	1817	1818	1819	1820	1821
Strength of the Garrison .	195	195	268	307	495	322	359
Average daily number of Sick	6	8	14	14	34	13	21

THE

MEDICAL TOPOGRAPHY

OF

ITHACA.

THE

MEDICAL TOPOGRAPHY OF ITHACA.

" Thou sterile spot! where are those secret charms
Which lured the chief from Circe's wanton arms;
From fair Ogygia's lovely glades to fly,
And quit Phæacia's ever smiling sky?"

Horæ Ionicæ, p. 30.

SECTION THE FIRST.

NAME AND SITUATION.

On this little island, which is much more interesting to the classical scholar than to the medical topographer, I have at present but few observations to offer; its situation, soil, population, and products, are of a description which must ever render it an object of very inferior military importance among the other members of the Septinsular union. Its very name was forgotten until of late, and it has been solely from the enthusiasm of travellers that we have been enabled to recognize in the " Val de Compare" of the Venetians, the celebrated Ithaca of Homer. The modern inhabitants call their island Thiaki, and contend with great zeal as to its indisputable title to being the actual birth-place and patrimonial kingdom of Ulysses. Their national vanity has been greatly excited by the visits of late travellers, and especially by the disquisitions of Sir William Gell on these points; but, without entering into the merits of the case, or examining the assertions of modern writers, I shall proceed to describe the actual topography as it exists at present, as far as it may be supposed to influence the health of the garrison.

The island of Ithaca lies in latitude 38° 14′, longitude 21° 12′. It is bounded on the south and south-east by Cephalonia,

from which it is distant about eight miles; on the east and north-east, by the channel of Zante, and a group of small islets, the ancient Echinades; on the north by a part of Santa Maura, and on the north-west, west, and south-west by the channel which runs between Santa Maura and Cephalonia, and by a part of the latter island. It is distant from the main land of Acarnania in old Greece about fifteen miles at the nearest point; at more than double that distance, in a south-easterly direction, lies the opening of the gulf of Lepanto. It is of a very irregular shape, but is estimated at thirty-miles in circumference; its greatest length from north to south is about fifteen miles, its breadth is very unequal, being in some places about four miles, and in others not half a mile. To those who are fond of such speculations, it would appear as if it were a curved slip, separated from Cephalonia by an earthquake. There are not wanting some philosophers who dream that it was also once attached to Santa Maura, and that indeed the whole Ionian group formed in aboriginal ages a part of the continent: by sinking a few ranges of mountains in one place, and raising them in another, this could be easily effected, and, according to them, facility implies demonstration. As it exists, however, at present, it is well described by authors, as "consisting of two large masses of mountain united by a third smaller mass," with the whole of its western coast opposed to the eastern coast of Cephalonia. The channel which separates them is of irregular width, varying from ten to fifteen miles. The central part of Ithaca is very nearly opposite to the centre of the bay of Samos in Cephalonia. The inspection of a map of the islands will be more explanatory on this subject than the most laborious verbal description.

MOUNTAINS, RIVERS, LAKES, SPRINGS, &c.

The whole island is a mass of mountains running in a continued but irregular ridge, in a direction about east and west. Of this ridge, Mount Stephanos and Mount Neritos are the two highest points; the latter is the loftier of the two, but the exact height of either has not, I believe, been accurately ascertained. Mount Stephanos rises immediately above the town of Vathi to

the south; Mount Neritos extends to the north of it, and land-locks the harbour, which, by means of these mountains, is one of the most secure in this part of the Mediterranean. The centre of the island is occupied by Mount Acto or Eagle mountain, which is of much inferior altitude to the other two.

Neither rivers, lakes, marshes, nor any collection of water (accidental deposits from rain excepted), are to be found in the island. The wells are partly supplied from springs, and partly from rain. Some of these springs are very copious, and one on the coast is celebrated in the pages of antiquity as the fountain of Arethusa. Viewed from the sea, it is very beautiful, but has little, if any, influence on the health of the inhabitants, as it is about four miles from the town, and, from the difficulty of access, rarely if ever resorted to for domestic purposes.

CLIMATE.

The climate of Ithaca is mild; and although the temperature is liable to frequent variations, they are not of a very extensive range, seldom, according to Mr. Scott's account, who has long resided in the island, exceeding 3 or 4 degrees of the thermometer in twenty-four hours. The average of the thermometer for four years, as taken by Mr. Scott at 10 A. M. and 3 P. M. daily, was as follows:—Maximum 71, minimum 59, medium 65. The prevailing winds are southerly, which, during summer, are very oppressive, and, as usual in the islands, attended with damp. A very refreshing westerly breeze, however, sets in about mid-day.

Rain generally begins to fall in heavy torrents about the month of September; sometimes for a month together the fall continues, but in general it is limited to three or four days at a time. June, July, and August, are commonly without a cloud.

Whatever rains fall in Ithaca are either at once carried off into the sea, or sink through the soil; they have never been observed to stagnate, or in any other visible way to affect the health of the inhabitants.

Earthquakes are frequent in Ithaca; they appear to be shocks

of relation with other places, especially Santa Maura and Cephalonia; they are rarely productive of any serious damage.

SOIL, EXHALATIONS, ANIMAL, VEGETABLE, AND MINERAL PRODUCTS, &c.

The general aspect of Ithaca is that of a craggy rock, as barren as it was in the days of Homer. The soil exists merely in patches interspersed among the crevices of the rocks, and the confined valleys formed on its mountainous surface. The nature of the majority of these spots is sandy and gravelly; in a few the soil is alluvial clay, which has evidently been washed down into its present situation by the winter torrents from the sides of the adjacent high grounds. These spots greedily absorb the rain that falls upon them, and it sinks so far below the surface, or is in general so rapidly drained off, that it affords no visible exhalations, although by its influence it richly rewards the labours of the cultivator.

The principal of these alluvial valleys runs in a southerly and westerly direction, immediately in the rear of the town of Vathi. The produce of this valley, as the supply of moisture is steady, is very luxuriant, often, indeed, it is superabundant, and after heavy rains a torrent eight or eleven feet deep flows through a rocky channel, which opens into the harbour.

The general produce of Ithaca is the same as that of the other islands already mentioned; the culinary vegetables are far less abundant, however, but the wine, oil, and currants, are so plentiful as to admit of exportation—the former especially is highly prized.

The animal products do not differ from those to be found in the adjacent islands; the assertion of Pliny that hares die if brought to Ithaca, is quite fabulous; indeed, there is very little game, except hares, to be found, according to the report of sportsmen; and they are so alert and so favoured by the nature of the surface, as to be shot with great difficulty.

In physical character the Ithacans stand among the foremost in the islands. I saw on the water and in the town, which I visited on a festival day, several remarkably robust men, with very interesting countenances, and perfectly free

from that meager sickly aspect which is so striking among the natives of the more marshy islands.

No mines have been discovered in Ithaca; the great mineralogical product of the island is limestone, which is remarkable for the facility with which it is wrought by the mason.

AGRICULTURE, MANUFACTURES.

The agriculture of Ithaca is very primitive, and indeed the nature of the soil does not seem to require or admit of more than scratching by a rude island plough before throwing in the seed, or else turning it up by a hoe; this last instrument is most commonly used for clearing the roots of the vines, for the purpose of weeding or applying manure and water. The seed time is about November, and the grain is all gathered in by the end of June.

The quantity of produce raised is by no means sufficient for the consumption of the inhabitants, except in the articles of oil, wine, and currants. The Ithacans weave wool and flax for the clothing of the peasants, but, except for internal consumption, they have no manufactures.

ROADS AND COMMUNICATIONS, TOWNS AND VILLAGES.

The roads are merely beaten paths among the rocks, sufficient to admit of the passage of laden mules or asses. Much of the communication is by water; some recent attempts have been made to improve the roads.

There is only one town and four villages in the island. The town is named Vathi; it is built along the shore of the harbour, partly on ground recovered from the sea, partly on the edge of the alluvial valley already mentioned, which lies at the bottom of the harbour, and partly on the rocky cliffs overhanging the water. The houses are all of stone, and are generally insulated, but they are rudely put together and penetrable to every blast. The ground floors of those built near the sea, and at the edge of the valley, are said to be very damp after heavy rains, especially as some of them are so injudiciously placed as mechanically to obstruct the progress of the rain water into the sea.

The streets, the principal of which is nearly a mile long, are well paved and remarkably clean, although sewers and public privies are very scarce; but the vicinity of the sea and the openness of the streets afford great facility for preventing the accumulation of filth. It is considered the healthiest town in the island. The number of inhabitants is stated to be somewhat beyond 2200, and on an average there are about five to each house.

Three of the villages are situated on the sides of the mountains, and one (Camellata) is on the sea coast; the houses in all are built of stone, and all have a southern aspect; they contain the remainder of the population, which, in March, 1819, amounted to 8219 souls. The population varies at different times; in an official document now before me they are stated at 7300. St. Sauveur loosely estimates them at between 6000 and 7000 souls, and the anonymous author in the "Quarterly Review," No. 46, raises them to 8000. Sir W. Gell confirms this; and, according to General Vandoncourt, the same estimate was given to the French government in 1807. At present they may be stated at upwards of 8000, and the census as given by Mr. Scott, from reports made to the government, may be relied on as the most accurate.

BEDDING, CLOTHING, FURNITURE, DIET, AND WATER.

In these particulars there is but little difference generally from the other islands; riches may make some individual difference among the Ithacans, although, in this respect, there is said to be a greater equality among them than among the other islanders.

In their diet the Ithacans use immense quantities of bread and garlic, and in the time of vintage the consumption of grapes is enormous; although the wine for exportation is good, that in domestic use is often of very inferior quality.

The well-water used for culinary purposes by the inhabitants of the town is not considered remarkable for its purity; it is always hard, and in summer often brackish. It is estimated that about a third of the water drunk in the island is rain col-

lected in cisterns, and the remainder is obtained from wells and fountains.

EMPLOYMENTS, AMUSEMENTS, MORALS, AND EDUCATION.

AGRICULTURAL pursuits, in which both sexes join, are the principal employments; more than half the male population are occupied in them, and a great number of the remainder are employed as sailors; the numbers vary according to the demand, but they often have exceeded 500. The shipping of the island includes 36 vessels of various tonnage, from 80 up to so high as 350 tons, and 130 boats from the smaller size up to 25 tons.

Their amusements are nearly the same as those of the other islands. Mr. Scott gives me the following account of them:—

"The range of their amusements is not very extensive; dancing, the youth of both sexes are very fond of, although the music is not the most harmonious in the world. They never lose an opportunity that offers of setting up a dance, even without any music but the rough voice of the most noisy of the chorus. Their weddings last a week without any other entertainment than the dance. They have many religious feasts also which encourage it. House-warming is another grand occasion for it, which also lasts for several days, with many other festivities that constantly occur. They often dance in the open air, but most commonly within doors, when the crowd is such, that the lookers on are not much cooler than the dancers.

"Some of their daily employments are a source of amusement, such as the women's daily work of spinning, the apparatus of which they carry about, and collect in coteries to talk scandal, in which they are generally well versed.

"From the noise and laughter they make when bruising the olives, it would seem they liked the occupation, though a very laborious one.

"These amusements would, no doubt, contribute much to health, were their good effects not counteracted by privations and mortifications more powerful, such as poor living, hard labour, long fasts and other religious penances, with many disquietudes, anxieties, and afflictions, especially among females.

"When any one dies, the nearest female relation sets up a shrill scream, and every woman within hearing of her, young or old, frail or strong, throws down her work, however pressing it may be, and starts for the scene of lamentation to join in the general howl, till the house is filled, who, when they are tired of crying and weeping for their nearest and dearest relations last dead, and of sending embassies to them by the departing spirit of the deceased, retire to make room for a new set to offer their condolence in the same kind of way to the wife, mother, or whatever relation she may be, who, though already worn out, must again pull her hair and scream with every fresh party, to show the depth of her grief. This lasts (after the first two or three days) at intervals of twenty-four hours at first, then a week, and at last a month, or a year. There is, therefore, always one of the howlings to be heard in some one of its stages, and none of the near relations must appear in public with a contented face for months, nor the mother or wife of the deceased be ever seen to smile again, at the risk of losing her fair reputation; so that, on the whole, it is a rare thing to meet with a lively air of contentment among the females of this island.

"The males do not enter into those noisy lamentations, but they must shut themselves up, buried in the filth of a month, without washing or shaving for at least that period. They, however, beguile the time by snuffing and smoking, to which most of them are absolute slaves; these, together with gambling, are, after a certain age, their only amusements. Young men and boys play at ball, quoits, pitch-and-toss, and at jumping.

"The morals of these people are formed rather by superstition than by true religion. If one attends morning and evening prayers, observes Lent strictly, as well as other fast days; in a word, if he attends to the ceremonies of religion, he becomes a thorough good Christian, under the cloak of which he may be guilty of almost any depravity. It is seldom, however, that either great vices or great virtues are practised, for there is a general fear of being criticised, which influences these people more than might be expected among so uncivilized a race. Of low dirty tricks they are all capable, without exception, and

they possess in a high degree that cunning which such propensities engender.

"Every boy of whatever description goes to school, and is there taught to repeat his prayers, to sing hymns, and to read and write; the latter two, however, with so little care, that his progress is such as to be of little service to him for life. Indeed, parents have so little control over their sons, that very often, instead of being at school, they are gambling, or at some other mischief.

"Females are taught nothing but to knit and sew, together with crossing themselves at certain hours, in which consists a great deal of male and female devotion, and praying to the Holy Virgin, to whom they are led to look for every blessing here and hereafter. Their school-room, when the weather permits, is the open air; and when it does not, the schools are so numerous that the boys are never crowded." So far Mr. Scott.

Upon the whole, it appears that Ithacan morality does not stand on higher ground than that of the other islanders; their superstition is most deplorable, and the principal part of their religion evidently consists in the most abject attention to external ceremonies. An Italian copy of "Martini's Bible," which I presented to a lady high in rank in the island, was, I understand, the only copy of the entire scriptures extant in Ithaca in the early part of 1823, except in the hands of some of the priests. Many of the younger clergy and other inhabitants are very anxious, however, to have free access to the New Testament. Schools are numerous, and every boy is sent to them, but being taught by the priests, little more is done by the scholar than to enable him to spell rather than read a book, and to sign his name.

The Earl of Guilford had an intention of founding his new university in Ithaca, but the old palace at Corfu is now given up for that purpose. How the plan may succeed is difficult to say. Enthusiasm seems to have had a considerable share in the idea of founding this institution in such a remote corner as Ithaca; and of its utility, even at Corfu, reasonable doubts may be expressed, except greater care is taken than appears to have been hitherto done in selecting professors. Some of those already in nomination are reported to be ignorant of

the rudiments of the sciences they are to teach, and others are said to be devoid of more important principles. I saw at Corfu an essay on the *belles lettres*, published as his own by one of the candidates for a chair, which, with the exception of the title-page and a very few passages, was a verbatim reprint of an old work on the subject—the two having been bound together for the facility of comparison, afford a proof of the most consummate literary fraud I ever witnessed.

BIRTHS, MARRIAGES, DEATHS, &c.

No regular registers are kept upon these subjects; but by a census taken in 1819, comprising a period of three years and a half, the mortality throughout the whole island was 1 in 26, viz., males 1 in 27, females 1 in 25. By another calculation it was found, that in the town and a neighhouring village, the deaths were 1 in 20, viz., males 1 in 22, females 1 in 18. In the district of Mavronia, or the out-villages, the mortality was only 1 in 40, viz., males 1 in 38, females 1 in 42; thus giving a double ratio of mortality in the town. It is very common to see persons of 80 in Ithaca; and 90, 95, and even 100, are not very rare ages.

POLICE, &c.

The streets of Vathi are very well paved with flags, and they were, when I visited them, remarkably clean,—a state in which, I understood, they are constantly kept by the English commandant. There are no regular market-places, nor any slaughter-houses, in the city. Neither vagrant poor nor public prostitutes are to be met with throughout the whole island. The manufacture of leather is carried on to a small extent within the city, but no ill consequences result from the exhalations. Flax is prepared in pits, but these are at a distance, as their noxious effects are well understood by the Ithacans.

DISEASES OF THE INHABITANTS—PRACTICE OF PHYSIC AMONG THEM.

For the account of the diseases and practice of physic among the Ithacans, I am indebted to Mr. Scott.

"The endemic diseases," says Mr. Scott, "are irregular intermittent and remittent fevers; the latter are the most fatal of all the complaints, I might say of all collectively. They are most frequent in summer, and attack all ages and every sex, although the robust, and they who live grossly, and expose themselves to the heat of the sun, seem to be the most subject to the disease.

"The most common cause, to which the vulgar attribute it, is the wind. They say when any one is affected with this, as well, indeed, as every other febrile disease, 'he was struck by the wind.' They have such a fear of fevers in general, that they seldom either trust to empirics, or leave the disease to itself, but have recourse to the doctor; nor do they content themselves with one, if more are to be had, but they must have a consultation, often to the no small prejudice of the patient, who, in consequence, very frequently leaves off medicines which were adapted to the case, and swallows those which are quite the reverse.

"The regular practitioners begin the cure of this fever by purgatives, and if there is much excitement, a small bleeding or two; then, remission or no remission, they have recourse to bark, along with blisters to different parts, chiefly the legs, arms, and nape of the neck. When these fail, they prescribe more active stimulants, such as ether, opium, camphor, and nitre, in which they have great faith, as exciting the secretions in general, and that of urine in particular. In many of these fevers, the bark has an immediate good effect; in other cases it seems to aggravate the complaint rather than accomplish its cure; so that it would appear, that two different complaints were prevalent under the same form. If there is really any difference in their character or symptoms, I have not been able to ascertain: certain it is, however, that there is no difference in the treatment. No registers being kept of particular diseases, there is no way of getting the proportion of mortality of this or any other disease to another complaint, or comparing it to that of the same malady among the troops.

"Intermittent fevers are also very common, and not unfrequently fatal for the want of a sufficient quantity of bark. It is a common case to find a couple of drachms of it prescribed

to a patient, who has a strong paroxysm of ague every day, morning and evening, or during the intermission; that, too, of bad bark. The consequences are, that the disease gains ground daily, till it produces some internal mischief, which the bark eventually increases, and the patient, sooner or later, dies hectic. But, in general, this disease is neither severe in its attacks, nor fatal in its consequences; but it generally appears without any very marked cold stage, with headache and heat of skin, thirst and uneasiness, and, after a few hours, sometimes with, sometimes without, a perspiration, declines gradually, and leaves the patient in a state of apyrexia. The quotidian type is the most common.

"After the bowels have been opened, bark is the only remedy used in common cases; when it does not effect a cure, they mix it with some other ingredients to assist its powers. The most common mixture is one ounce of bark, a drachm of iron filings, two drachms of rhubarb, a drachm of wormwood, and half a drachm of cinnamon, mixed in a little white wine; a wine-glass full of which is taken three times a day. This rough prescription is, indeed, a 'remedy for every evil,' almost even in the hands of the regular practitioner, especially for chronic visceral complaints, general debility, and hysterics.

"The common epidemics of the island are measles, scarlatina, and bowel complaints, which are chiefly confined to children.

"Dysentery frequently attacks a great number of people at the same time, and is looked upon as contagious by the natives; but I have never been able to discover any other ground for their opinions than its seizing, at times, several individuals of the same house at the same time; indeed, the natives themselves take no precautions to avoid the disease, which I am persuaded they would, were they thoroughly convinced of its contagious nature.

"The general remedies in all these complaints are purgatives, sudorifics, blisters and topical fomentations, and pediluvia. In scarlatina they apply leeches, or scarify the nearest they can to the seat of the sore throat. In dysentery, opium is a great remedy, as well as in many other complaints, and

bark, in decoction, is given in all three, if the fever is protracted many days, sometimes with good effect.

"The sporadic diseases are very various, but some are more frequent than others. Pleurisies are not uncommon, and are much dreaded by the natives, under the title of 'punta,' which has the same meaning as our 'stitch;' yet it is seldom that they know the disease, unless they hear the name from the physician.

"The native practitioners use bleeding, purging, blistering, fomentations, and various stimulants, but they rarely order more than five or six ounces at a time; and it is a usual thing to bleed ten, twelve, and sixteen times in the course of the disease. The vulgar are very fond of bleeding, which experience has taught them to be useful in a great many of their complaints; a great proportion of which are the effects of checked perspiration, especially among women, who often expose themselves to the cold air while overheated by heating their ovens, or grinding their corn by hand-mills, so that they often bleed against the physician's advice, or without his knowledge, generally with advantage. In this, as well as in many other febrile diseases, the vulgar endeavour to produce sweating, by loading the patient with hot half-baked bread from the oven, which very often succeeds.

"For coughs, they use a jelly made of quinces, and also oil of almonds.

"A very common complaint among these people is hysterics, which appear in an infinite variety of shapes, often producing such extravagant gestures as to make the ignorant believe the patient possessed of the devil. In these cases, the priest is called to frighten the demons, and to send them to their lurking places: indeed, the vulgar believe that many sorts of evil spirits are constantly going about doing mischief, and particularly producing disease.

"The grand remedy in ordinary cases of hysterics, is camomile in tea, in fomentations, and in glysters. This every old woman on the island uses without any advice, in every case which she supposes is this complaint. The regular practitioners prescribe ether and opium during the fit, and endeavour to strengthen the constitution afterwards, by bark and

bitters. Habitual costiveness, to which the women are subject, seems to me to be the cause of the greatest number of diseases, which they here call hysterics. The cause of this torpor of the intestinal canal I have not been able to find out, though it must be in their food, for it is not confined to those of sedentary habits. Calomel is commonly a good temporary remedy, but I have not had an opportunity of ascertaining whether a course of mercury, so as to affect the mouth, would remove the disease permanently.

"A species of itch (scabies cachectica) is often met with here: it is looked upon as a salutary discharge of bad humours; and they have an idea, that it would be fatal to put it back, as they say, with unguents or external applications. They cure it by decoctions, which are supposed to sweeten and cool the blood; the most common of which is that of the root of gramigna (panicum dactylon), which they drink three or four times a day along with a light diet; so that, after the lapse of a year, they generally get rid of this troublesome complaint.

"Many other cutaneous diseases are frequent among them, to which the troops have not been liable. Calculus is a rare disease, but occasionally a case of it occurs; a stone, larger than a pigeon's egg, was taken, some time ago, from a boy of two years of age; and I have known an old man die of the complaint sooner than submit to the operation.

"Of hereditary, or family diseases, rickets ranks the highest, and is not an unfrequent disease. The empirics pretend to have infallible remedies for it, which consist of poultices, or plasters of several herbs, which they keep secret; they, however, very seldom succeed, for few of the children recover from the attacks, nor are the physicians much more successful with their tonics, &c.

"Phthisis is another of their hereditary diseases, which is much more rapid in its course than it is with us. They have a great fear of it, considering it contagious, as well as hereditary; some persuade themselves, that they have seen it cured by drinking women's milk, with nothing else. I have not heard of any renowned empirical remedies for this disease.

"For the period of three years and a half, the number of births on the whole island were 468; the number of deaths

340. Of the former, 268 were males, and 200 females. Of the latter, 165 males, and 175 females. Registers of diseases are not kept, and those of marriages are not to be had.

"There is no one upon the island who can give any information on the subject of the diseases of cattle. The rot is frequent in sheep, but they know no remedy for it."

No civil hospital establishment exists in Ithaca. There is a small, but very well planned lazaretto, built on an island in the middle of the harbour. The value of vaccination is duly appreciated by the natives, but is often very imperfectly performed.

EMPIRICS, MEDICAL SCHOOLS, &c.

Empirics abound in Ithaca, and undertake all sorts of surgical operations. Mr. Scott mentioned to me, that one of them, some time since, proposed to cut off the diseased limb of a poor patient, who laboured at the time under stricture of the œsophagus, and was improving under the use of bougies; his advice was unfortunately listened to, and the deluded patient paid the forfeit of his life for his credulity.

There is no school of physic, nor literary nor medical society in the island; the regular members of the profession are educated in one or other of the continental universities. Their doctrines are generally those of Brown.

SECTION THE SECOND.

BARRACKS.

The garrison of Ithaca is so very small, as to be easily accommodated in this respect. On my visit, the strength was only forty-four soldiers. The barrack occupied by them was the ground-floor of a new house, situated within twenty yards of the sea; the end of which faces the mouth of the harbour, and lying in a direction north by west. It is separated into two rooms by a stone wall; each of these rooms is 64 feet by 17,

having, each of them, two large doors, one towards the sea, the other about the middle of the barrack; opposite the latter there is a door in the division wall. There are two windows on each side. There is with all these openings a consequent free circulation of air, and being low, the barrack is shaded from the extreme heat of the mid-day sun by a higher house.

The floor is paved with flags: the house is entirely isolated: the ground is low, but has no stagnant water near it: the sewers are washed by the sea.

The different out-posts are in dry, airy situations near the sea; they are six in number; and, excepting one or two, were established during the plague at Cephalonia, to protect the island from the landing of infected goods, and are continued, to prevent smuggling being carried on. They are all supplied with good water, and it is very rarely that any cases of sickness occur. The guards are changed only once a month.

HOSPITAL.

The hospital is a new house, particularly well situated on the south side of the harbour, in the most healthy part of the town. It consists of two wards; one thirty-nine feet by twenty-four; the other twelve feet by nine, and a surgery twelve feet by twelve; all deal-floored. On the ground floor is the kitchen, sergeant's room, store room, and an empty space, which, in case of necessity, might be used as a ward; these are flagged floors. In the south side of the large ward, there are three windows; in the north, or sea side, two, and two doors and a window in the east end.

The small ward and surgery open into the west end of the large ward by separate doors; in the former are two windows, one to the south, the other to the west. In the surgery are also two, the one to the sea, the other to the west; those to the west are in the end of the house, and are opposite the doors which open into the large ward; the latter is without ceiling.

The ground on the land side of the hospital is very steep down to the shore, and the water is deep up to the hospital mole, which juts out into the sea a little, and thus prevents sea weeds, &c. from being thrown on shore.

From the dryness of the soil, and the favourable situation and construction of the barracks, posts, and hospitals, the troops in Ithaca are, in general, remarkably healthy. They are always furnished with good rations. They seldom get beef, but are supplied with excellent mutton, and bread and wine of good quality; and the wine which they buy in the shops, or canteens, is not inferior to that issued as rations. With regard to messing, the high prices of tea, sugar and coffee render it necessary to give bread and wine to the men for breakfast, and sometimes cheese, of an indifferent quality, which is made on the island, of goats' milk: its bad quality consists in the immense quantity of salt used in preparing it.

DISEASES.

Mr. Scott has furnished me with the following remarks on the diseases of the troops:—"The diseases to which the soldiers are subject are not caused by any unhealthiness of the island, as far as I have been able to ascertain; they appear to be the effects of excess in wine and exposure to the heat of the sun, which cannot be wholly prevented. There have been but three deaths among the military on this island for four years, and two of these were chronic cases sent from other islands. The average number of sick has been about one in forty. The most prevalent diseases are inflammatory fevers."

In the Appendix will be seen a return of the diseases which have occurred among the troops in Ithaca for the five years between 1815 and 1821.

On consulting the reports in this office, I find Mr. Scott's remarks fully confirmed. The more violent intermittents and remittents appear to have been imported from Cephalonia and other islands. The ordinary form of these diseases, as they derive their origin from the local circumstances of the island, is remarkably milder than the same diseases as they occur in Corfu, Zante, or even on the continent of Italy. In most of the remittents as they occurred in the island, exposure to the heat of the sun, and excess in drinking, have been evidently the predisposing causes.

Pleuritis has, in general, been extremely violent in its attacks.

and has sometimes run its course to suppuration in an extraordinarily rapid manner, sometimes so rapidly as within forty-eight hours, notwithstanding the usual treatment.

The climate is evidently unfavourable to all persons having a tendency to pulmonary complaints.

Worms are a very frequent accompaniment to all diseases in Ithaca, as well as in the other islands.

In Appendix I., No. 1. is a Return of the Admissions, Discharges, and Deaths in the Military Hospital of Ithaca, from 21st July, 1815, to 20th December, 1821. No. 2. is a Return of the Average Strength and Daily Average Number of Sick in the Garrison, from 21st July, 1815, to 20th December, 1821.

Appendix II. contains a General Table of the Weather, from June, 1818, to December, 1821.

APPENDIX I.

No. 1.—*Return of the Admissions, Discharges, and Deaths, in the Military Hospital at Ithaca, from 21st July, 1815, to 20th December, 1821.*

DISEASES.	1815.			1816.			1817.			1818.			1819.			1820.			1821.		
	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.
Febris Quotid. Int.....	..	..	..	..	..	..	18	17	..	8	10	..	13	8	..	24	28	1	23	22	..
„ Tertiana	..	..	..	..	..	..	6	7	..	5	5	..	2	2	..	2	2	..	7	7	..
„ Quartana	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..
„ Remittens	2	..	..	3	4	..	19	18	1	28	27	1	16	14	1	12	12	1	4	4	..
„ Cont. Com.	1	1	..	3	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
„ Typhus	..	..	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Phlegmon et Abscessus ..	..	..	..	..	..	..	9	8	..	3	4	..	7	7	..	4	4	..	4	4	..
Paronychia	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	1	1	..	..	..	..
Phrenitis.....	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..
Cynanche Tonsillaris	..	..	..	..	..	..	..	..	..	1	1	..	2	2	..	1	3	..	1	1	..
„ Parotidea	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..
Pneumonia.....	2	2	..	..	1	..	4	2	1	7	8	..	..	..	..	2	2	..	..	..	..
Gastritis..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Enteritis	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Hepatitis Acuta	..	..	..	..	..	..	3	3	..	..	..	..	..	..	..	..	..	..	2	1	..
„ Chronica	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	1	1	..	..	..	..

DISEASES.	1815.			1816.			1817.			1818.			1819.			1820.			1821.		
	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.
Erysipelas	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
Hæmoptysis	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	1	..	..	..	..
Phthisis Pulm. Tuber.	..	..	..	..	..	..	1	1	..	..	..	..	1	..	..	..	..	1	..	..	..
Hæmorrhois	..	..	..	..	..	..	1	1	..	1	1	..	..	..	..	..	..	..	..	..	..
Catarrhus Acutus	..	..	..	5	5	..	..	..	..	2	2	..	9	9	..	5	5	..	3	3	..
Chronicus	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	3	1	..	..	..	..
,,	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
Dysenteria Acuta	..	..	..	3	3	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
Chronica	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
,,	..	..	..	..	..	..	2	2	..	..	..	..	1	..	..	..	..	..	..	..	..
Epilepsia	..	..	..	..	..	..	6	6	..	2	2	..	1	1	..	3	3	..	4	4	..
Colica	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cholera Morbus	2	..	1	..	..	..	..	1	..	1	1	..	..	..	..	..	..	..	2	2	..
Diarrhœa	2	2	..	2	2	..	1	1	..	1	1	..	2	1	..	1	..	1	..	..	..
Splenitis	..	..	..	..	..	..	..	..	..	..	..	..	6	6	..	..	..	..	..	..	..
Rheumatismus Acutus	..	..	..	..	..	..	1	1	..	3	3	..	..	..	..	..	..	..	..	..	..
Chronicus	..	..	..	1	1	..	2	2	..	1	1	..	..	..	..	..	..	..	3	3	..
,,	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hydrothorax	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	1	..	1	..	..	..
Ascites	..	..	..	..	..	..	2	2	..	..	..	..	..	..	..	..	..	..	1	1	..
Syphilis Consecutiva	..	..	..	..	..	..	2	..	..	1	1	..	..	..	..	1	..	..	1	1	..
Bubo Simplex	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
Gonorrhœa	..	..	..	..	..	..	3	2	..	..	1	..	..	..	..	..	..	..	..	..	..
Hernia Humoralis	..	..	..	..	..	..	1	1	..	..	..	..	1	1	..	..	..	..	..	..	..
Fistula in Ano	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..

Subluxatio	..	..	..	..	..	..	2	1	..	..	1	..	..	..	..	..	..	..	..	..	..
Vulnus Sclopit	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..
„ Incisum	..	..	..	1	..	..	..	1	..	1	1	..	1	1	..	..	..	..	1	1	..
Contusio	1	1	..	..	..	..	5	4	..	10	11	..	6	6	..	5	5	..	2	2	..
Ambustio	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Ulcus	..	..	..	5	5	..	9	7	..	9	10	..	8	8	..	..	1	..	1	1	..
„ Grave	..	..	..	..	..	..	1	2	..	2	2	..	..	..	..	..	..	..	..	..	..
Necrosis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Fractura	..	..	..	..	..	..	..	..	..	1	1	..	1	..	..	..	1	..	1	1	..
Amputatio	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..
Punitus	..	..	..	5	5	..	7	7	..	5	5	..	2	2	..	..	..	..	4	4	..
Morbi Oculorum	..	..	..	2	2	..	2	2	..	1	1	..	..	..	..	..	..	..	1	1	..
„ Cutis	..	1	..	2	2	..	16	15	..	4	5	..	..	..	..	..	..	..	..	..	..
Febris Intermittens	11	10	..	42	42	..	13	13	..	..	..	..	..	..	..	..	..	..	..	..	..
Hepatitis	2	..	..	1	1	..	..	..	..	1	1	..	..	..	..	3	..	..	..	..	..
Rheumatism	2	2	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diseased Viscera	3	3	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Venereal	..	1	..	4	3	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..
Casualties	4	6	..	34	33	..	8	8	..	..	..	..	..	..	..	..	..	..	..	..	..
Tinea Capitis	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..
Debilitas	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..
Convulsio	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..
Ebrietas	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	5	6	..
Total	33	29	1	117	117	..	146	139	2	103	110	2	85	73	3	74	75	4	70	72	..

No. 2.—*Return of the Average Strength, and Daily Average Number of Sick in the Garrison of Ithaca, from 21st July, 1815, to 20th December, 1821.*

Years - - -	1815	1816	1817	1818	1819	1820	1821
Strength of the Garrison	89	90	80	71	76	63	55
Daily Average No. of Sick	3	3	5	4	5	4	4

II.

General Table of the Weather, from June, 1818, to December, 1821.

Years	Thermometer.		Prevailing Winds and State of the Weather.
	Max.	Min.	
1818	95	52	Wind S.W. Weather dry and clear till the end of September, succeeded by storms, with much rain and thunder.
1819	89	52	Wind easterly and S.W. Storms, with much rain, about the middle of January. Rain prevalent throughout February. The three following months clear and dry, except three days. Heavy rains the middle of May. Much rain and thunder in June. Dry till near the 1st September, when much rain fell. Much rain throughout the last quarter.
1820	98	53	Wind southerly. First quarter much rain; second, generally dry and fine. Dry till the end of September, succeeded by much rain and thunder. Last quarter generally rainy. December mild. Frequent earthquakes in the first quarter.
1821	86	44	Wind southerly. Beginning of January cold and stormy, with snow. February dry and windy. April variable. May mild. June rainy. End of July and end of September rain. Much rain in October and November. December mild.

THE MEDICAL TOPOGRAPHY OF MALTA.

INTRODUCTION TO MALTA.

In collecting my materials for this report, I adopted the same plan that I acted on with regard to the Ionian Islands. I circulated on my arrival in Malta (in 1821) my printed sketch, as published in the "Edinburgh Medical and Surgical Journal," No. 67; but from none of the medical officers then present did I receive any formal report, except from Staff-Surgeon Tully: to him I am indebted for any essay on several points of topographical inquiry, which his long residence rendered of much value. Of the topographical reports of preceding principal medical officers, I have found but one. I allude to that "On the Barracks and Principal Stations," by Inspector Warren. I have to acknowledge many obligations to that very elaborate document, especially in the measurement of barracks, &c., which are so accurate, that I have found it necessary to make little or no alteration. To his practical remarks, which evince a cool, chastened judgment, that highly enhances their value, I have had frequent occasion to refer.

In the description of the diseases of the troops, I have consulted the manuscript reports of all the staff and regimental officers; and where I have derived information from them, I either quote or refer to them in their proper places.

With regard to subjects more purely topographical, I have made frequent use of the great work of Abela, and his editor, Count Ciantar; of the compilation of Boisgelin; and of the less obtrusive, but not less useful, volume of St. Priest.

In giving an account of the diseases of the inhabitants, I have dwelt only on such points as I deemed most important. On the subject of the fatal pestilence of 1813, I have been diffuse, but I hope not unnecessarily so. It may, perhaps, require some apology from a person, who has not seen plague, to attempt any criticism on the writings of those who have: it becomes me, therefore, to state the grounds upon which I consider myself, in some degree, authorized to do so. My mind was naturally turned to the subject when I was first appointed to the Mediterranean command; and the College Library of Edinburgh, and those of my friends, Professor Thomson and Duncan, afforded me the most ample means of gratifying my inquiries, as far as could be done by books. After my arrival in the Mediterranean, I was singularly fortunate in having obtained free access to his late Excellency Sir Thomas Maitland, who not only conversed with me in the most unreserved manner on the subject, but pointed my attention to all his public, and many of his private papers; one of which, in particular, containing the substance of all his observations on plague, and addressed to the British government, he allowed me to copy, and to make such use of as I thought proper. Copious extracts from this invaluable document will be found in the accompanying report.

From Count Rivarola, Inspector-General of Police while the plague raged in Malta in 1813, I obtained a mass of most important facts, and the free use of all his manuscripts and reports, which, I conceive, afford information of infinitely more value than any I could procure from books; inasmuch as the facts were noted on the spot, and at the moment of their occurrence; and the remarks upon them were made without being controlled by the trammels of medical theories, or tortured to the purposes of professional controversy.

To Dr. Naudi, Professor of Chemistry in the University of Valetta, I owe the use of a Latin manuscript, "De Peste,"

drawn up by his brother, who was one of the surgeons of the civil hospital, and in daily attendance on plague cases.

Besides the advantages which I derived from books and manuscripts, I have had frequent communications, written and oral, with various civil and military practitioners, who were actually employed in the hospitals and lazarettos in the infected districts during the several plagues that have prevailed in the Mediterranean of late years.

In my short catalogue of the medical writings of natives of Malta, I have received much assistance from the libraries of Professors Naudi and Portelli, and from the public library under the care of the Abbé Bellanti. To the latter I am indebted for a perusal of many manuscripts and rare books.

In the descriptive part of my account of hospitals, and more especially of barracks, I have laboured to be concise, without degenerating into obscurity. I had, indeed, ample scope for the enumeration of lines and angles; of curtains and redoubts; but a tedious display of superabundant minuteness would have served only to complicate the subject and fatigue the attention.

I have now completed the topographical account of all the more important islands occupied by British troops in the Mediterranean. Throughout the whole series of reports, I have endeavoured to fulfil my duties to the respected head of the army medical department, by collecting and arranging all the information I could procure on every point connected with the diseases of the troops, both from my own observations and from those of others. Where I have derived it from the latter sources, I have not, knowingly, withheld my acknowledgments; I do not, indeed, pretend to have accounted, with mercantile exactness, for every phrase or expression, which, in the course of a voluminous investigation, may have been previously employed by others: in the description of tangible objects, and of authenticated facts, a similarity of language will often occur;

and where but one inference can be drawn from such facts, a similarity in the mode of expressing the deduction is unavoidable.

To the merits of discovery, or originality, I make no pretensions. The rock and the marsh, if left in a state of nature, will be found to-day where they were found centuries since, while he who described them then, and he who hereafter shall describe them, are equally without claim to the name of discoverer: both may inform us of the diseases that prevail in either spot, and of the means that are taken to avoid them, but surely a plain narrative of facts of this description is within the power of every man. Varro speaks of the marshes of Corfu as he found them eighteen hundred years ago, and he tells us that he shut his doors and windows against the winds which blew over them. Quintino informed us, three centuries since, that the dust and the reflected heat of Malta were injurious to the eye; but no man, I believe, considers Varro as the discoverer of marsh miasmata, or Quintino as an original authority in the history of ophthalmia. Well has it been remarked, that we rarely fall into more glaring absurdities, than when we mistake the act of *perceiving* truth for the *capacity* of discovering it.

To conclude, I have endeavoured, in the present report, to do justice to those I have succeeded, and to give such an account of the island and its diseases, as may not be altogether useless to those who, in their turn, may succeed me.

THE

MEDICAL TOPOGRAPHY OF MALTA.

" Insula parva situ, sed rebus maxima gestis;
Africæ et Europæ, ac Asiæ contermina, Pauli
Hospes, et alborum procerum gratissima mater."
Vicenzo Littara in Abela.

SECTION THE FIRST.

NAME, SITUATION, &c.

THIS celebrated island, the most southerly of Europe, has been known under the name of Melite, or Melita, for more than eighteen hundred years: both Pliny and Strabo mention it under this denomination; and although various commentators upon scripture geography have questioned whether it, or an islet on the Illyrian shore of the Adriatic, was the site of St. Paul's shipwreck, they have never disputed the identity of the name. Some suppose that it was known under the appellation of Iperia and Ogygia; but it would be quite incompatible with my present purpose to enter into any inquiry on the point. It has also been a subject of debate, whether Malta was an European or an African island; if propinquity is allowed any weight, it certainly should be reckoned in the former quarter of the globe; and I believe that the chief, if not the sole reason for considering it as belonging to Africa, originated in its having been, in ancient times, in possession of the Carthaginians, the most powerful people of that continent.

Malta lies between Sicily and the African coast, in the mouth of that great bay formed by Cape Bon and Cape Razat, so that it is half encircled, as it were, in the arms of Africa. The shape is an irregular oval, which, without any great stretch of fancy, may be compared to a fish,—its southern aspect representing

the back, the bay of Marsa Sirocco the mouth, the various indentations on the northern aspect the ventral fins, and the deep indentation of the bay of Melleha, with a corresponding indentation at the back of the island, the tail. Comparisons of this kind, it is true, depend on accidental or fancied circumstances, and are often very trivial; nevertheless they sometimes serve as an artificial aid to the memory, and may supersede the necessity of constant reference to a map.

The capital, Valetta, is stated in the ordinary books of geography to stand in latitude 35° 54′ north, and longitude 14° 34′ east. The island, as I have said, is of an irregularly oval shape; it stretches east and west, and is very much indented with bays and inlets of the sea on the side which corresponds with the coast of Sicily; while that which looks towards the African coast is nearly a continued curve.

The circumference is between sixty and seventy miles. The greatest breadth from north to south is from ten to twelve miles, and the greatest length from east to west is from eighteen to twenty. Long as this island has been known, it is only very lately that a regular survey of it has been taken; and no map which I have yet seen can be depended upon, except that prepared by Captain Smyth, of the Royal Navy, and published by the Admiralty.

The original juxtaposition of Malta, as of most other islands in the immediate vicinity of a continent, has formed a subject for the inquiries of the geologist, and it seems to be a favourite opinion, that it was at one period joined to Sicily, and even to Africa.

Cape Passaro, the nearest point of Sicily, lies north of Malta fifty-six miles; but Cape Bon, the nearest point of the African continent, is almost two hundred miles distant in a south-south-westerly direction. It is asserted by those who have made such subjects a principal object of their investigation, that the stratifications of those parts of Malta, which approximate towards the African and Sicilian shores, exactly correspond with them in the line of their direction *.

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* The following are the bearings and distances between several points on the southern coast of Sicily and Valetta, according to the actual

The sea which divides Malta from Sicily is only eighty fathoms deep in the middle (the deepest part), and is in general very shallow in other points; the bottom is sandy. This sea is called the canal of Malta, and is almost always rough, especially in winter. Very strong currents set through it. On the west-north-west side the current generally runs towards the east-south-east, and on the east-south-east it sets towards the east. Of the currents, depth, and nature of the bottom on the African side of the island, little is known, as ships very seldom navigate in that direction. It is, however, generally stated, that the depth does not exceed thirty fathoms.

DIVISIONS.

THERE is no other division of the island than into the eastern and western parts, as they are situated relative to the old city, which lies nearly centrical. The eastern is the larger division, and in it all the principal casals or villages are situated. For the convenience of medical description, a late writer (Faulkner) has divided the casals into the eastern, western, and middle; but his arrangement is quite arbitrary, and has reference to an imaginary line of his own drawing.

RIVERS, LAKES, AND MORASSES.

MALTA contains neither rivers, lakes, bogs, nor morasses; but when it is asserted, as it sometimes has been, that there exist in the island no sources of *marsh miasmata*, or *malaria*, it becomes necessary for a faithful topographer, who has no

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measurement of Captain Smyth, Royal Navy, given in his "Memoir on Sicily and its Islands," 4to. London, 1824:—

From Cape Passaro	to	Valetta	S. 33° 14′ West,	56 miles.
,, Alicata	,,	,,	S. 21° 55′ East,	75½ ,,
,, Terra Nova	,,	,,	S. 10° 40′ East,	70 ,,
,, Girgenti	,,	,,	S. 30° 03′ East,	90 ,,
,, Sciacca	,,	,,	S. 35° 51′ East,	118 ,,
,, Cape Granitola		,,	S. 42° 32′ East,	136 ,,
,, Maretimo	,,	,,	S. 42° 45′ East,	173 ,,

system to support, or no object in view, but the investigation of truth, to qualify such assertions. There are in this island numerous "fiumares," or beds of winter torrents, which are retentive of under-ground moisture, long after the surface is dry; but not to insist on this, there are many other sources of deleterious moisture, daily cognizable to the senses, upon which I shall here offer some remarks, which have in part been made in an official report, transmitted by me to the Director-general of the Army Medical Department, so far back as the month of December, 1821, shortly after my arrival; and I can only now say, that after a residence of upwards of three years, the opinion then delivered has been repeatedly confirmed by ocular demonstration.

It would be natural to suppose that little difference of opinion could exist on a subject of this kind, yet there have been offered to the public at various times the most discordant accounts,—some authors asserting that there is *no* marsh whatever; others that there is *but one* marshy spot; others that there are *several.* The reports of prevalent diseases have varied with each of those opinions,—some reporting that there were no endemic fevers; others that they were exclusively confined to one particular locality; and a third party stating them as of frequent occurrence, and in various situations; nay, what is still more singular, medical gentlemen at present upon the spot differ on the subject.

I shall state my own opinion, founded on actual inspection, and on official records. There does not exist anything like morass or extensive marsh in this island at present; but there are two points which are still favourable to the emission of marsh miasmata, malaria, or exhalation, whichever we choose to call it, in a state of concentration,—quite sufficient for the production of remittent and intermittent fevers. That they were in former days still more so, is quite demonstrable, for the Order of St. John laid out enormous sums of money in draining them. The situations I allude to are the valley at the head of the great harbour, known still by the name of the "Marsa," or marsh as it is called by the English inhabitants; and the valley at the head of St. Paul's bay, known under the name of "the marsh of Paoles." There is a third spot, but of minor

importance, at the head of the quarantine harbour, which is called the marsh of " Missida *."

Now as to the general effects of the exhalations from these situations, it is notorious, that a village, once a favourite place of resort of the knights of the Order of St. John, which lies near one of these (the Marsa), is now deserted. The monks of a convent at Floriana, which fronts the same place, received, in former days, a dispensation from the ecclesiastical authorities, whereby they were exempted from performing certain night masses, in the celebration of which they were exposed to the exhalations, at a time when the body is most susceptible of their deleterious effects. Until a very late date the residents along the marina, or water's-edge, in the same neighbourhood, suffered annually from fevers of the remittent kind; the same occurred to the inhabitants of the outworks of Floriana, in the vicinity; and in in 1802 or 1803, the 27th regiment, quartered still further off, at Citta Vecchia, suffered extremely from fevers, bearing all the characters of marsh origin. I lament that I do not possess, nor can I at present procure, any official documents to show the nature and extent of this fever in the 27th regiment; the fact, however, and all the other facts I have mentioned, are notorious, and have been verified to me by the testimony of eye-witnesses; and their " surety is made doubly sure," from the history of the navy and the naval hospital in the island, by which it appears, that the several ships which anchored in the neighbourhood of the village at the head of the great harbour, during the late war, suffered from remittents in the months of August and September; and so purely were these fevers of local origin, that they invariably ceased on moving the vessels lower

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* The Arabic word " marsa " signifies port or harbour, as " marsa sirocco," " marsa muscet," &c.; but in common parlance it has come to designate the extremity of a harbour in the state in which the spot now alluded to is, (capable of affording crops on alluvial soil.) The similarity of sound has occasioned a corruption into the English word " marsh " and the French " marais." Numerous instances of similar corruptions, sanctioned by time, occur in all languages. The French is peculiarly appropriate, for it not only designates a marsh strictly so called, but also rich garden ground, which in many parts the " marsa " of Malta has become.

down the harbour to Bighi Bay, which afforded complete shelter from the exhalations *. Finally, the records of the civil hospital furnish abundant proofs of the annual occurrence of fevers of this description in the villages adjoining the two first valleys above-mentioned, and not a few in other places. I shall now speak of these malarious situations more particularly, beginning with the most extensive.

In October, 1821 †, I was called upon to examine, in conjunction with the police physician Dr. Gravagna, and Dr. Grillet, professor of the practice of physic in the University, several persons stated to be labouring under a dangerous fever, at the casal or village of Musta. I found that ten individuals had been attacked, two of whom had died before I was called on, two had been sent to the civil hospital at Citta Vecchia, one was convalescent, and five were still labouring under disease. None of the persons I saw exhibited appearances that could lead to the supposition that their disease was of a contagious nature; on the contrary, from a close inspection of them, and a minute inquiry into their history, as well as that of the others who were similarly affected, I have no doubt that the disease in all the individuals proceeded from one and the same cause, viz., marsh effluvia, to which, in the course of their residence at Paoles, they were much exposed.

The casal of Musta itself is situated on high ground, and is distant about a league from Paoles; but many of the poorer inhabitants take up their residence at the latter place in the autumnal season for agricultural purposes, during which time they are exposed both day and night to deleterious exhalations. It was amongst this class of persons that the fever appeared, and to them it was exclusively confined. They all returned from their labour at Paoles with their health impaired; and when their disease fully developed itself, it proved to be the genuine offspring of marsh miasmata. I could not, after the most minute investigation, discover that any disease of a similar nature had been communicated to the persons residing

* See "Burnett on Mediterranean Fever," p. 16, and "Inspector Warren's Report for 1818."

† Report to Major-General Sir Manley Power, dated 28th of October, 1821.

in the same houses with the sick, and the physician of the casal, Dr. Gallio, assured me that none of the other inhabitants were affected.

I examined, with much attention, the medical topography of Paoles; it is a rich and fertile valley, situated at the head of St. Paul's bay, in the north-western part of the island, about three English miles in circumference, surrounded by an amphitheatre of rocky hills, which, from their shape and structure, throw off the rain and dews that fall upon them in the autumnal season, in almost as great quantities as they are deposited. The alluvial level into which the whole of this water falls, was, in the time of the Order, drained with great care and judgment, the drains emptying themselves into the sea through a regular stone causeway or embankment. Latterly it was let to a farmer upon a lease of twenty-nine years, who, among other conditions, was to keep the drains and works in order. The lease was to expire in 1822, and as the period approached, the tenant, to save expense, had allowed the works gradually to fall to decay, insomuch that on my visit in autumn 1821, I found the water courses (four in number) choked up by an accumulation of decaying vegetable mould. The current of water, which may extend about one hundred paces above ground, was considerably checked by this circumstance, and the quantity was more than usually accumulated by the heavy sea forced into and retained in St. Paul's bay (into which the drains empty themselves) by the westerly and north-westerly winds generally prevalent at that season of the year. By these winds, also, a large quantity of sea-weed was accumulated along the edges of the embankment, and entirely filled the mouths of three of the drains, while the fourth very imperfectly discharged its contents. On the edges of this valley small country-houses are erected, in which the peasants sleep during the season of their autumnal labours. The produce consists of corn, cotton, vegetables, &c. The bedding and clothing of these poor peasants are not of the best description, or sufficient in quantity to protect them from the damps, and their food is chiefly composed of fruit, often unripe; pumpkins and other vegetables with coarse bread, a little oil, garlic, and occasionally salt-fish, with no other drink but water. In the neighbour-

hood of this valley is also situated the casal of Nasciaro, which, as well as Musta, furnishes labourers in the autumnal season, and at that period the books of the civil hospital rarely fail to show, that individuals from these casals and the adjacent country, who have slept in the vicinity of Paoles, have been attacked with remittent and intermittent fevers.

In August, 1822 *, I again visited Paoles, with the deputy inspector-general of police (Colonel Balneavis), and the police physician (Dr. Gravagna). I found that several cases of fever had occurred during the preceding forty days, among persons who watched and slept in the garden grounds in the immediate neighbourhood. In one individual, I had reason to suppose that his convalescence was retarded by improper diet:—his disease had been fever, but of what species I could not accurately discover. In a house close to the edge of the valley, with a considerable extent of garden-ground in front, I found nine individuals, all of whom had had intermittent fever within the preceding six weeks. Besides these, five other individuals were stated to me as having laboured under a similar disease, but they had gone to a neighbouring village. I examined the marsh; the drains were still out of order, and the smell which emanated from them was peculiarly offensive.

With regard to the marshy spot of ground at the head of the great harbour, the generally received opinion is evidently founded in fact, viz. that it has been formed by a retrocession of the sea, and an accumulation of alluvial soil, brought down by the rains towards the mouth of the narrow and fertile valley, which, extending from the neighbourhood of Citta Vecchia, terminates at the water's edge. When the winds blow violently up the harbour, that part of the valley nearest the water is inundated; insomuch, that were there not a well constructed causeway at the water's edge, it would be frequently impassable. This causeway was erected in the time of Lieutenant-General Oakes. The valley is perceptibly filling up by the natural consequence of alluvial soil being annually carried into it, by the efforts of the agriculturist, and by the accumulation

* Report to Major-General Sir Manley Power, dated August 26th, 1822.

of rubbish thrown in from the neighbouring city of Valetta. A vast deal of labour was expended on this spot while Sir Alexander Ball was governor. He followed up the original plan of the Knights of the Order, for draining and filling it up; and by their united labours, assisted by what has been since done, the circumference of the unproductive part did not exceed two thousand paces in the month of July, 1823. A low rocky hillock divides it into two distinct parts,—one is comparatively dry, and throws up a few rushes and other aquatic plants; its circumference is about nine hundred paces;—the other is covered with water, the bottom is composed of mud and rubbish, and here and there a few dry points of the same nature appear above the surface; the circumference of this part also is about nine hundred paces, but there are some angles and little offsets and detached portions from both, partly dry and partly wet, which may give an additional three hundred paces. Upon the whole, I conceive it will be as close an approximation to the truth as can be made, without actual measurement, if we take the circumference, which in my opinion is at present capable of affording noxious exhalations, at 5000 feet. On all occasions the fetid smell of marshy ground is to be felt at this spot. I paced it on the 1st of July, 1824, about sunset, when the thermometer was 77°, and a brisk westerly wind was blowing; the smell was then strong, even to my perception, although habituated to it, and it was extremely disagreeable to my companion, who visited it for the first time. In the preceding month, Dr. John Davy and myself traversed a part of it between three and four o'clock in the day; the thermometer was 74°, and the wind south-easterly. My able companion felt no hesitation in pronouncing, that the spot possessed all the characteristics of marsh, so far as were necessary to generate malaria, and to him the smell appeared most offensive—in truth, it is such as cannot be mistaken, except wilfully. In both these visits, and on various other occasions, I went in a boat; the navigation through the shallows is somewhat intricate, and whenever the boatmen struck the mud with their oars, an exceedingly disagreeable fetor was extricated from it. The sea is evidently receding and leaving behind it a mass of fetid mud, so that in the course of years there can be no reasonable doubt

that the entire "cul de sac" at the top of the harbour will become land capable of bearing the richest crops. In the mean time, the village of Casal Paolo, built on a rising ground immediately to the eastward of the marsh, is known by the name of the "deserted village;" the houses, with one or two exceptions, are gone to decay, and although some individuals have little pleasure-gardens there, very few, if any, choose to sleep in the neighbourhood, especially in the summer and autumnal months.

The marsh of Missida, at the head of the quarantine harbour, was originally of the same nature as that now mentioned, but on a much smaller scale; the water has been fenced off by a regular embankment, and its edges have been covered for the last twelve or fifteen years with excellent houses and gardens. Not a trace of stagnant water is now to be found, except in one spot of about half an acre in extent used as a fish-pond, and even through the centre of this a stream of fresh water flows *. I am not aware that the health of the inhabitants is at all affected by marsh effluvia, though the situation is certainly damp.

The valley of Missida and the valley at the head of the great harbour, in a certain degree, communicate with each other; the latter, often called the "great valley," or the "valley of Curmi," extends about four miles into the country with a very gentle curve, until it expands itself and meets an expansion of the former at the base of the rising ground on which Citta Vecchia is built. Throughout their whole extent these valleys are separated by a ridge of an oblong oval shape, on the broader end of which the city of Valetta is built. On the top of this ridge the high road between the cities runs, and as it is narrow, the valleys are at no one point much more than a mile distant from each other. The verdure of both these valleys, in the early part of summer, (especially that of Curmi,) and the rich appearance of the foliage of some of the fruit trees, is most grateful to the fatigued eye, which anxiously turns to them, from the arid rocks and burnt up soil that skirt the road and bound the distant view. This grateful luxuriance of vegetation

* The name of it in Arabic implies "the fish-pond valley," or "stagnant pond."

gives the unerring assurance of much underground moisture, and in fact the largest fiumare in the island runs through the village of Curmi, with a bridge thrown across it for winter use. This village, which stands about the middle of the great valley, and two miles from Valetta, is spoken of by Abela, as suffering considerably in his time, from the effects of the bad air from the "marsh," "insomuch," says he, "that the inhabitants are unhealthy, and demonstrate this effect by their squalid countenances; were the air of this spot rendered more pure, they would then enjoy a good state of health *." This remark was verified by subsequent events; for in proportion as the marsh was drained, the village became more populous and healthy; and although the plague of 1813 committed dreadful devastation there, it is not at present considered an ineligible residence. Subsequent to the time of Abela, one of the grand masters, Pinto, moved all the public ovens to the village, with a view of correcting the air.

I might multiply observations on this subject, but I conceive those now offered are abundantly sufficient to show the existence, in this island, of sources of marsh miasmata, malaria, or exhalations,—I shall not contend for names,—small indeed in extent, but in a state of sufficient concentration to produce remittent, and intermittent fevers; and if these fevers do not occur more frequently among the troops, it appears to me to be owing to the circumstance, that they are not quartered in the immediate vicinity of the spots which produce the noxious effluvia, but in admirable stone barracks, or houses, either at a distance, or well sheltered; while their bedding, clothing, and food, all co-operate to keep them in a state of vigour, sufficient to resist any casual exposure†. This ex-

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* "Malta Illustrata," tom. i. p. 289.

† British troops are never quartered near Paoles; a small detachment of Maltese occupy a tower on the beach in the neighbourhood, but it is quite sheltered from the marsh by a rocky ridge. It is a curious fact, in the history of malaria, that an obstacle of the most insignificant kind will keep out the noxious air. At Padua, a gauze curtain secures the windows of one of the wards of the hospital, which are exposed to the vapours of the river. In other cases, a rock, a wall, a bush, or a tree will have the effect; but, singular as this is, and incredible as it appears

emption, however, did not always exist. During the blockade, our advanced pickets and guards, who were posted close to the marsh, at the head of the great harbour, always suffered from night exposure; and, at length, it was found necessary to remove them altogether.

It may be deemed almost superfluous, after the proofs I have already offered, to give any more; but I cannot omit one recent illustration of the production of remittent fever in this island, from exhalations occasioned by the exposure of stagnant and underground water to the heat of the sun—a heat which, in summer and autumn, is always more than sufficient for the purpose, was there sufficient moisture submitted to its action. One of the civil judges, a native of the island (Sir Nicholas Zammit), went out to reside at his country-house during the summer of 1824, to superintend some works carrying on. The house was situated about a mile and a half from the marsh of Paoles; and in its neighbourhood was some wet ground, the drains of which were out of repair; both the master, the superintendent of his work, and his brother, were seized with remittent fever, of which the former died.

Of sources of water for culinary and domestic purposes, there exist a large number in the island. I shall speak of these hereafter.

MOUNTAINS.

The island of Malta is so low, that it cannot be discovered by the mariner before he approaches within twenty or thirty miles. The highest ground in the island is estimated at no greater elevation above the sea than 1200 feet. The surface of the ground, however, is very beautifully diversified; and were it planted with trees, would present as picturesque a line of hill and vale as the eye of a painter could wish to contemplate. There is a small range of hills and craggy rocks

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to some, it is not more curious than the fact upon which the invaluable invention of the safety-lamp is founded, viz. that wire gauze, interposed between two separate portions of inflammable gas, will prevent the most subtle flame from spreading from one portion to another, and igniting both.

called the Ben Jemma hills, which bear in a north-westerly direction from Valetta, and stretch across the entire breadth of the island; but neither they, nor any other rising ground in Malta, appear, in any important degree, to influence the course of the winds, or to produce any direct effects on the health of the inhabitants or troops. They, in this point of view, seem to act solely as giving origin to numerous springs of wholesome water, and directing the course of the winter rains into the different valleys which they bound, all of which ultimately open to the sea. These vallies generally run in a direction from south-west to north-east, becoming longer and deeper as they extend from the eastern to the western extremity of the island. The principal are those which open at the head of the great and quarantine harbours, and of St. Paul's bay, already spoken of. It is a general remark, and daily observation proves its veracity, that these valleys are annually filling up with the alluvial matters carried down by the heavy rains. Although their fertility is greatly increased by this circumstance, without much attention to their drainage, their salubrity would, under such a powerful heat as they are subjected to, be most essentially impaired. I have little doubt, that with an indolent population, these parts would, in a very short time, become extremely prejudicial to health, and be as productive of venomous animals, and as much afflicted with fevers and fluxes, as they were in the days of Publius and Paul *.

CLIMATE.

Much has been said on the climate of Malta: by some it has been represented as the hottest on earth; by others as so dry as absolutely to be without fog or dews; while others, again, consider it as more variable than the climate of England. Amid this great diversity of opinion, however, it is almost universally admitted to be remarkably healthy.

There is another point, also, on which all must agree, who consider its situation relatively to the coast of Africa, viz. that all the winds which blow from east-south-east to west-north-

* Acts xxviii. 1—9.

west must pass over the African continent, or the adjacent coasts of Syria and Palestine, in Asia Minor;—sweeping in their course some of the most extensive deserts, or some of the hottest habitable portions of the globe.

I shall make my report of the climate of this island, as I have found it from a personal experience of three years, and from the official documents in my possession.

In the last quarter of the year 1821, during which I arrived in Malta, the following was the state of the thermometer, barometer, and hygrometer:—

	Maximum.	Minimum.	Medium.
Thermometer . . .	76	57	$66\frac{1}{2}$
Barometer . . .	$30\frac{7}{10}$	$30\frac{5}{10}$	$30\frac{6}{10}$
Hygrometer . . .	76	28	52

The thermometer, from which the temperature above noticed was taken, hung in a situation at the general hospital, which I conceive was calculated not so much to ascertain the actual heat of the climate, as the temperature at which it was reduced, under very favourable circumstances; for, I think I am correct in stating, that the sun had not shone directly upon the wall where the instrument hung since its erection, (which is more than a century ago,) nor was it ever within the influence of the ordinary reflected heat. I, therefore, resolved to fix the thermometer in a situation which might afford a fairer general estimate of the temperature of the air. A committee of medical officers fixed upon the new site; and although, in many barracks and hospitals in the island, it may, at particular times, descend much lower, or rise much higher, yet I think its indication, as given in the annexed tables, may be assumed as the fair medium. In some houses, I have *seen* the mercury rise to 93°. I have *heard* of its rising in other houses to 95°, and even 97°, during the month of August, 1822; while in situations exposed very much to the direct rays of the sun, or to reflected heat, it has mounted to 130°. I, therefore, thought it proper to order observations to be made at 3 o'clock, P. M. daily, on the heat in the open air, at the principal posts where the soldiers on guard were exposed to its influence.

In the year 1822, which was confessedly a very hot one,

(some say the hottest that had been known for forty years, though others conceive that the sensible heat fell far short of that felt in the year 1820,) the following was the state of the thermometer, barometer, and hygrometer, as observed within doors, at the general hospital :—

	Maximum.	Minimum.	Medium.
Thermometer . . .	90	46	68
Barometer	31	30.5	30.7½
Hygrometer . . .	110	28	69

In the open air, during the same year, the temperature varied from 48°, to which the mercury sunk in January, to 92°, the highest point which it attained in August.

In 1823, the following was the state of the instruments in the general hospital :—

	Maximum.	Minimum.	Medium.
Thermometer . . .	86	52	69
Barometer	38.8	30.2	30.5
Hygrometer . . .	87	39	58½

In the open air, during the same year, the thermometer varied from 51°, the lowest point which the mercury sunk in February, to 88°, the highest which it attained in August.

On reference to tables kept for the last six years, it appears, that the heat, indicated by the thermometer within doors, has been as follows :—

Maximum	90
Minimum	46
Medium	63

Every person accustomed to thermometrical observations is aware of the difference between sensible heat and that indicated by instruments. In Malta it is peculiarly striking, and greatly depends on the state of the winds ; but it is at the night season that the heat is most oppressive, so much so, as to justify the term "implacable," which is often applied to it. The sun in summer remains so long above the horizon, and the stone walls absorb such an enormous quantity of its heat, that they never have a sufficient time allowed them to get cool ; and, during the short nights, this heat radiates from them so copiously as to render the nights, in fact, as hot as the days, and much more oppressive to the feelings of those who are accustomed to associate the idea of coolness with darkness. I

have seen the thermometer, in a very sheltered part of my house, steadily maintain, during the night, the same height to which it had arisen in the day, while I marked it with feelings of incalculably increased oppression; and this for nearly three successive weeks of August and September, 1822.

For want of proper instruments and proper opportunities, I have not ascertained the temperature of the sea surrounding the island; but it appears by the accurate experiments of Captain Smyth, of the Royal Navy, that the heat of the sea round the adjacent shores of Sicily, was 73° to 76°, at a depth of from ten to twenty fathoms, which he states at ten or twelve degrees warmer than the water outside Gibraltar*.

Snow never appears at Malta except as an article of importation from Etna†; I have, however, in the winter months, frequently seen heavy hail showers, the stones of which have melted almost instantaneously on touching the walls or streets.

Rain falls with tropical violence in the months of December, January, and part of February. The first indications of rain ordinarily appear about the end of August or beginning of September; there are then three, four, or more days of brisk showers, with intermediate sunshine. October and the early part of November are most delightful; the air is by that time sensibly cooled, and it is occasionally refreshed by showers. This season is denominated "St. Martin's" or the "little Summer." December, January, and February are the rainy winter months, not, however, without the occurrence of several fine days at intervals. About March the sky gets settled. An occasional shower may fall in April and May; but during the months of June, July, and August, scarce a cloud is to be seen in the atmosphere. Unlike tropical climates, the rainy season of Malta is not peculiarly unhealthy, and this may be in some measure attributed to the fact, that the most copious rains fall principally during the night; and so absorbent is the soil in the country, and so well paved and drained are the streets in the

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* "Memoir on Sicily and its Islands," p. 184.

† There is an establishment under the control of Government for storing and regulating the sale of ice. Scarcity of this article in summer is a serious privation to the inhabitants.

city, that they are carried off from the surface, almost as soon as they are deposited upon it.

With regard to fogs and dews, Malta is neither exempt from them, as some have asserted, nor peculiarly subject to them, as has been represented by others. Winds from a southerly or south-westerly point, always bring murky clouds, and envelope the island in fogs of greater or less density, according to their continuance. Strong north-easterly winds also bring with them dense fogs and even heavy falls of rain. In June, 1823, the fog was so dense for some hours, with the wind at north-east, that I could not see across the harbour's mouth.

The dews are extremely heavy in Malta in spring and autumn, and whenever a sirocco or south-easterly wind blows. In the middle of Summer, however, they are rarely observed. At this period of the year, the roofs of the houses, the balconies, and even the streets are the principal dormitories of the inhabitants according to their respective ranks, and no injury to their health is ever supposed to arise from the practice, so long as atmospheric moisture is avoided.

The effects of thunder and lightning are not severely experienced in Malta, though these phenomena are far from unfrequent. In the nights of summer and autumn, the sky is frequently illuminated with bright coruscations, resembling the aurora borealis of more northern climates.

The winds in Malta are particularly variable, but those which prevail most, and those most remarkable in their consequences, are the south-easterly (sirocco), southerly, and north-westerly. The former are always damp, suffocating, and disagreeable, especially to the sick—particularly when they succeed a northerly wind; none suffer more from them than ophthalmic patients, especially in August, September, and October, when they are most prevalent*. The north-east wind is often excessively violent for the time it lasts; it is known under the name of "gregale," and frequently occasions serious mischief in the harbour, and to the buildings in its vicinity, in the winter months. In a moderate degree it is bracing and invigorating

* See some further remarks on these winds under the head Ophthalmia as an endemic, and as it appears among the troops.

to the sick, but, when violent, and especially if it immediately succeeds a sirocco, the mercury sinks considerably, heavy rains generally fall, and the sudden change of temperature is severely felt. Indeed whatever the wind may be, which succeeds the sirocco, the sensations for the first hours are as disagreeable as before the change, depending, I presume, upon the vapours conveyed by the sirocco being rolled back upon us again.

No regular sea or land breezes are felt at Malta, which, by their general influence, might mitigate the summer heat. About an hour or two before noon, the wind that is blowing at the time is observed to freshen a little, no doubt influenced by the sun's approach to the meridian; even this, however, is not a constant or regular occurrence. So soon as the sun sinks beneath the horizon, the atmosphere becomes close and sultry, and whatever little breeze may have prevailed through the day, dies away at once.

From the action of the winds, and the dryness of the atmosphere, taken in connection with the nature of the soil, there results a phenomenon which affects the climate of Malta in a manner strikingly cognizable to the senses, and which I am convinced is productive of considerable influence on some of our diseases. I allude to the volumes of impalpable dust which float about in the atmosphere, especially in summer and autumn. Every wind which blows over the exsiccated surface of the island takes up this dust, which is so fine, so light, and so penetrating, that the closest doors do not offer an effectual barrier to its entrance; the eyes and fauces are clogged up with it; it is forced through the clothes, and all parts of the skin are covered with it: and so subtile is its nature, that it occasionally finds its way into the works of the best cased watches, even in the pocket. When a damp wind blows, or when the dews and fogs are heavy, this floating dust is moistened, its particles coalesce, and it is precipitated from the atmosphere in the form of drops of a very fine mud; we frequently see the plants in a morning covered with this precipitate. It is something of this kind, unusually copious in quantity, which Dr. Maclean, in his "Researches," dignifies with the name of a "shower of mud," and which he conceives to have been a cause of the plague! This opinion is too absurd to require a serious

refutation; the dust of Malta floats in the atmosphere for more than half the year; but although I do not admit of its producing pestilence, I have no doubt of its injurious effects on the eyes and lungs.

Of the general effects of the sirocco I have said so much already in my account of Corfu, that I shall only here add some circumstances peculiarly connected with Malta, and as they influence inanimate nature. That part of the works and buildings exposed to the south-easterly winds is uniformly observed to be more corroded, or otherwise influenced by the weather, than those which are differently situated. The salt in the salines does not crystallize so abundantly as in the other winds, in consequence of the moisture. The fosses or caves excavated in the rock, for the purpose of keeping the grain of the public granaries, are never voluntarily opened during the prevalence of a sirocco wind, as the exposure is found to injure the corn. These phenomena are all of frequent occurrence.

It often happens that sudden and partial gusts (dependent I believe, in a great degree, upon the changes of temperature and other circumstances connected with the passage of the wind over the coasts of Africa) are felt in Malta with peculiar severity; their heat is almost intolerable, literally like that from the mouth of an oven, and in effects resembling what we read of the "samiel" or "simoom." If long continued, I have no doubt they would extinguish animal life altogether. Fortunately they last for no more than a few seconds, rarely exceeding half a minute in duration, and seemingly confined to a very narrow space, like a slip in the atmosphere, if I may so express myself; for they will be felt in four or five houses and not in the adjacent ones, and in one ship in the harbour and not in another. On the 16th of June, 1824, for instance, the crew of a frigate in the harbour were so convinced that their vessel was on fire, that they rushed simultaneously on deck. An English family, who were at the same time on the roof of their house taking the air, were obliged to retire below—both were in the track of those fiery gusts, and both suffered from similar sensations. Occurrences of this kind are extremely frequent during the prevalence of the sirocco wind, but they are not exclusively confined to such periods,

they are also noticed while the winds blow from other points: thus, in the instance above mentioned, the wind blew from the northward of east in the direction of Mount Etna, and its peculiar heat was attributed by some of the natives to a coincident eruption of that mountain; this, however, I believe, was merely conjecture. We sometimes experience a steady breeze for an entire day, during which the wind is parchingly hot; in these cases it is almost always southerly.

EARTHQUAKES.

Notwithstanding the vicinity of Malta to the Calabrian coast, where the ravages of earthquakes have been so dreadfully experienced, these phenomena are almost unknown, at least to any injurious extent; an occasional slight shock of relation is felt, but I have not heard of any of native origin or of destructive consequences. Vertot mentions a severe earthquake in 1693, but it was one of relation. The town of Augusta, in Sicily, was destroyed, and many buildings in Malta were thrown down. It occurred at 10 p.m., January 11th, 1693, and continued at intervals for three days.

At a place called Mackluba, is a remarkable cavity in the rock, of a circular form, about twenty fathoms deep, and from twenty-five to thirty in circumference; according to tradition, this was formerly the site of a village, which was swallowed up by an earthquake.

SOIL.

The island of Malta is a rock of limestone of different species, and of unequal density, though, generally speaking, remarkably soft, and hence crumbling down under the hammer, or the ordinary action of the weather, with great facility. Availing themselves of this property, the natives break down the stone of their fields, and, mixing it with the calcareous earth, which they find on the surface or in the veins of the rock, and with such manure as they can procure from the sea shore, the streets, sewers, markets, &c., they form an artificial soil, which, in the course of two or three years, under proper culture, produces

rich crops. Mr. Brydone, in his account of the island, leads us to suppose that much of the soil is imported from Sicily*; this, like many other assertions of this lively writer, is greatly exaggerated. It is not to be supposed, that a people so industrious as the Maltese would not avail themselves of such opportunities of enriching their rocky island as were afforded them by occasionally employing the earth brought as ballast by the shipping which entered their port, and replacing it by their native stone; but I cannot find, on inquiry, that cargoes of Sicilian earth were ever an object of importation. The fact is, that in the valleys of the island there is a tolerable supply of native earth, not, indeed, to any considerable depth, as in the alluvial valleys of the continent, but abundantly sufficient to produce crops of corn, cotton, and vegetables. On the higher grounds, also, veins and fissures in the rock are filled with earth of different kinds, sometimes a sort of light vegetable mould, but more generally, an earth of a reddish gravelly nature, and from these, with a mixture of limestone reduced to a coarse powder, a great portion of the ground under tillage in such situations is formed. The soil on these high and rocky spots, as well as on the sides of the little hills, is seldom more than a foot deep, and is confined by stone walls, disposed according to the direction of the rocks, or the declivity of the ground, so as to favour its retention as much as possible, and shelter it from the effects of the winter rains, which would otherwise infallibly wash it away. From this circumstance the whole surface of the higher parts of the island is divided into a number of small plots or terraces of the most irregular figures and unequal sizes; in the valleys, however, the enclosed spaces are much more regular and of larger extent, and the soil is deeper.

We possess a curious document on the subject of the soil, productions and climate of Malta, which is worthy of consideration here: it is the substance of a report made to the grand master, L'Isle Adam, by the eight commissioners sent in June, 1525, to examine and report upon the island which was proposed to be given up to the Knights of the Order, after they were expelled from Rhodes by the Turks. It shows what

* "Tour through Sicily and Malta," Letter 15.

the state of Malta was three hundred years ago, and leads us to form some estimate of the amount of labour which has been bestowed upon it, in the intermediate time. The commissioners state "that the island of Malta was merely a rock of a soft sandstone, called *tufa*, about six or seven leagues long, and three or four broad; that the surface of the rock was scarcely covered with more than three or four feet of earth, which was likewise stony, and very unfit to grow corn and other grain, though it produced abundance of figs, melons, and different fruits; that the principal trade of the island consisted in honey, cotton, and cumin, which the inhabitants exchanged for grain; that except a few springs in the middle of the island, there was no running water, nor even wells; the want of which, the inhabitants supplied by cisterns; that wood was so scarce, as to be sold by the pound, which forced them either to use cow-dung, dried in the sun, or wild thistles, for dressing food; that the island contained about 12,000 inhabitants of both sexes, the greatest part of whom were poor and miserable, owing to the barrenness of the soil; and, in a word, that a residence in Malta appeared extremely disagreeable, indeed, almost insupportable, especially in summer." Of Gozo they stated, "that the soil appeared to be fertile, and the inhabitants were about 5000*."

It could not be expe ted that military men sent to make a survey of the island, the principal object of which was to ascertain its capabilities as a military post, could enter into details as to its soil. It is to this soft rocky surface, of which they complain, that the island owes its fertility; by its soft nature it is readily broken down by the hand of man, and readily absorbs and retains moisture at a considerable depth, when the surface appears perfectly arid. It is to this that the inhabitants attribute the nourishment of their vegetables, and especially their cotton, and to this, also, they ascribe the salubrity of their climate and its exemption from any extensive deposit of stagnant waters.

I have already mentioned, in a cursory manner, the manu-

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* Vertot, "History of the Knights of Malta," vol. iii. p. 286, 8vo. edition.

facture of soil: I am enabled, from the report of Staff-Surgeon Tully, to give a more minute account of the process in general use. "The rocky ground intended to be reclaimed, is first cleared of all loose stones and earthy substances which may be scantily lying in the cliffs and interstices of the rocks; these are carefully heaped together on the most level spot of the rocky surface about to be worked; the labour then commences, which consists in breaking down the rock into fragments—a task of no small difficulty; for although the stone is particularly soft, yet the external surface exposed to the action of the air is hard, requiring in the onset a very large share of labour, and the breaking up of the rock is persevered in until the whole becomes level. In this manner they proceed until a spot is formed of about half an acre, which is occasionally propped in various parts by massy stone walls—a work which entirely depends on the irregularity of the ground. In the general process, there is seldom less than three feet horizontally broken off the rock, when a thin layer of earth is for the most part discovered; if the layer at this point is not complete, the rock is generally found full of crevices, of various sizes, as if it had been acted upon by some external agent, and these crevices are invariably found filled with a rich, red clay; here the great labour terminates, and the whole is now, with great industry and care, mixed together,—what is thus denominated new-made ground, and which mostly consists of broken-down freestone, very early offers proofs of fertility; and from its great aptitude in its new form to the absorption of moisture from the atmosphere, its bulk very perceptibly increases, and soon forms a sort of concrete texture. Those plants which require least nourishment, as the cucumber and water-melon, are the first reared, and are generally found to flourish the season succeeding; the products next in succession demand, like the former, no great nourishment from the newly made soil: thus, with the occasional aid of small portions of manure, and the vegetable remains which are allowed to decay upon the ground, a daily improvement is observed; so much so, that corn is usually the growth of the third year; and it is by this and similar processes, that a large portion of the ground of Malta has been brought to agricultural purposes, and by

subsequent care, aided by climate, rendered extremely fertile; indeed, such is the fertility of the soil, that the common observation is, that it is always producing." Some further remarks on the soil will be found under the head "Mineral Products."

VEGETABLE AND ANIMAL PRODUCTS.

The climate of Malta is favourable to the production of the tropical fruits and vegetables; and, accordingly, we find abundant supplies of many of them in the fields and markets, and almost all are to be met with in the gardens of the curious and rich; but the principal vegetable products of the island are cotton, cumin, and oranges; the former may be looked upon as the staple commodity. The annual product is estimated at 2300 tons British. The manufacture of the cotton wool into thread, cloth, &c., gives employment to a large share of the population: the seeds of the plant are used as food for the cows and oxen, and are of a remarkably nutritive quality, while the stalks and leaves are employed as manure, or for feeding sheep and goats*. A great portion of this cotton wool is of a brown colour, which it is said to lose, when transplanted into some other places†. The seeds of the cumin are raised for exportation as a kind of spice. The oranges are exported to all parts of the Mediterranean and to England, not, however, I apprehend, as very considerable objects of profitable commerce.

The corn raised on the island is not estimated at more than equal to the supply of four months of the year. The remainder is imported under the direction of government, and deposited in public granaries, hollowed out in the rock. The management of this concern was entrusted to a body, called the "Universita," but a new arrangement is about to be adopted. The corn is principally supplied from Egypt and the Black Sea. The native wheat and barley are sown in November, and the latter reaped in May, and the former in June.

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* The flavour of the meat fed on cotton seed is not good, and the fat is peculiarly lardy.

† Vide Dellaport, "Piante di Cephalonia," p. 95.

Wine and oil are principally supplied from Sicily, as also large quantities of apples, apricots, and other fruits. Very luxuriant crops of a species of clover, called here "sulla," and known in England, if I do not mistake, under the name of "French honey-suckle," are raised in Malta for the food of horses, mules, &c. Dry forage, from the nature of the soil, is, of course, the principal support of the cattle, and large quantities of the "sulla" are formed into hay for this purpose; the plant is in full perfection in March and April. It is sown, generally, in June, and is mowed in May: the seed, for the most part, propagates itself spontaneously for three years*.

Potatoes are cultivated in Malta in such a considerable proportion, as to supply the English residents and troops, but they are certainly inferior to those imported from England.

The supplies of the ordinary fruits and vegetables are copious. The native fruits, except the orange, are not much admired for their flavour, but the vegetables in general use are excellent. The currants, gooseberry, and raspberry have been introduced, but have failed. Cucumbers, peas, cauliflowers, &c. &c. are to be obtained in great perfection, and at very moderate prices.

Malta is extremely bare of wood: in sheltered situations a few trees are to be found, but nothing like a wood, or even a grove exists, in the whole island, if we except a group of mulberry-trees, intermixed with olives and oranges, at a country place called "Boschetto," or "the little wood," six or seven miles distant from the city.

A botanic garden has long existed in the suburb of Floriana, and another was founded at the village of Zabbar, by Sir Alexander Ball. Neither of them are extensive or curious. The catalogue of the former contains about 1200 plants.

From what I have said under this and the preceding head, it is obvious, that the luxuriance of vegetation, and the rich verdure, which are to be met with in other countries, are looked for in Malta in vain. The verdure is very partial, either in extent or duration, yet the eye soon becomes, in a certain

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* Hedysarum Clypeatum, "flore suaviter rubenti." Tournefort.

degree, reconciled, and we regard our little sprinkling of green with peculiar complacency.

However defective it may appear, it is to this comparative paucity of vegetable matter that we owe much of the salubrity of the island. If the shade of trees be wanting, we are free from the damp and stagnant air which pollutes the olive grounds of Corfu; and if for the luxuriant sod, which covers the valleys and uplands of that picturesque island, we tread the dry and burning rock, we are providentially free from those malignant fevers which invariably prevail, when the process of vegetable putrefaction takes place, under the combined influence of heat and moisture.

All the ordinary species of cattle, and of the smaller quadrupeds, are found in Malta. The cows and horses are principally imported from Sicily and the coast of Barbary. Pigs, sheep, and goats are bred upon the island; the latter animals, especially, are of a remarkably fine breed, and yield immense quantities of excellent milk, abundantly sufficient for the supply of the inhabitants, the hospitals, &c. Some goats are said to yield four or five quarts of milk daily. Cows' milk is to be met with, but it is not in general use, nor is it good. In the winter months, cows' butter is also to be procured, but the species of this article generally in use is a sort of oleaginous curd, prepared from the milk of goats and sheep.

The mules and asses of Malta are remarkable for their beauty and strength.

The dog of Malta, so much celebrated in former days, is now very rarely, if ever, to be seen. The breed, I believe, is nearly extinct.

Domestic fowls are reared in great numbers. Quails are abundant in the season of their migration, and partridges, plover, and other game, are plentiful. The number of birds in this island seems principally to depend upon the supplies which come over from the coasts of Sicily and Africa. The movements of the Maltese sportsmen are chiefly regulated by the winds, which accelerate the flight of the different species from the adjacent shores, and they are extremely expert in availing themselves of their arrival. Almost every month, and every wind, has its own peculiar importation, independent of the

stock bred on the island. The hawks of Malta were formerly celebrated, and used to be sent annually as presents to the kings of France, Spain, Portugal and Sicily, by the Grand Master.

The markets are abundantly supplied with fish, but, with some exceptions, the quality is not of the best. The dory, rock-cod, and a species of whiting, popularly called the "lupo," are excellent. The cray-fish also, found on the rocks in the island of Gozo, are enormous in size, and of very fine flavour*. Fresh-water fish are unknown, except as they may occasionally be brought from Sicily or the continent. One of the most remarkable fish is the "pholis dactylus," which abounds in the harbour, forming for itself a complete "habitat" in the soft rock, which is perforated as regularly by these creatures as if the perforation had been effected with an auger, while they approach each other so closely and so regularly, that several portions of the rock appear like the wood work of a cartridge box.

Fish forms a large portion of the food of the inhabitants, and every precaution is enforced by the police, that it be brought to market in a fresh and wholesome state. The sale of the fish of the preceding day is most strictly prohibited. It is a curious fact which I offer upon the testimony of Dr. Cren, formerly physician to the galleys, that the immoderate use of the tunny fish, which is imported in the season in great abundance from Sicily, is productive of gonorrhœa, as virulent as that produced in the ordinary mode †.

Snakes, lizards, and all the ordinary reptiles of the Mediterranean are found in Malta, but at the present day those of a venomous or poisonous nature are unknown. This exemption the inhabitants attribute to the benevolence of the patron saint, but the clearing and cultivating the ground for a series of centuries will sufficiently account for it without having recourse to the interposition of a miracle.

By the kindness of Staff-Surgeon Tully, our little museum

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* A very complete catalogue of the fish of Sicily, many of which are common to Malta, is given in Captain Smyth's Memoir.

† Cren "De Americana Lue," p. 27.

has been enriched with a specimen of the "Lacerta Dracœna," of Linnæus, the "Cordylus," or "Cordyle," of the older authors, taken in the ditch of one of the outworks of Floriana near the sea, in the year 1820; viewed in the glass in which it at present is contained, it appears to realize the stories we read of the fabled dragon. It is understood that this is an unique specimen, and that the animal is only a native of South America and the islands of the Indian Ocean *.

The ordinary species of insects are abundant in Malta; of these the most troublesome are the flea, musquito, and, above all, that species of culex, known here under the name of the sand-fly. The bites of these troublesome insects, and of the musquito, often throw the delicate new-comer into a state of high fever †.

The honey of Malta, and especially of Gozo, is excellent. It is conjectured that, from this circumstance, the island was called "Melita," or honey island, by the Greeks ‡.

MINERALS, &c.

I AM not aware that any of the metals have been found in Malta in quantity sufficient to authorize their being worked. Ciantar speaks of certain mines of iron, and even of gold and silver, formerly opened. This author also states that quicksilver has been found near Vittoriosa §.

The whole island consists of limestone in different forms and states of aggregation. Much of the ordinary stone is so soft as

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* See Shaw's Zoology, article "Lacerta dracœna."

† The vulgar supposition is, their blood is sweeter. The fact is, that these insects reach the vessels easier in consequence of the skin and rete mucosum not having become thickened and hardened by the heat. The fine skin on each side of the tendo Achillis, is the part oftenest attacked by the sand-fly. The best remedy is, I believe, the application of lime juice and oil mixed together.

‡ The learned Parkhurst considers that the name was derived from a Hebrew word of similar sound, which signifies "to escape," or "to take refuge." The Phœnicians made the island a place of refuge when they extended their trafic to the ocean, because it was furnished with good harbours, and lay out at sea. See his Lexicon, word MEAITH.

§ "Malta Illustrata," vol. i. p. 411.

to crumble between the fingers, and its surface is almost constantly scaling off under exposure to the weather and the spray of the sea; this species is general throughout the island. Another species of this stone is somewhat harder; it is of the nature of the "Oalite" or "Roestone," of Bath, and is principally employed in building: it also is very general throughout the island, and is so easily worked, that it can be cut with a hatchet or turned into various architectural ornaments in an appropriate apparatus, like an ordinary cutler's wheel. If this stone is not judiciously used, it chips and exfoliates very rapidly. The masses are naturally laminated, and in buildings it is necessary to take care that the extremities of the laminæ and not their flat surface be presented to the action of the air. The sea air and the contact of sea water is peculiarly injurious to some of these stones; repeated exfoliations of a reticulated texture are thrown off from them until they are completely corroded, a process to be daily witnessed in those parts of the works about the harbour. This species, like the preceding, is of a yellowish white colour, and so very impure, that, although it is carbonate of lime, it will not burn into quick lime, while the purer and harder carbonates afford a copious supply of this material, when subjected to the action of fire. By analysis made some years since by Dr. Naudi, professor of chemistry in the university, and a scientific English resident, it was found that alumina and magnesia existed in quantity in this building stone—in the softer sort magnesia was prevalent,—and alum in the harder: thus we have the reason why the old palace of Boschetto, which was built in the end of the fifteenth century, of the latter stone, is much less impaired than erections of a very modern date, in which the former has been employed; these analyses confirm the results of preceding operations of a similar nature.

Other species of stone, chiefly from the western side of the island, are very pure carbonates of lime, and so hard as to serve for pavements; some bear a high polish, and are employed for tables, chimney pieces, &c. &c., forming a pretty species of marble. This is principally found at St. Julian's, on the western coast. Alabaster is also found in some parts of the island, both of Malta and Gozo, but especially the latter. At

Marsa Sirocco, to the southward of the island, are found blocks, in detached pieces, of a blackish and reddish calcareous stone like lava; when rubbed they exhale, by Dolomieu's account, a strong smell, and when dissolved in sulphuric acid, a black oily scum of a similar smell floats on the surface.

Gypsum, both spicular and cuneiform, is frequently found.

Iron pyrites is found in various clayey hills, especially in Gozo. My friend, Dr. John Davy, when he visited Malta in 1824, took some specimens of the rock to analyze, and to him I am obliged for the following report upon it. "The Malta rock, judging from the specimens I have examined, is entirely oalite, and composed chiefly of carbonate of lime, with a little alumina intermixed in variable proportions. The finest stone, and that best fitted for architectural purposes, is nearly pure carbonate of lime, whilst that kind which is least adapted for building, contains the largest proportion of alumina or clay, and is hence probably so liable to decompose, and to become as it were corroded by the action of the atmosphere.

"The soil, like the rock, I find is almost entirely calcareous: a specimen that I collected in a barley-field at Citta Vecchia, consists of—

91.0	Carbonate of lime.
7.0	Alumina, with a little siliceous sand and red oxide of iron.
1.5	Vegetable matter.
0.5	Hygrometric matter.

"This conformation of soil, I need not point out to you, harmonizes well with the fact, that very little, if any, of it is imported, and that it is generally made on the island, by reducing the rock to powder, which process indeed is merely an imitation of Nature, who slowly forms all soils by the disintegration of the solid rock. Considering the very small proportion of vegetable matter present in the soil, and the little humidity it contains, or is capable of containing, it is wonderfully fertile. Probably this happy fertility depends on two circumstances chiefly, the great proportion of carbonate of lime in the best state of mechanical division in the soil, and the porous nature of the rocky substratum, which absorbs the rain like a sponge, and permits, during the dry season, of the slow exhalation of moisture."

Boisgelin, in his compilation on Malta, gives from "Les Recherches Historiques et Politiques," an account of certain species of earth formerly esteemed in medicine, and known under the name of "Terra Melitensis;" they are now sunk into neglect*. The first species is compact, heavy, extremely white on being first dug up, but becoming yellowish as it dries; the surface is smooth and polished; it adheres to the tongue, and soon dissolves on it. Fire does not affect its colour, and acids produce no effervescence: it was formerly considered cordial and sudorific. The second species is calcareous, light, and falls into powder on exposure to the air; when dry, it becomes of a grey colour; it is friable, rough to the touch and effervesces with acids: it was accounted an antidote against the bite of venomous animals. It is known under the name of St. Paul's earth, and is somewhat of the nature of the "kaolin" of China, which gives its firmness to porcelain; it does not, however, contain any portion of silver.

In some parts of the island of Malta, and especially in Gozo, there are found in hollows among the rocks, heaps of grey clay, supposed not to be native; but to have been washed into their present situation in distant ages, when the island formed a part of the continent †.

Like all countries composed of calcareous materials, Malta abounds in caves and natural recesses in the rocks. Some of these, as the cave of "Adullum," on the south side of the island, are very extensive and abound in stalactitical productions; in others, which are formed in the softer species of the rock, the roots of the plants which grow on the surface are frequently observed to penetrate through the soil and rock, and hang down into the cavities beneath.

On the roofs and walls of many of these caves, where the external air is freely admitted, nitrous efflorescences are found in considerable quantity: this is especially the case in some artificial caves formed in remote ages for the sepulture of the natives, and probably for places of retreat in cases of invasion;

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* "Ancient and Modern Malta," 2 vols. folio, London, 1805, vol. i. p. 136.

† In Appendix I. No. 3. will be found a notice on the fossils of Malta.

they are known by the name of " the catacombs," and are situated near the old city. The air in all these caves is remarkably cool, and often produces bowel and pulmonary affections in the unwary stranger who enters them when over-heated. The most celebrated cave of Malta is that called the Grotto of St. Paul: it is merely an excavation in the soft calcareous rock, but celebrated for many miraculous stories which are told of it. I shall refer to this cave when I come to touch on the popular remedies of the Maltese.

All along the coast, from the action of the waves on the soft rock, many deep caverns are formed, sufficient to give shelter to the fishermen, and abounding in various kinds of fish.

Vast quantities of fossil shells, and other organic remains, are found embedded in the rocks of Malta; they principally consist of Echini, Trochi, Turbines, and various bivalve shells. The remains of the larger fish are also not uncommon, and we have a very beautiful specimen of the Scomber Thynnus in our little collection. Those fossil fish known under the name of " Odontopetra " are also very common, particularly in Gozo, embedded in the soft stone of that island. I may here state a curious fact which is mentioned by Abela, vol. i. p. 137, illustrative of this subject. In the year 1723, in digging a foundation at Citta Vecchia, in the centre of the island, a piece of wrought brass, supposed to have been a mathematical instrument, was embedded in a little sea-weed, nearly thirteen feet within the solid rock. Some masses of petrified wood, or lignite, have also been recently dug out of the rocks near the Cottonera works.

STATE OF AGRICULTURE.

From the lightness and shallowness of the soil, a very simple plough, generally drawn by two oxen, or an ox and a mule, or jackass, is the principal instrument employed in agriculture in the valleys and larger fields, which produce corn. The hoe is a very general instrument, and chiefly employed in the cotton-grounds; while a small species of blunt hand-hook is used in the more superficial soil of gardens, &c. To a stranger it may appear that great improvements might be introduced in these

instruments; but to those who know how amply sufficient they are for their distinct purposes, any change must appear superfluous.

The soil never lies fallow; on ordinary grounds wheat gives an increase of twenty for one; in superior soils it gives thirty for one, and in the very best it yields sixty-fold, a fertility far beyond that of Sicily. The season for sowing the wheat is November; barley is sown in November, and reaped in May; wheat not before June. Cotton is sown in April, and gathered in September and October. Of the sulla plant, as it is called, I have already spoken under the head "Vegetable Products;" and I shall here only observe further, that, upon the whole, Malta is as well cultivated in its way as England, and the workmen are as industrious and as expert in the management of their native soil. I will not say with Mr. Brydone, that "every inch of ground is made productive," but certainly there are very few uncultivated spots, and nothing appears to be omitted which can conduce to their fertility.

MANUFACTURES.

The chief manufacture of Malta is that of cotton; large quantities of the thread are prepared, and a variety of articles woven, as coverlets, table-cloths, towels, coarse cloth for sails, finer for the dress of the peasants, &c. &c. Women and children are principally employed in these occupations. This manufacture has been celebrated from very ancient times. Diodorus Siculus (lib. v.) states, that the cotton cloth of Malta was superior to all others in firmness and softness; and Cicero, in his oration against Verres, enumerates, among the articles of his plunder, certain remarkably fine cotton dresses for women, wrought at Malta, together with four hundred amphoræ of Maltese honey.

There are also manufactories, on a small scale, of soap, leather, maccaroni, iron bedsteads, and the ordinary articles of wooden household furniture. Artisans of all the usual descriptions are to be found in abundance, and of no small expertness in their respective lines of business. The jewellers of Malta, especially those who work in gold, are remarkable for the elegance of their filligree work, neck-chains, &c.

Salt is prepared in large quantities, but can scarcely be called a manufacture, as it is almost a spontaneous crystallization in the cavities on the surface of the rock. These cavities are either natural depressions or shallow little pits scratched in the stone. The sea-water lodges, or else is thrown in by buckets, and a very few days' exposure to the heat of the sun completes the process. There are numerous salt-works of this kind all round the coast, especially in spots where the rock assumes the tabular form, and the ledges are not too high above the level of the water. The workmen are healthy and robust.

ROADS AND COMMUNICATIONS.

The roads of Malta are generally good, and extend to all parts of the island, so as to admit of the utmost freedom of access; the communications by water are also free, safe, and cheap; hundreds of boats keep up hourly communication between the cities on each side of the harbour: boats of a very fine description ply regularly to Gozo and Sicily, and smaller ones can always be procured at a moderate rate to go to any part of the island. The inland modes of transport are by mules, horses, asses, single-horse carriages called calesses, and open carts. No canals exist in the island.

POPULATION.

There are few parts of the globe the population of which has varied of late years so much as that of Malta. During the war there was an increase, it is said, to the enormous amount of 40,000; at present it is estimated, on good grounds, that the population of the island and its dependency, Gozo, amounts to nearly 110,000 inhabitants. The increase (principally of Greeks) for the year 1824 is calculated at 2000. The population of Valetta, Floriana, and the Cottonera district, is estimated at 44,500 souls. In the city of Valetta there were found at the close of the year 1823, by the returns from the different parishes, including Floriana outworks, 25,546 inhabitants, and in the three cities on the other side of the harbour, 18,649. The population of the different villages will be seen in the Ap-

pendix, and the whole taken together makes the population of Malta, exclusive of Gozo, 96,404, up to March 1824 *.

DWELLINGS.

In no part of Europe are the dwellings, generally speaking, superior to those of Malta. They are built of solid stone, of good workmanship, and on a plan well adapted to the summer of the climate. The roofs are flat, and composed of stone slabs covered over with a thick bed of "terras" or "pozzolana," so as to be impenetrable to the rain. A very small portion of wood is employed in the buildings, the staircases, floors, &c. being all of stone; indeed I know of only one large apartment in the whole city of Valetta which has a wooden floor. In general, the lower part of the houses is used for shops, habitations for the poorer classes, stores, stables, &c. Each house has in general a court with a large well or tank; into this court the windows of many of the apartments look. The principal apartments in the better class of houses are disposed in suites on the first floor; this disposition, aided by the loftiness of the apartments, and the abundance of doors, windows, and balconies, renders the houses cool in summer; but as they have no fire-places, generally speaking, except where erected by the English, and other foreign residents, these apartments are not so well calculated for winter. Between the ground and first floors is a sort of middle floor, or "mezzonino" as it is called; the height rarely exceeds seven or eight feet. These mezzonini are generally inhabited by the poorer classes of society; in some of the houses they are occupied by the family, and prove very cool bed-rooms, although low in the roof, and not so well ventilated as the other apartments.

Upon the whole it may be safely asserted, that the inhabitants of Malta are lodged in dwellings which afford to the different classes of society a more ample share of comfort, convenience, and protection from the weather, than is to be found in any other part of the Mediterranean; and perhaps in no spot in the world are those advantages enjoyed in higher perfection or

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* See Appendix II.

at a cheaper rate. A house fit for a moderate family, and consisting of twelve or fourteen apartments, may be procured in the city for between 20*l.* and 30*l.* sterling per annum; and an equally commodious country-house, with a garden, will cost annually not more than one-half.

CITIES, TOWNS, AND VILLAGES.

The population of Malta is collected within two cities, viz., Valetta and Citta Vecchia; three populous towns on the eastern side of the harbour enclosed within a fortified line called the Cottonera; and twenty-two villages or casals. Besides these there are several country-houses scattered about the island.

La Valetta, the modern city and head-quarters of the troops, was founded by the Grand Master of that name in the year 1566, and is one of the finest towns in Europe. It stands on a neck of land, originally called "Mount Sceberras," which divides the great harbour from that where shipping perform their quarantine. This neck of land is estimated at 3200 yards long by 1200 broad *: it descends by a gradual slope its whole length, from the land barrier at the southern extremity to the point of St. Elmo, which terminates in the Mediterranean sea in a narrow point of about 300 yards, bearing N. E. by N. On this point the citadel and light-house of St. Elmo are built. The centre of this neck of land is its highest point, and gradually slopes to the water's edge on each side, so as to form a ridge, or "hog's back" as it is ordinarily called. The longer streets run in parallel lines along this ridge from south to north, or, more strictly speaking, from south-south-west to north-north-east, and are intersected by other shorter streets, which run from one harbour to another up the sides of the ridge. Besides these regular streets there are lines of houses which front the works all round, a space being left between them, which affords an ample accommodation for the passage of carriages, &c. The number of long streets is eight, that of the cross streets eleven,

* Abela, in his "Malta Illustrata," states it at 1500 canes long and 380 broad. The Maltese cane is equal to 81 $\frac{5}{10}$ English inches. Abela, lib. i.

exclusive of those rows already mentioned, and some inconsiderable streets and lanes which are constructed at a few detached points, to harmonize with the line of the fortifications.

The whole city of Valetta, as well as its outwork Floriana*, is surrounded with most stupendous works, a correct description of which would fill a large volume, and could only be given by a professed engineer. I shall, therefore, confine myself to observations more strictly connected with medical topography.

I have already stated that the buildings of Malta are of a very superior order, and erected of the most solid materials. Those of Valetta are remarkably so, and the rectilinear disposition of the generality of the streets affords an excellent means of ventilation, while the gradual descent towards the sea on all sides facilitates the removal of filth and moisture; but, great as these advantages are, they are combined with some inconveniences to invalids. From the regular intersection of the principal streets, the winter winds rush up each, as if through a series of funnels laid parallel to each other; while the intersecting streets, through which the wind does not blow, present quite a different climate to those in which its influence is felt. The natives greatly dread these "strokes of the wind," as they call them, and apparently not without reason, for pulmonic affections are very frequent among them. The winds from the northerly points are much more severely felt in the streets of Valetta than any other; the long streets run about north and south, and form extensive and contracted funnels, through which these winds rush with considerable violence. If an invalid walks along the sheltered intersecting streets, he has occasionally to encounter the mouths of seven or eight of these; if he walks in an opposite direction, he is in the full stream of cold air.

POLICE.

The executive police of Valetta is remarkably good. The streets are kept in a state of perfect cleanliness, by convicts

* Floriana, like Valetta, is called after its founder Floriani. He was a Colonel of Engineers.

sentenced to the public works. The subterranean sewers are numerous, although not generally constructed on the best principles: they are, however, composed of the most solid materials, and kept in a good state of repair; their radical deficiency is a want of sufficient fall at some points. Every house is furnished with tanks for preserving water, for culinary and other domestic purposes, and with proper necessaries and drains for carrying off all their filth into the great sewers which run through every street. Fruit, vegetables, meat, bread, &c. are sold, according to a printed tariff published periodically, in streets or market-places especially destined for these purposes, and under the superintendence of particular magistrates. The slaughter-houses are at an amply sufficient distance from the city, upon the edge of the harbour, with every facility for the removal of offensive matter.

The paving and lighting of Valetta are excellent. The principal streets are paved with flags cut out of the hardest species of native stone, or of blocks of lava from Mount Etna, and a regular raised footway runs on each side of them. This useful work was completed in 1771.

Burials, in many cases, formerly took place in the churches; but, of late years, the practice has generally been abandoned. There are numerous burial-grounds, enclosed in well-chosen situations, at a sufficient distance from the habitations. Burials are not, as in other countries, a frequent occasion of assembling numbers of people: in ordinary cases the body is carried in a shell, in a low four-wheeled car, drawn by a single horse, and followed by a priest in a calesse, who mumbles over the funeral offices as he proceeds to the cemetery, without any other attendants than a boy and the driver. In some of the burial places the bodies have been found unconsumed long after they have been buried, which is attributable, possibly, to the dryness of the soil, or some accidental circumstance. In the cemetery of the capuchins at Floriana, the bodies are preserved by art, and are placed in various attitudes, in separate niches. The process is a sort of drying, or baking, in an oven, which preserves the bodies, although horribly disfigured, for several years after death. The smell of this cemetery, which is opened only once a year for public examination, is most offensive.

There is a police physician in the city of Valetta, whose duty it is to inquire into every circumstance connected with the public health—as deaths, births, diseases, *post mortem* examinations of suspicious cases, examination of prostitutes, &c.; and, subordinate to him, there are local police physicians in the different country districts, by whom regular returns are made to the head police office in Valetta, of all casualties, of whatever description, connected with the public health.

The chief of the executive police was, until the year 1824, entitled Inspector-General of police; these duties, however, are now performed by a deputy, with reduced pay. Besides the deputy inspector and police physician, there is another officer, whose situation is of the highest importance to the public health, viz. the Superintendent-general of quarantine; to him exclusively belongs the whole of the arrangements with regard to the lazaretto. It would require much more complete information than I either possess, or have the means of acquiring, to attempt even an outline of the history of the police and quarantine establishments of Malta. The regulations are generally admitted to be excellent, especially since 1813, when the island was placed under a very rigid system by the late Sir Thomas Maitland. So complete are the preparatory arrangements, in case of the importation of plague, that not only every town in the island, but every street, and even every house, can be effectually insulated within twenty-four hours, without cutting off the inhabitants from the necessary supply of provisions—an arrangement, the want of which was severely experienced in the fatal visitation of 1813. In the Appendix will be found the proclamations issued by the late Sir Thomas Maitland on this important subject.

OUT-STATIONS.

Little need be said of the old city, as the troops are not quartered there. It lies on a rising ground, about seven miles distant from Valetta, and contains about 5000 inhabitants; the buildings are also of solid stone*.

* This place was formerly fortified, and some of the works, barracks, &c. still remain in a habitable state.

The Cottonera district, on the eastern side of the harbour, is an object of more interest to the medical topographer. The works which go under this name were erected in the grand-mastership of Nicholas Cottoner, who entered on his office in 1664, and planned a line of works, enclosing a very large portion of ground for the purpose of affording a retreat to the inhabitants, in case the island should be invaded by the Turks.

Within this line is the original fortification of the island the castle of St. Angelo, and a burgh or town protected by the castle, but separated from it by a narrow artificial inlet of the harbour. This town was originally called "Il Borgo," and was the residence of the Order in early times; but, after the defeat of the Turks, it was denominated "Citta Vittoriosa." There are also within the Cottonera district, the town of Senglea and the suburb of Burmola. The former is often termed "Citta Invitta," or "Isola," and the latter, "Citta Conspicua." The police of the towns within the Cottonera district is under the control of the chief magistrate of police of Valetta, and is conducted upon the same principles. The buildings are of the same materials, and the interior plan the same as those already described; the streets, however, are much less regular and spacious, and are by no means so well paved, nor so effectually cleansed.

These three towns may, in a certain degree, be considered as one. On the land side they are separated merely by fortifications at particular points; on the sea line the distinction is more striking, for a considerable branch of the harbour runs up between Vittoriosa and Senglea, while Burmola lies at the upper end of the branch. Nature has formed the eastern side of the harbour in a very singular manner: the formation has been compared, and not unaptly, to the horns of a deer, or the fingers of a glove. Five branches, or digitations, run out into the harbour; on that next the open sea, is situated a detached military work, Ricasoli; on the next is built a small hamlet, with a church, and a half-finished palace; on the third is built the town of Vittoriosa, with the castle of St. Angelo at the extremity, which projects into the harbour; on the fourth is built the town of Senglea; the fifth, which lies higher than any of the others, is unoccupied by buildings. Extensive works were

at one time contemplated on this elevated spot, which is called the Corradino, but the idea has been abandoned. On the inland side of the Corradino runs up the branch of the harbour, which I have already so fully described, while treating of the situations, which afford malarious exhalations. No one point of the eastern side is distant, from the corresponding point on the Valetta side, so much as an English mile, and many are not a fourth of that distance. The sea, like the land face, is strongly fortified, and it is within these works that the troops are lodged*.

Although entirely detached, either from the works of Valetta, or those of Cottonera, there are three other points which should be noticed in this place, as being garrisoned by the troops; these are Forts Ricasoli, Tigné, and Manuel.

Fort Ricasoli is built at the great harbour's mouth, on the opposite side from Valetta; it is a large work, containing a considerable space of ground within its walls, and affording hospital accommodation to the regiment, whose head-quarters are in the Cottonera district. Ricasoli was erected by a knight of that name, in the mastership of Cottoner.

Fort Tigné is a small fort at the entrance of the quarantine harbour, built in 1798.

Fort Manuel is a very strong fort, erected on an island in the quarantine harbour, about the same time with Fort Ricasoli.

I consider any laboured description of these, or any other

* The following are the measurements of some of the principal points between Valetta and the grand and quarantine harbours. The mouth of the great harbour between Ricasoli and St. Elmo, from shore to shore, 435 yards; between Fort St. Angelo and the Marina of Valetta, (from St. Angelo point to the shore below the statue of Neptune,) 350 yards; between Isola Point and the Custom-house, 360 yards; between Corradino Point and the Marina, (from the Ordnance store to the guard-house,) 422 yards; between the church of the Capuchin convent and the causeway which bounds the Marsa, 1064 yards.

The mouth of the quarantine harbour between Fort Tigné and Fort St. Elmo, from shore to shore, 404 yards; from the Lazaretto island to Valetta, from shore to shore, 265 yards. The harbour is so deep, that the largest ships of war can anchor in almost every part of it between the mouth and Corradino Point; from that part it gets shallow, until at the causeway at the Marsa, the depth does not exceed two feet from the surface of the water to the soft mud.

military buildings of the island, as not falling within the plan of a memoir on medical topography, and I shall, therefore, not enlarge on the subject, except where it becomes a legitimate object of inquiry, as influencing the health of the troops quartered in such situations. By the aid of an ordinary plan, the relative position of the whole will be easily understood. Under the head "Barracks," I shall offer a few observations on the accommodation, &c. which they individually afford. I may here, however, make one general remark, which is materially connected with the health of their inmates, viz. that although the ditches of the fortifications are deep and extensive, yet, being hewn out of the solid rock, and free from water, they are innocuous, and afford no materials for the generation of miasmata, which, as at Corfu, are so frequently a fruitful source of fever of the worst species.

The houses in the casals are, like those of the cities and towns already mentioned, built of solid stone; and many of them, as Birchircara, Curmi, and Zeitun are very respectable country towns. The "Luogotenenti," or head magistrates of these casals, are in constant communication with the head of the police in Valetta; and the same system, as far as it is applicable, is practised in them as in the capital. No troops have been quartered in any of the casals since the extinction of the plague; I have no doubt that many of them might be occupied with considerable advantage to the health of the weakly convalescents and ophthalmic patients, should circumstances render such an arrangement proper. A selection, however, would be necessary on these occasions, because, small as the island is, some of its villages have their peculiar diseases; thus Musta, Nasciar, Curmi, and Tarxien are remarkable for fever; Zeitun for ophthalmia; Zurrico for diseases of the lungs; and Birchircara for stone in the bladder. I shall touch on these points under the head "Endemic Diseases."

PRISONS.

The prison of Valetta, which is common to the whole island, is conducted on excellent principles; the rooms and airing ground are of ample size; the different grades of crime and the different sexes are duly separated; several useful manufactures

are carried on within the prison walls, and the food is wholesome and abundant*.

In this prison are a number of convicts or "forsati" condemned to hard labour for various periods; they are employed in cleaning the streets, in the repairs of the works, and for other public purposes. On application to the proper authorities, they may also be employed by private individuals; and, in the intervals of public labour, they are allowed to work on their own account: two fifths of the produce of their labour are allowed them. All these persons are classed according to the nature of their crimes, and every exertion is made to reclaim them to habits of morality and industry. A surgeon visits the prison daily, and reports upon their health weekly to government; and all such changes of diet as he may direct, in cases of sickness, are immediately complied with; if the case is of a serious nature, or requires removal, the prisoner is immediately transferred to the civil hospital. Upon the whole, the prison discipline of Malta is eminently calculated to preserve the health of the unfortunate inmates, and of the public at large, which has so often suffered in other countries from those contagious fevers, the peculiar product of ill-ventilated, crowded, and neglected gaols. Regular hours are appointed for the visits of the friends of the prisoners, but the judges, and all magistrates, may inspect them whenever they please.

BEDDING, CLOTHING, FURNITURE, &c.

The ordinary bedding of the natives consists of a paillasse of cotton cloth, stuffed with straw, chaff, leaves, dry Sicilian grass, wool or hair, according to the wealth or taste of the individuals; to these are added sheets and coverlets of native cotton, coarse woollen blankets, or dressed sheep skins, as the case may be. The beds are almost constantly elevated from the floors on boards and trestles, or on iron bedsteads, which are manufactured in large quantities in the island, and in

* The daily allowance for each criminal is as follows:—Brown bread 24 oz.; salt fish or cheese 2½ oz.; maccaroni 5 oz., with a sufficient quantity of vegetables to make a good nourishing soup. Notwithstanding the small portion of animal food, these men are robust and healthy.

universal use among the more respectable classes. The clothing of the peasantry and lower orders is chiefly manufactured from their own cotton. The males gird themselves with a long and broad cotton sash, and wear a peculiar sort of long woollen cap upon their heads, while their legs and feet are generally left uncovered. The higher classes dress as in other parts of Europe. The females, to the ordinary articles of dress belonging to their sex, universally add a sort of veil or mantle, like a small open petticoat, with which they cover their heads, whenever they leave the house. Such of the females as work in the fields, and they are very numerous, lay aside their veil or "faldetta," as they call it, and envelop their heads with cloths or rollers of cotton, formed into a sort of clumsy turban, but sufficient to protect them from the action of the vertical sun.

FUEL.

The nature of the climate and the habits of the natives do not demand a large consumption of fuel, except for culinary purposes. A Maltese considers, that it is very unwholesome to sit by a fire, or to heat his apartment by means of it; he, therefore, in winter, seeks for warmth by shutting his doors and windows, and increasing the quantity of his clothing. Even for culinary purposes fire is not much used: the peasants principally live upon raw vegetables, fruits, salads, &c., with brown bread, a little oil, some garlic, and a salt sardine or anchovy, eaten raw. About meal times, in the towns and villages, a small portable earthen stove is placed out of doors with a handful of charcoal, and on this some vegetable mess, with occasionally a small portion of animal food, is cooked, and this is not confined to the less opulent; even in the houses of many of the rich and noble, one or two portable stoves, or an equal number of fixed stew-holes, serve to cook the victuals of the family. Immediately after their brief meal is finished, the fires are extinguished, and, for the remainder of the day, "their kitchens vie in coolness with their grots." Charcoal imported from Sicily is the fuel of the natives, with a small mixture of indigenous aromatic herbs in a dried state,

so as to act as tinder. Green wood, imported from the same place, and occasionally English coal, is the fuel of the military and foreign residents.

DIET.

I HAVE, under the preceding head, touched upon the diet of the peasantry, and little more need be said, except that all ranks and classes of the Maltese are very frugal and abstemious. Coffee and iced water are the only luxuries common to all ages and sexes; these are taken at all hours. The periods of the regular meals are mid-day for dinner, and about nine o'clock for supper. Breakfast is by no means so formal a meal as with us; it consists merely of some light fruit, a slice of bread, or a cup of coffee or chocolate. The fasts of the Latin Church are by no means so numerous as those already described, as practised in the Greek islands, but they are as rigidly kept.

A quantity of animal food of extraordinary minuteness in the eyes of an Englishman will serve to eke out the meal of even an opulent native family; it principally consists of bread, maccaroni, and various vegetables, to which is added a little fish, either salt or fresh pork cut into small portions, and, perhaps, a pound or two of fresh meat, or a portion of fowl; (for fowls are sold in quarters in the market). Cheese, olives, and various fruits, are used in considerable proportion, and a draught of Sicilian wine closes the meal. The time of meals, in ordinary domestic arrangements, is not a social period among the natives of Malta; but on certain family festivals, commemorative of a birth or marriage, or in honour of a patron saint, enormous quantities of animal food, with all the varied products of the culinary and confectionary arts, cover their boards, and are consumed with extraordinary voracity by the numerous guests.

I may here mention the prices of the ordinary articles of food, as used in the hospitals, most of which are regulated by a printed tariff, distributed throughout the different markets and shops, under the directions of the magistrates of the markets:—Bread 2*d.* per lb.; beef 3¾*d.* per lb.; mutton 3½*d.*

per lb.; fowls, each 1*s.* 2*d.*; milk 1¾*d.* per pint; rice 2½*d.* per lb.; oil 6*d.* per pint; wine 1¾*d.* per pint; tea 2*s.* 5¾*d.* per lb.; sugar 4¾*d.* per lb.; coffee 1*s.* 10*d.* per lb. Fish is not regulated by any assize, but the price is, generally speaking, moderate; the other articles are, of course, subject to variation.

The bread of Malta, as sold in the markets, is not always of the best quality, and has frequently been adulterated by the bakers with the sweepings of the public granaries and grain-fosses: a severe penalty has, however, been imposed upon the employment of this substance (frammentazzo); and by this, and other regulations, the bread of the market is much improved; that for the use of the troops is prepared in the government bakery; and, although dark in colour, is excellent in quality.

WATER.

Hot as the climate of Malta is, yet from the admirable plans adopted by the Knights of the Order of St. John, the supply of water rarely, if ever, fails. Every house is furnished with a tank, into which baked earthen pipes convey the rain water from the flat roofs, and from every other convenient spot. Wherever there was a situation adapted for the formation of wells or cisterns, they have been sunk. But the greatest work of all was the construction of an aqueduct, which conveys a copious stream of fresh water from "Diar Chandal" into the city. This aqueduct is supplied by numerous springs, and is carried over arches, and through various subterranean channels for a distance of nearly 17,000 yards (16,885 by measurement): the water is of good quality; and although a preceding dry season makes a striking difference in the supply, yet it has never, so far as I can learn, been so deficient as to produce any very general or serious inconvenience to the inhabitants of the city; the orange groves and flower gardens have on these occasions been the most severe sufferers.

From the soft nature of the stone and soil through which the waters that supply the aqueduct flow, considerable quantities of calcareous mud are frequently deposited in the tanks,

which pollute their contents; in some instances, where the tanks are situated in the vicinity of sewers, the contents of the latter percolate through the rock and impart an extremely disagreeable flavour to the water. Occasional impurities of an animal or vegetable nature often fall into the tanks and injure their contents in taste or appearance; hence it is frequently rendered an indispensable measure of precaution to cleanse them out completely; in many cases, however, where the impurities have not accumulated to any considerable extent, a few buckets full of quick lime thrown in serve to correct the evil. Innumerable animalculi of the Infusoria order are found in the tanks; the addition of lime kills many of them, but the most effectual mode is to throw a few live eels into the tank, which speedily clear the water from these living impurities. In hewing a new tank in the rock, it is of considerable importance to select that species in which alumina is most prevalent; in this case the water is much better retained than when the tank is cut in a rock of the magnesian class; these last always require to be lined with a thick coat of cement, and from their porosity they are always liable to be damaged, and to have their contents polluted.

From the very porous quality of the stone, there are, as I have already stated, many caves and grottos dispersed throughout the island; these excavations afford a constant supply of water from their roofs and sides. One of the most celebrated of them is at the casal of Zebug. What renders it the most remarkable is, that the grotto does not lie at the bottom of the rock, but, on the contrary, its roof is no more than eight or ten feet below the summit. The popular explanation of this circumstance is, that the water proceeds from vapour condensed on the surface, and slowly percolating through the rocks; but I am much inclined to suppose that it in part proceeds from underground moisture, which rises by capillary attraction, and at length falls in drops from the roof of the grotto. In confirmation of this supposition, it is to be observed that the supply never fails in the driest season, when little or no vapour can be deposited on the superincumbent materials. A phenomenon, which in my opinion gives strong support to this explanation, presents itself at Port Miggiaro at Gozo. A portion of rock

"sasso di San Paolo" has been detached from the highest part of the coast, and has fallen into the sea, where it projects about seven or eight feet above the surface. From the upper part of this fragment there constantly distils water, in such quantities as to render it impossible that it can proceed from atmospheric vapours deposited on the summit; hence the inference is very natural, that this water is absorbed from the surrounding sea.

MEDICINAL WATERS, HOT SPRINGS.

I AM not aware that any waters in Malta are at present considered of a medicinal nature. It is asserted by Abela that the fountain of "Bir Zegrella" was formerly considered as possessing a febrifuge quality, but its waters have long since been turned into the great aqueduct, and its virtues, if ever it possessed any, are merged in the general collection.

That the ancient inhabitants of Malta constructed baths in the neighbourhood of certain hot springs to be found in their island, is sufficiently evident, from several ancient remains; the most remarkable of these are to be found at a place at Rabbatto, called "Aayen Hammyn," which signifies "the fountain of the baths." To this day the place is used for the purpose of domestic washing, and the water is somewhat warm and brackish *.

EMPLOYMENTS, AMUSEMENTS, CUSTOMS.

THE natives of Malta are a very industrious people, and present a striking contrast to the Ionian islanders, and even to the natives of Sicily and the adjoining continent. Their soil is cultivated with the utmost assiduity, and at a great expense of manual exertion. In husbandry and the laborious employments of masons, stone-cutters, &c., &c., they are particularly skilful; and although to the eye of an Englishman, many of their processes may appear awkward, yet if we reflect upon the heat of the climate in which they are performed, and, above all, if we regard the workmanlike manner in which they are

* Abela, vol. i. p. 146, et sequent.

ultimately completed, we shall not be disposed to withhold from them the praise of being superior to most, and inferior to none of the surrounding nations. A considerable share of the population is employed in the occupation of sailors, boatmen, fishermen, &c., and they are accounted active and courageous. All the ordinary trades are carried on among them, and with sufficient dexterity. There is a very active and robust class of men called "Calessieros," or drivers of the single-horse carriages of the country; these men run along at the mules' head, and continue their laborious employment for hours together, both by day and night. The exertion is violent, and the consequences are, that the Calessieros are the shortest lived individuals in the island.

The higher orders enter into all the amusements generally pursued by persons of a similar rank of life in other parts of Europe. Among the lower orders, one of their most striking peculiarities under the head "amusements," is their fondness for singing, as *they* call it. This operation, for it is an employment of no small labour, is conducted by roaring, at the very utmost stretch of their voice, certain extempore verses, to an old national air. The air is not unpleasing when performed by one person in the ordinary key of singing; but executed, as it almost hourly is, by ten or a dozen male peasants at the corners of the streets, it is far from agreeable. Sometimes two parties meet in the same street,

——— "And simply seek renown
By holding out to tire each other down."

On these occasions the uproar is quite overpowering; the praises of their native village or their mistresses, or some sarcastic observations on their rivals, are the general burden of these extraordinary ululations. It is not a little ludicrous to hear the semi-barbarous song of the peasants, and the caterwauling of the vagrant animals of the feline tribe, mingling in rival harmony throughout every district of the city during the sultry nights of a Maltese summer.

Smoking tobacco may be called both an employment and an amusement, and perhaps ought to have been mentioned under the head "Diet." It is an invariable accompaniment of the meals of the lower classes, and I believe often serves as a

substitute for them. The smells produced from the smoke of tobacco, and the exhalations of oil, garlic, and salt-fish, which emanate in a gaseous form from a full-fed native, exceed description.

The siesta or mid-day sleep is also an universal custom in Malta, and it would be well if it were more generally adopted among the English inhabitants. From twelve to two is the hour of dinner and siesta, and during that period no respectable inhabitant that can avoid it is seen about the streets. I have no doubt that digestion is promoted by this custom, and it is evident that the most common cause of summer fever,—exposure to the sun, is in a great measure guarded against.

There are two other customs which I may here mention; they are closely connected with the comfort of the sick, and are of such hourly occurrence that they must strike the most inattentive observer, who has the use of his organs of hearing. These are the ringing of bells and the vociferations of the itinerant venders of various articles about the streets. The noise is incessant and overwhelming, and though not so much felt in the neighbourhood of the hospitals as elsewhere, sick officers living in the town are often most seriously annoyed. I was consulted on my first arrival here, on a case of anomalous fever, in which the life of the patient, a delicate female lately arrived from England, would, I believe, have been sacrificed, if she had not been speedily removed from the neighbourhood of the belfry of one of the churches. The vigour and pertinacity with which the bells are struck is scarcely to be conceived, the sanctity of the church being estimated in the minds of the populace by the loudness of the peal. This may possibly proceed from the circumstance that the Turks use no bells, and the Maltese, to prove their superior devotion over their old enemies, superabound in the employment of them.

Dancing, horse racing, and processions in honour of their numerous saints, with an occasional village festival, May-pole, or boat race, form the rest of their amusements; but, unlike the same occasions in England or many parts of the continent, scenes of drunkenness are unknown; in fact, most of the amusements of the Maltese people are such as persons in robust health can alone enjoy; and they are calculated, in no

small degree, to preserve them in such a state as renders them long susceptible of the enjoyment, for they afford athletic exercise without fatigue, and pleasure without excess.

Bathing in the sea is a very general practice among both sexes. The period chosen is in the evening, after sunset, and until near midnight; at these times they form large parties and proceed in boats to the eastern side of the harbour, where there are several spots favourable to this most salutary practice; it is confined to the summer months. Good public baths are a great desideratum in the island.

MORAL AND PHYSICAL CHARACTER OF THE NATIVES. REARING AND EDUCATION OF CHILDREN.

If we believe the islanders in their immediate vicinity, the Maltese are a very immoral race, while they again assert that the Sicilians are the very worst of the human species. When we recollect the antipathy that so often exists between the inhabitants of conterminous countries, and even of the different provinces of the same nation, we shall not be inclined to attach implicit confidence to the character which they give of each other. In the case before us, the fact appears to be, that the morals of the Maltese are neither strikingly superior nor strikingly inferior to those of their Italian neighbours. Auricular confession, indulgencies, and the celibacy of the clergy must tend to the deterioration of morals in all catholic countries, especially among the inhabitants of large cities; and as Malta is not inferior to Rome itself in catholicism, its inhabitants, doubtless, feel the effect. If, however, the capital of Malta abounds in scenes of licentiousness, the country exhibits incontestable proofs of the existence of the great moral virtues of sobriety and industry among the people.

It has been asked, what has a medical topographer to do with the morals of the natives of a country? and it has been asserted that their immoralities cannot affect the health of the troops quartered among them, if proper discipline be observed. These opinions, however, are founded upon a very superficial view of the subject. The soil and the inhabitants, if I may be allowed the expression, always react on each other. A sober,

industrious race of inhabitants, for example, will have a greater desire to improve their country than men of a contrary character, and they will also possess greater physical power to carry their desire into execution. Place such a body of men in a district overrun with noxious weeds and timber, and fast degenerating into a morass; and can there exist any rational doubt, that they will clear it and drain it sooner, and longer preserve it in that improved state, than men of a different disposition? Place in a similar situation, or even in the district thus improved, a body of men who are idle and intemperate, and the immediate result will be, that the soil will deteriorate for want of proper care, the weeds will reappear, the drains will become obstructed, the edible products of the earth will lessen in quantity, and diminish in their nutritive quality; the inhabitants will become unhealthy from the bad state of their grounds; and the diminution of their physical powers thus produced, will disable them progressively more and more from remedying the causes of the evil. Many of these effects will doubtless first be felt in their own persons, but it is undeniable that they must ultimately operate on their visiters. On this obvious principle is founded the axiom of medical topography, "that a slothful, squalid-looking population invariably characterizes an unhealthy country."

In regard to physical character, the natives of Malta stand in a very respectable point of view. The men are about the middle height, erect in stature, and active. The women are in general lower than the middle standard, but well formed, and many of them handsome. Their complexion is in general dark, and in some cases excessively so; the hair of both sexes is almost invariably black or very dark; the eyes also are very generally black or dark, though in some of the villages there are a remarkable number of blue-eyed persons to be met with*. There is much of the Spanish character in the external ap-

* This is very strikingly remarkable at the casal of Zurrico. The word in Arabic signifies "blue;" and it is stated by Abela that several persons suppose the name has been given from this circumstance; however this may be, the fact is certain, and may possibly be explained on the supposition that the original settlers in Zurrico were derived from northern Europe.

pearance of the Maltese, especially in the country villages; in the cities, and among the higher orders, there is an intermixture of the French, but the "dash of African blood" which is spoken of by some, is so rare as to form a very striking exception to the general rule; the thick lip, depressed nose, and crisp curly or woolly hair of the negro, are so rare, that I have never met them in a native Maltese, born of European parents.

Deformity is exceedingly rare, and monstrosity still more so. I have seen, since my arrival, one individual, who is generally styled an hermaphrodite, and have heard of another; but the subject I saw, did not appear to me to come up to the character usually given of such persons. He was an ill formed man, in whom a defective urethra terminated in the perinœum, and the scrotum was shrunk, so as to give the appearance of what Professor Ackermann calls "labias crotalis." In the female hospital there are two preparations of monstrous twins, one pair joined by the backs and the other by the bellies. Twins are a very common occurrence; but of triplets, not an instance has been heard of for thirty years at least; and from the incredulity of the older inhabitants, it is probable that they have rarely, if ever, been produced in the island. When we speak of such occurrences as not unfrequent in England, they shake their heads in emphatic silence.

Their women do not suffer much in child birth, and generally leave their beds on the third day. The chief disease to which they are subject in the pregnant state, is uterine hæmorrhage, towards the last three or four weeks, and when this occurs, the event is rarely favourable.

The Maltese marry early; instances are not very rare, where girls have been mothers at thirteen. The children are in general suckled by their mothers, and are in most instances remarkably robust and well shaped; in early infancy they are swathed round from the shoulders to the toes, the arms being laid along the sides and included in the bandage, so as to present a very striking resemblance to an Egyptian mummy. Notwithstanding this unnatural restraint, a crippled or impotent Maltese child is a rare sight. They early acquire the use of their limbs; and their activity, especially as swimmers and divers, is ex-

tremely striking. I am not aware of any thing very remarkable or worthy of notice in their mode of rearing. In some cases, weakly or diseased children are taught to draw the milk from goats, but in general, there is no difference between the food of the child or the adult, except in quantity; and we see infants scarcely dismissed from the breast, swallowing vegetables, oil, cheese, and salt fish, with as much relish as their parents.

Of late years education has been more attended to in Malta than it ever was before; but the paralysing effect of popery on the human intellect is still powerfully felt. A school on the Lancasterian plan of mutual instruction has for some time past been in activity in the village of Zeitun, under the charge of an enlightened catholic. This school was originally founded by Don Albert de Megino, a Spanish consul, now deceased, and by his munificence a school house was erected in which boys, girls and adults are taught reading, writing, and arithmetic, and brought up to habits of industry. In the year 1820, a school on similar principles was established by the exertions of some of the respectable English residents, aided by natives of the better class; but such is the jealousy of the priests lest the pupils should receive any religious impressions unfavourable to the doctrines of their church, that they strenuously oppose the introduction of lessons selected from scripture, even though printed at the press of the "Propaganda Fidei," at Rome. This senseless procedure has disgusted many of the contributors to the school; the good work of instruction, however, still goes on, though with a slow and embarrassed progress.

POOR.

THERE are two principal public institutions for the relief and reception of the poor in Malta. They are both situated at Floriana. The first is established in a range of buildings originally erected in the year 1762, for the manufacture of gunpowder, by the Knights of the Order, and called by them "Polverista." Within its walls are contained three establishments, viz., one for old and decayed men and women; one for

lunatics and idiots, and one for foundlings ; the united establishments form a branch of the civil hospital, hereafter to be noticed. They are supported by government, and are known at present under the name of the "Ospicio." The second combines a workhouse and school for females under the management of the Bishop of Malta. It was originally erected by the Grand Master Villena, in the year 1734, and endowed out of his own private fortune. Access to this establishment is very difficult, and I possess little information with regard to it. Appearances are certainly not in its favour *.

OSPICIO.

The Ospicio is a very noble charity, and its regularity and good order reflect credit on all concerned ; it is open on all occasions to public inspection, and little other recommendation is required to become an inmate than the claims of poverty and distress.

The poor and the deranged occupy distinct parts of the building, and the sexes of each class are separated. The paupers occupy numerous halls and rooms, well ventilated and clean ; each has a separate bed, raised from the floor on boards and trestles, and furnished with a sufficient supply of bedding. There are separate apartments where they take their meals, all the appointments connected with which are equally neat with those of the sleeping rooms ; and indeed little is left to wish for, except that the apartments were more lofty, and that there were work-rooms for the paupers to occupy during the day, instead of sitting and working in their bed-rooms ; this, however, could not be effected in the present situation.

The servants of the establishment consist of one cook, two ward-keepers for the men's apartments, two ward-keepers for the women's apartments, two ward-keepers for the lunatics, and two nurses for the foundlings, besides a chaplain and clerk.

The lunatics and idiots have each separate cells with boards and trestles and sufficient bedding, and a general airing ground

* It is known by the name of the Conservatorio, and since this was written has been converted into a general house of industry.

and corridor. Coercive measures are rarely resorted to; nor even solitary confinement, except to their own cells, when it is absolutely required.

Whenever lunatics or paupers are taken seriously ill, they are sent to the civil hospital in Valetta; a surgeon attached to the establishment makes the selection.

The foundling division is conducted with equal care and attention to the comforts of its helpless tenants, as the other parts of the establishment. The infants are received from all parts of the island, and are sent out to nurse in the country as fast as nurses can be provided for them. Those who are not thus provided for, are reared by hand in the house—some of those whom I have seen are very pitiable objects; their congenite diseases rendering it impossible to procure wet nurses for them; great attention, however, is paid to them, and I understand that some are reared by means of goats' milk, which they suck from the animal. The mortality among the foundlings is, I am informed, very high; whenever any of them survive and arrive at an age capable of undertaking employment whereby they can be useful in the establishment, or can provide for themselves, they are either employed within the walls, or discharged to work on their own account; until then, they are kept at the public expense.

Many of the orphans are able to make some return to the charity by working at a cotton manufactory which is established within its walls. The cotton is purchased in the raw state, and is spun, twisted, and wove into every sort of garment, and bed and table linen, used either in the Ospicio itself or the Civil Hospital. Lint for the use of the latter is also prepared; and such species of industry are promoted as suit the age, infirmities, and constitutions of the inhabitants; nor is the stimulus of pecuniary reward wanting, for about a fourth of the produce of their industry is granted to the work-people; and such as are able and of good character are indulged by permission to go out into the city and acquire any little remuneration for their labours they can procure.

The diet is of excellent quality, and is cooked in the most careful manner; the whole culinary establishment is remarkable for cleanliness and regularity.

A sum little short of twenty thousand pounds currency is annually distributed in Malta to the poor, (including the expenses of the civil hospital,) and of this, a sum of about one hundred pounds currency, per week, is distributed in alms; all these expenses are defrayed from the rent of various lands and houses bequeathed for the purpose, by pious individuals at different times. These bequests, however, were never sufficient to cover the actual expenses, and therefore government was always obliged to give additional grants. In the financial tables given by Boisgelin, at the end of his first volume, (I know not on what authority,) the interest of all the sums bequeathed for the united purposes of keeping up the gallies, fortifications, and hospital, was no more than six hundred and eleven pounds sterling, on an average of ten years from 1779 to 1788; while the expenses of the great hospital, Ospicio, foundling hospital, and women's hospital, amounted to upwards of twelve thousand pounds sterling in cash, and six hundred salms of corn *.

Since the conclusion of the general peace, the Maltese have suffered considerably, and at present paupers of both sexes abound throughout the island. The principal employment of the lower class of women and children is cotton spinning, and at this an adult female cannot at present earn more than two-pence per day, which is barely sufficient to supply her with bread. Labourers among the males are in as full employment as ever, where agricultural objects are pursued; but porters, boatmen, and all the other classes which depend upon commerce for their daily subsistence, are severe sufferers; and even among superior ranks the effects of poverty are felt with considerable severity.

Malta has possessed, for many years, its "Monte di Pieta," or government pawn-broking establishment; from this esta-

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* The salm of corn is about an English quarter. The distribution of the cash is thus stated by Boisgelin. Alms and Ospicio at Floriana, 1731*l.*; Women's Hospital, 1867*l.* 13*s.* 9*d.*; Foundlings, 614*l.* 13*s.* 6*d.*; Great Hospital, 7947*l.* 12*s.*—Total, 12,160*l.* 19*s.* 3*d.* Eton, in his "Authentic Materials for a History of the People of Malta," corroborates this statement, p. 63.

blishment much relief is afforded to the poor and distressed; but a charity of perhaps the most efficient character that has hitherto been open to their wants, is one recently instituted on a very small scale, by a few pious Englishwomen, for supplying poor-room keepers with clothing, and an occasional pecuniary stipend. Among the multiplicity of buildings in Valetta, there is no want of cellars and apartments of small size and low rent in all parts of the city for the accommodation of the poor; but there are certain neighbourhoods along the line walls, especially at one point called "Mandraggio," where they are congregated in dense masses, and lodged in abodes, which, it is true, afford them shelter, but it is that shelter which excludes a sufficiency of light and air for the purposes of ordinary ventilation and cleanliness. This particular district has, according to tradition (confirmed by old plans and maps), been recovered from the sea in former ages, and is at present below its level; it is damp, filthy, and comfortless—the houses are crowded together, badly constructed, and inconveniently planned, and the streets are narrow, irregular, and unpaved. At all times the poor inhabitants are characterized by a peculiarly sallow, unhealthy aspect; but during the period that the city suffered from the plague, the disease raged with the most fatal violence among them, and scarce an individual escaped the contagion *.

CIVIL HOSPITAL OF VALETTA.

The civil hospital is so closely connected with the establishment for the poor, that this appears to be the most appropriate place for noticing it. It consists of two separate branches, one for males, the other for females.

While the Order of the Knights of Malta existed in the island, the great hospital, hereafter to be noticed as a military

* The term "Mandraggio" is expressive of the nature of this district. "Mandra," in Italian, signifies a "herd of cattle;" and "Mandraggio," though not to be found in dictionaries or vocabularies, designates in the vulgar tongue, "a pen for a herd of cattle."—In a plan of the city to be found in "Statuta Hospitalis Hierusalem," 4to., printed at Rome in 1568, the Mandraggio is represented as an oblong basin or ditch, on the outside of the line wall.

establishment, was occupied by the males. On the arrival of the French, however, in 1798, they were removed to the adjacent monastery, "Delle Convertite," which they still occupy. The females were always accommodated in a separate building in the immediate vicinity, founded in the year 1646, and endowed by a pious female, "Caterina Scoppi," a native of Siena; it is known by the name of "La Casetta."

In point of accommodation for the sick, the civil hospital is well circumstanced. There is abundance of room to admit of a complete separation between the medical and the surgical cases, and of classifying each of these divisions into distinct subdivisions.

The male hospital is capable of accommodating 200 sick; the female 150. The wards are kept clean and well ventilated, and with a sufficient supply of bedding.

The dieting is conducted on a plan nearly similar to that of the British military hospitals, modified by the peculiar habits of the natives.

The medical attendants are natives, and consist of one physician and two surgeons, with two assistants each. The salary of these officers is about twelve pounds sterling per month. One surgeon has charge of the men, and another of the women. Dr. Grillet, the physician, is professor of physic in the college, and delivers clinical lectures on the practice of physic in the hospital. Mr. Portelli, the surgeon of the male hospital, delivers lectures on anatomy and surgery in a theatre recently erected within the walls of the hospital. He, as well as the surgeon to the female hospital (Mr. Sammut), is a half pay medical officer of the British army.

CIVIL HOSPITAL AND OTHER CHARITABLE INSTITUTIONS AT CITTA VECCHIA, &c.

An hospital has existed at Citta Vecchia, the ancient capital of the island, from a remote period. Abela informs us, that of the history of its foundation he possesses no documents, but, so far back as the year 1370, it is mentioned in the records of the Royal Chancery of Palermo; it was then known under the name of the hospital of St. Francesco, and appears to have

been well endowed. Its affairs were administered by the Jurats or local magistrates of the city. At present it forms a branch of the civil hospital of Valetta, and it is now called the Hospital of Spirito Santo. This establishment is conducted on a similar plan to the hospital just described, but on a very small scale. The number of beds is no more than thirty. The medical officers are one physician and one surgeon. The patients are females.

In 1654, Nicholas Saura, a native physician, endowed an hospital in Citta Vecchia for the reception of chronic cases and incurables; it is now a sort of poor-house, and its funds, which have been considerably increased by the bequests of benevolent natives, are entirely under the management of the bishop. There exists also a charitable fund for the portioning of poor girls at Citta Vecchia, and both in that ancient capital and the principal towns throughout the island, frequent and liberal distributions of food and money are made to the poor at the gates of the various convents.

In the year 1802, a code of regulations for the civil hospital was published under the authority of the king's civil commissioner of that day, Mr. Cameron, in which the duties and salaries of a very numerous set of officers of various ranks and classes are enumerated. Under these regulations, the establishment was conducted until the year 1815.

In June 1815, the late governor made an arrangement with regard to the Maltese hospitals in Valetta. He abolished the whole of the hospital establishment as it then existed, and formed a new one, which, while it tended equally to the comfort and health of the patients, ensured, in his opinion, a much more regular and economical administration of the funds. I am not enabled to say precisely what the particular deficiencies of the old plan were.

In January 1816, his Excellency made another arrangement with regard to the charitable institutions, in which, as he states, "no uniformity of system formerly prevailed." To effect a change in this particular, and to place these institutions on such a footing as at once to secure a due portion of comfort to those who were unhappily forced to have recourse to them for relief, while at the same time protection was afforded to the public

purse against any unnecessary waste and expenditure, Sir Thomas Maitland new modelled the whole, by appointing a Patron, President and Vice-Presidents, from the latter of whom was formed a permanent committee, in which was vested the management of all the details of these important establishments. Two of the members of this committee meet daily for the despatch of business; and, should they differ in opinion, the matter in dispute is referred to the whole committee, or in case of their not agreeing, a general meeting of the whole institution is called.

The Governor or Lieutenant-Governor is Patron; the Members of his Majesty's Supreme Council of Justice, and the Treasurer to Government, are Presidents, and the Superintendent of Quarantine, the Chaplain to the Forces, the Proto-Medico or President of the College of Physicians, and a native Ecclesiastic of high rank, are Vice-Presidents and members of the permanent Committee.

LAZARETTO.

The last civil institution to be noticed in Malta, connected with public health, is the lazaretto. This very important establishment occupies a peninsula which juts out into the lesser harbour on the western side of the city of Valetta, and which has been completely insulated by an artificial cut. On the highest ground in this island is built a regular fort called Fort Manuel, and on the shore beneath is the lazaretto. This consists of a number of buildings, erected at different times, which expose an extensive front to the water, and are surrounded by a triple line of high stone walls towards the land. Besides these buildings a very extensive area is also enclosed by solid stone walls, within which, in case of necessity, many hundred persons could be encamped, duly classed according to the different stages of their disorder, should plague again make its appearance among the inhabitants. This was the work of the late Sir Thomas Maitland. There is abundant accommodation for persons performing quarantine, for cattle and for goods. On the main land, nearly opposite, is the Health office, where the various officers of the establishment conduct their business,

and beneath is the "parlatorio," where, under proper restrictions, conversation is permitted with individuals who perform their quarantine on board the shipping.

The whole of the establishment is under the care of the superintendent of quarantine, and embraces an extensive range of peculiar duties, which, by all accounts, are conducted in such a manner as to render the quarantine department of Malta one of the most effective in Europe.

The funds of this establishment arise from certain dues which are paid by the shipping in quarantine, or by individuals residing in the lazaretto, under the authority of a regular tariff settled by the government.

The captain of the port and the physician of the health-office examine all shipping approaching the harbour, to ascertain the state of health of the crew, the nature of the cargo, and the port from which the vessel sailed, &c. &c. The questions necessary to be asked for the elucidation of these points are not left to the discretion of the examining officers, but are contained in printed papers, on which the answers are inserted; in short, every precaution is taken to prevent the introduction of plague into the island, and for the extinction of it in the lazaretto, should infected goods be unfortunately introduced. In the Appendix will be found the code of regulations on this subject *.

ENDEMIC AND PREVALENT DISEASES OF THE INHABITANTS.

Although Malta has been so long an appendage to the British Crown, yet, I have encountered some difficulties in examining the history of the diseases of the inhabitants in all their bearings and connexions; nevertheless, by conversation with the resident medical men, and by reference to such written documents as I had access to, I have endeavoured to collect some information on the subject.

Fever.—Fortunately for Malta there is little to be said under the head of endemic diseases. In describing its few sources of malarious or marshy exhalations, I have already spoken of the

* See Appendix III.

remittent and intermittent fevers, which, in a strict topographical point of view, must come under the head "Endemic," trifling though they be in extent, for they are as decidedly connected with a certain state of the soil and climate, and as common to those inhabitants exposed to their influence, as fever is with the soil and climate of Walcheren, or goitre with those of the Alpine regions. The different species of fever are not enumerated in the documents from which I derive my information; but from the police and hospital physicians I am authorized to assert, that remittents and intermittents are of annual occurrence among the resident inhabitants, and in considerable numbers, although their relative proportion is not noted. It has, indeed, been suggested by those who are unwilling to allow that diseases of marsh origin are endemic in Malta, that the principal number of these diseases are caught in Sicily, and are thence transferred by boats' crews. It certainly does happen that such persons have occasionally caught remittent fever while in Sicily, but it is as certain that a large proportion of the men, women, and children who suffer from the disease in Malta, have never been beyond the precincts of their native island in their lives.

The following is a statement of the admissions, discharges, and deaths by fever in the Civil Hospital for three years:—

Return of Admissions, Discharges, and Deaths, of Cases of Fever in the Civil Hospital of Malta, for the Years 1821, 1822, *and* 1823.

Class of Hospital.	1821.			1822.			1823.			Total.			Remarks.
	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	
Male	262	220	35	243	207	28	292	242	39	797	669	102	Mortality on an average of three years. Male 1 in $7\frac{83}{102}$ Female 1 in $5\frac{6}{9}$ Soldiers 1 in $23\frac{1}{2}$
Female ..	138	110	22	134	97	34	184	150	34	456	357	90	
Maltese Fencibles	15	13	..	5	5	..	27	25	2	47	43	2	
Total....	415	343	57	382	309	62	503	417	75	1300	1069	194	Total 1 in $6\frac{136}{194}$

It is to be remarked, that among the deaths many have occurred in aged paupers brought from the "Ospicio," and it is also to be kept in mind that the worst cases of disease found their way to the civil hospital.

The admissions of fever cases into the Civil Hospital during the three years were, we perceive, by the above return, 1300. The total admissions for the same period were 8736—so that fever has been to all other diseases very nearly in the proportion of one to seven.

On referring to the returns of deaths among the natives, not in the hospital, I find that the proportion of fevers must have been very large, for the deaths have been as follows:—

In the year	1818	263
„	1819	260
„	1820	223
„	1821	180
„	1822	247
„	1823	273
	Giving a total of	1446

The total deaths for these six years were—

For the year	1818	2330
„	1819	2029
„	1820	2297
„	1821	1912
„	1822	2310
„	1823	2566
	Giving a total of	13,444

Or the deaths by fever bore to the deaths of all other diseases the proportion of one to ten nearly.

The documents from which I have been enabled to draw up the above tables, further prove to demonstration, that Musta and Nasciaro, the villages nearest the marshy grounds of Paoles, of which I have already spoken (page 436), have generally suffered more heavily by mortality from fever, than other places of equal population, especially for the years 1822 and 1823. Curmi also, the casal nearest the marshy ground at the head of the harbour, has suffered more in proportion than many other casals, though not nearly so much as the two preceding. The population of these three villages is as fol-

lows :—Musta 3369, Nasciaro 2965, Curmi 4130. Now I find, that in the year 1823, while in the population of Valetta and Floriana, consisting of 25,546 souls, there were only 42 cases of death by fever; in Musta, with its small population of 3369 souls, there were no less than 38 deaths from the same cause; in Nasciaro 16; and in Curmi 12. Looking at one year only may give us a partial view; but in order that a more complete estimate may be afforded of this interesting subject, I have constructed the following table. It is by no means so perfect as I could wish, for the police returns give no information of the total number of cases treated, of each fatal disease: this would have afforded us much more satisfactory views, as we could then have made a close approximation to the proportional mortality; whereas, in the present returns, we have nothing more than the number of deaths by each disease, without any reference to the number of individuals attacked; neither can we now ascertain how many of these fevers may have been occasioned by the exhalations from the marsh, or how many from other causes. Thus, the very hot year of 1820 appears not to have afforded so many deaths by fever, as the comparatively cool one of 1823; while, again, the temperate year of 1821 has a strikingly smaller proportion than any other year of the whole six. In some casals no fatal cases of fever have occurred for some years of the period under review. Tarxien, which was one year exempt, is on elevated ground, but not more than a mile from the Marsa, at the head of the great harbour. Gudia was two years exempt; it is on ground still further from the Marsa than Tarxien. Safi and Chircop lie close together at a still greater distance; one was three, and the other four, years exempt. Attard was also four years without a death from fever; but Zurrico, which is still further off than any of these casals, and on higher ground, suffered considerably every year, and much more in proportion, during the whole period, than three out of four of the others. The air of this village is reckoned by the inhabitants peculiarly healthy, and that of Safi is also considered very pure *. Who can

* The word "Safi" in Arabic signifies pure; this village is the only one that escaped the contagious disease of 1676; it also escaped the plague in 1813.

account for these variations? We may, indeed, catch a few of their more obvious causes as they pass under our observation, but the most obscure, and possibly the most powerful, escape our cognizance altogether.

Comparative View of Deaths by Fever among the Inhabitants of the Island of Malta for six years, between 1818 *and* 1823 *inclusive.*

Towns and Villages.	Population.	Deaths by Fever in						Total	Proportion of Deaths to Population.
		1818.	1819.	1820.	1821.	1822.	1823.		
Valetta & Floriana	25,546	76	87	65	49	50	42	369	1 in $69\frac{79}{369}$
Vittoriosa, Cospicua, and Senglea	18,649	54	48	37	22	37	25	223	1 in $83\frac{140}{223}$
Notabile & Dingli	5,166	16	8	11	3	14	11	63	1 in 82
Zebug	4,776	10	10	13	9	14	16	72	1 in $66\frac{1}{3}$
Siggieni	3,373	8	5	11	6	2	12	44	1 in $76\frac{29}{44}$
Crendi	1,052	3	2	2	1	2	1	11	1 in $95\frac{7}{11}$
Micabiba	814	5	4	2	2	1	2	16	1 in $50\frac{7}{8}$
Zurrico	3,618	8	9	7	11	12	18	65	1 in $55\frac{43}{65}$
Safi	227	2	..	1	..	1	..	4	1 in $56\frac{4}{4}$
Chircop	315	2	..	..	1	..	..	3	1 in 105
Asciach	1,136	7	1	3	1	4	2	18	1 in $63\frac{1}{9}$
Gudia	1,040	..	3	4	2	6	..	15	1 in $69\frac{1}{3}$
Zeitun	5,440	8	18	13	31	18	18	101	1 in $53\frac{87}{101}$
Zabbar	3,537	5	7	9	3	13	16	53	1 in $66\frac{39}{53}$
Tarxien	1,011	4	1	..	1	2	2	10	1 in $101\frac{1}{10}$
Luca	1,268	8	6	2	2	3	3	24	1 in $52\frac{5}{6}$
Curmi	4,130	11	18	10	7	7	12	65	1 in $63\frac{35}{65}$
Birchircara	5,253	10	10	8	3	14	17	62	1 in $84\frac{46}{62}$
Balzan	633	3	2	4	..	3	2	14	1 in $45\frac{3}{14}$
Lia	1,039	1	2	6	6	2	13	30	1 in $34\frac{12}{30}$
Attard	907	2	..	..	..	..	7	9	1 in $100\frac{7}{9}$
Musta	3,369	9	10	8	9	20	38	94	1 in $35\frac{79}{94}$
Nasciaro	2,965	8	8	5	7	18	16	62	1 in $47\frac{51}{62}$
Gargur	1,139	3	1	2	4	3	5	18	1 in $63\frac{5}{18}$
Total	96,404	263	260	223	180	246	273	1445	1 in $66\frac{10344}{14453}$

Ophthalmia.—Although ophthalmia does not stand next in point of frequency to fever, yet, as it is legitimately entitled to class as an endemic of Malta, I shall speak of it here. The ravages of this disease have never, as far as I can ascertain, proceeded to such a serious extent among the natives as to merit the name of an epidemic: no doubt it may become so highly aggravated as to spread epidemically, under circumstances favourable to its diffusion by actual contact; but on reference to the private practitioners, I find, that this has not

been the case in their memory; and, on consulting the returns of the civil hospital, as far back as I could go, the opinion seems to be fully supported. In the returns of this hospital, no more than 324 cases of the disease appear to have been treated during the course of three years. They are as follows:—

	1821.	1822.	1823.	Total.
Males . . .	40	28	51	119
Females . .	56	51	50	157
Soldiers . .	24	4	20	48
Total . .	120	83	121	324

The admissions from ophthalmia have not borne a greater proportion to the admissions of other diseases, than about 1 in 27; and Mr. Portelli, Professor of Anatomy and Surgery to the Hospital, states to me, that he has never had more than ten or twelve patients labouring under the disease at one time. The fact is, that the natives who are subject to ophthalmia treat it but lightly; they are often seen walking about the streets with the disease upon them; and except it arises to a very aggravated pitch, they do not deem it of sufficient consequence to warrant an application at the hospital, but treat it with the domestic remedies within their reach; some of which are hereafter to be noticed.

In one form or other ophthalmia appears every year both in Malta and Gozo, and generally commences and terminates about the same autumnal period. Coincidence affords no proof of connexion to a philosophic inquirer, but in the opinion of the natives, ophthalmia and the ripening of the pomegranates in autumn stand to each other in the relation of cause and effect; in the same manner, and with about equal justice, they consider that the renewed activity of fleas in the commencement of summer depends on the ripening of beans! The simple fact is, that, towards the close of summer, and throughout the autumn, the well-known aphorism of Hippocrates, "Autumno lippitudines et oculorum fluxiones fiunt," is as completely verified among the Maltese as it is in Egypt, though not to the same extent. These affections of the eye

appear principally among the lower orders, and of them the women and children are most frequently and most severely afflicted. There is every reason to suppose, that those diseases principally proceed from the united influence of the excessive heat of the atmosphere, the great glare of the sun reflected from the rocks and numerous buildings, and the vast quantity of dust blowing about in all directions; while, during the night, the atmosphere is often particularly damp, from the copious depositions of dew, to the effect of which the lower orders are fully exposed, as they sleep frequently in the open air, and always with the head uncovered; in addition to which the sirocco winds of autumn are peculiarly damp of themselves *.

This is the mode of explanation adopted by the best informed medical men, both British and native; to my mind it is perfectly satisfactory, and it is confirmed by the facts which appear in the history of the endemic ophthalmia of other countries. In Egypt, suppression of perspiration, and exposure of the head to the damp night air, after the eyes have been subjected all the day to the action of the heat, light, and dust, are satisfactorily proved by Assalini, Larrey, and others, to have been the most frequent causes of the disease. In Aleppo, a climate which, in so many points, resembles Malta, the ophthalmia, both of adults and children, is met with at all seasons; but it constantly becomes so frequent in the months of August and September, that there are few years in which, at least, one-sixth of the inhabitants are not more or less affected with it. Dr. Russell, on whose authority I quote this fact, adopts the popular opinion, that it proceeds from the night dews, which, though in small quantities, sometimes fall at those seasons of the year, and from which the natives who sleep in the open air have no canopy to shelter them. Europeans who sleep in field-beds, protected by a thick covering at top, besides cur-

* Quintino, in his work on Malta, to be seen in the 23d volume of Burmann's collection, makes the following remark :—"Æstum temperat aliquando ventus, sed tanta violentia, ut homines pene et tecta rapiat, pulverem secum agens, oculis maxime noxium; in quos etiam *rejectus* e rupium candore nimius solis aciem supra modum offendit, oculorum caliginem et scintillationes afferens."

The date of this work is 1536.

tains, are exempt from this malady, but have been seized with it upon lying exposed in the manner of the natives. In some years the ophthalmia rages with destructive malignancy *.

After the disease once attacks, it leaves a great liability in the weakened organ to suffer from its recurrence, and hence there are, at this day, in Malta, numbers who are affected with ophthalmia annually without any obvious cause; others can trace it to damp, cold, dust, &c.; while others suffer in the same manner as Assalini's Maltese servant, who was attacked "every time that he slept in the open air."

In Malta, no part of the island is exempt from ophthalmia; but there are some situations in which it prevails more than in others: the village of Zeitun, for instance, is remarkable for the number of its inhabitants who suffer by it, and for the number of its blind; the great majority of the blind musicians, who perform in the streets of Valetta, are natives of this village. I examined the place and its neighbourhood, but could detect nothing to explain this fact; the village lies on a rising ground about three miles from the sea; but the village of Zabbar, about three miles to the northward, and that of Hasciach, two miles to the eastward and similarly situated, are not remarkable for the disease. Padre Luigi, the master of the school already mentioned, attributes the ophthalmia to the heavy falls of dew which they experience. In 1823, out of ninety scholars under his charge, not one escaped the disease, and many of them had it severely: in the year 1824 only ten children were exempt out of a similar number.

Of the comparative success of the civil practitioners of Malta in ophthalmic cases, I am unable to speak. I am not aware that their practice differs essentially from that adopted in our own hospitals during the first stage of inflammation. By what I have learned from them, the disease among the natives is much more manageable than in military life; nevertheless, the number of blind that are daily met with in the streets

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* See "Assalini on Plague," translated by Neale, pp. 118, 126; Larrey's "Mémoires de Chirurgie Militaire," tom. i. p. 203; Desgenette's "Histoire Médicale de l'Armée d'Orient," 2d part, p. 90; Russell's "Natural History of Aleppo," 2d edition, vol. ii. p. 299.

seems to countenance the idea, that the success does not bear a very flattering proportion to the frequency of the disease.

During the whole of the first winter the French army passed in Malta, their soldiers suffered extremely from night blindness; the succeeding year, however, the complaint existed, but in a very trifling degree*.

Bowel Affections.—Next to fever, the most prevalent diseases among the natives are affections of the bowels and pulmonary complaints.

The number of deaths under the heads "Diarrhœa" and "Dysentery," bear a very large proportion to the total mortality; in six years they have amounted to nearly a seventh of the entire.

Pulmonary Affections.—The deaths by pulmonary affections are also very numerous; they are classed under six different heads in the bills of mortality, viz. cough, consumption, hæmoptysis, phthisis pulmonalis, pleuritis and pulmonic. If we even deduct the vague class of "consumption," we find the remainder very numerous, and the mortality occasioned by cough and phthisis pulmonalis alone, will of itself satisfactorily prove the great error of sending phthisical patients to this climate from England, under an idea that phthisis is rare, or continuing them here when their disease is once developed.

In the following table is given a summary view of the deaths by pulmonary affections for six years among the natives, exclusive of the deaths in the hospitals.

Summary View of the Deaths by Pulmonary Affections among the Natives, throughout the Island of Malta, from the Year 1818, *to the Year* 1823 *inclusive.*

Class.	1818.	1819.	1820.	1821.	1822.	1823.	Total.
Cough.....	15	76	38	54	209	116	508
Consumption.....	143	91	122	173	373	220	1122
Hæmoptysis	8	7	5	4	5	7	36
Phthisis Pulmonalis...	78	67	63	85	90	67	450
Pleuritis.....	8	5	16	8	9	3	49
Pulmonic	50	33	37	31	30	30	211
Total.....	302	279	281	355	716	443	2376

* Boisgelin, vol. ii., p. 142. Assalini, p. 127.

In the civil hospital, the admissions from pulmonary complaints are numerous, and the proportional mortality considerable, as appears by the following table :—

Summary View of the Admissions and Deaths from Pulmonary Complaints in the Civil Hospital of Malta, from 1821 *to* 1823 *inclusive.*

Class.	Males.						Females.						Native Soldiers.						Remarks.
	1821.		1822.		1823.		1821.		1822.		1823.		1821.		1822.		1823.		
	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	
Cough and Catarrh	99	25	90	14	90	22	71	14	69	10	53	8	2	..	2	..	1	..	Total admissions...731
Consumption.....	4	2	..	..	3	2	9	6	6	5	5	3	..	..	..	..	..	..	— deaths.....180
Hæmoptysis.....	12	1	8	2	15	1	6	..	5	..	9	1	..	..	..	..	..	..	— proportional mortality, 1 in $4\frac{11}{180}$
Pleuritis.....	19	..	19	2	14	..	10	..	13	12	17	1	1	..	1	..	1	..	Mortality of males, 1 in $4\frac{41}{91}$
Phthisis Pulmon...	4	4	1	..	7	5	7	4	7	5	11	6	..	..	..	..	..	..	
Pulmonic.....	7	4	9	4	4	3	5	4	6	5	9	5	..	..	..	..	..	..	— females, 1 in $3\frac{41}{85}$
Total....	145	36	127	22	133	33	108	28	106	37	104	24	3	..	3	..	2	..	— soldiers. No deaths.

The rarity of pulmonary affections among the native soldiers is striking. There appear to be two reasons for this: first, the selection of soldiers is made from the healthiest young natives; and when unfit for duty as soldiers, they are at once discharged, and replaced by sound, healthy men; and secondly, they have no night duties on the works to perform, nor are they subject to drills, &c. as British troops are; indeed, all the diseases of these men are slight and simple, consisting principally of fever, venereal and ophthalmia.

Without reckoning at all on the deaths under the head "Consumption," we perceive, by referring to the first of the above tables, that the diseases purely pulmonic have formed nearly one-eleventh of the whole mortality among the natives, and of this proportion phthisis pulmonalis has given more than one-third.

This fatal disease, as it occurs among the natives, is rapid in its course, and, as in Italy and other parts of the continent, it is considered, both by the medical men and the inhabitants, to be contagious; hence the greatest precautions are taken to purify the chambers of the sick, while the bedding, which they have used during their illness, and all the furniture of their rooms, are invariably burned.

The village of Zurrico, which lies high, and the air of which

is dry and pure, is reputed to be a very unfavourable situation for persons with diseased lungs, and, I apprehend, not without reason. One-tenth of the deaths under the head "cough," occurred at Zurrico; and, on summing up all the pulmonary diseases, a twentieth of them appears to have taken place there—certainly a striking proportion.

Of the other classes of diseases I need say little or nothing; they do not bear such a proportion as to entitle them to be ranked among the endemic or prevalent.

Tænia and other worms are so frequent, that they are scarcely considered sources of disease. The inhabitants assert, that they are much more subject to intestinal worms of all kinds now, than formerly; and they attribute it to their supply of corn no longer coming from Sicily, but from Odessa and Egypt, the grain from which places, they imagine, contains the germ of the worm.

Convulsions and other infantile diseases are extremely frequent among the children, and carry off great numbers.

Hernia is a disease of such common occurrence, that a surgeon in full practice has estimated, in conversation with me, that nearly one-third of his acquaintance were affected. Hydrocele is also a very common disease.

Affections of the liver are very prevalent, under various forms, although not so generally fatal as the other classes of disease. I am informed, by a most respectable private practitioner, that the number of liver complaints which fall under his notice, are more numerous than any other class of disorders, and that they are increasing in frequency.

Stone in the bladder is occasionally met with, and it is remarkable, that it has been found to occur chiefly among the inhabitants of the village of Birchircara: this village lies rather low, at the head of the valley of Missida; a fiumare runs through it, but there appears to be nothing peculiar in its waters.

The winter of 1798, and the first eight months of 1799, were peculiarly unhealthy, and fatal to the inhabitants of Valetta and to the French garrison. What were the prevalent diseases I know not; but between September, 1798, and August, 1799, no less than 2468 of the inhabitants and 555 of the garrison were cut off. The population at the time was much diminished,

but the severe privations consequent on the blockade, doubtless, contributed to the mortality*. In the country, also, the ravages of disease were frightful, but its nature was better ascertained than within the walls: by all the accounts which I can collect, it was low typhus, having its origin in bad and deficient food, anxiety of mind, fatigue, filth, and poverty. This disease continued to spread long after the French had evacuated the island, and it has been stated to me, that, from first to last, not fewer than 20,000 lives were lost. I have not been able to procure any authentic written documents on the subject.

EPIDEMIC DISEASES.

Small-pox has, for some years past, been unknown in Malta. Measles, however, are of frequent occurrence, and varicella and scarlatina occasionally appear. In 1824, scarlatina anginosa, and measles, were very prevalent, imported, as it is generally supposed, by the 95th regiment, a newly raised corps, just arrived from England †.

PLAGUE.

The most important epidemic which has ever appeared in Malta, is the plague. The position of the island so close to the Levant must have always rendered it liable to the contagion, and nothing but the strictness of its quarantine regulations could have preserved it from frequent visitations of this awful scourge. I shall merely enumerate those plagues which have occurred previous to the year 1813; and upon it I shall only offer, at present, such observations as I conceive appropriate to a report of this description.

The earliest plague noticed in the annals of Malta occurred in the year 1519; towards the end of the same century, in 1593, the disease again appeared. In 1623 it occurred again, but no more than forty persons fell victims to it; in 1663 it

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* Boisgelin, vol. ii., p. 142.

† See "Disease of the Troops" for some notices on Varicella.

reappeared, when only twenty persons were cut off; in 1675 a dreadful plague ravaged the island, of which not fewer than 11,300 died. After this event Malta continued free from plague until the year 1813, an interval of one hundred and thirty-eight years. How the contagion was introduced at that period, is a question which is involved in great obscurity; even at the commencement of the plague, and throughout its progress, nothing amounting to positive certainty was generally known. The received opinion was, that it was imported in a polacre, the San Nicolo, from Alexandria. Unfortunately for Malta, a question of much more importance was wrapped in equal uncertainty; the nature of the disease was at first unsuspected, and long before the medical and police authorities had agreed as to the real existence of pestilential contagion, the germ of the disease had developed itself, and plague was making its destructive progress among the people. The San Nicolo, the Bella Maria, and the Nancy, all arrived from Alexandria on the 29th of March, 1813, with foul bills of health, in consequence of the plague raging in that city at the time of their departure. Two of the crew of the San Nicolo died on their passage after being suddenly seized during the voyage with violent symptoms of a pestilential disorder, which as suddenly terminated their existence. The Nancy came into port with two of her crew labouring under very equivocal symptoms, generally believed to be plague; and the captain of the Bella Maria deposed at the health office that he had lost one of his crew from plague previous to his quitting Alexandria *. Of the two last vessels, we learn nothing more; but the unfortunate master of the San Nicolo died very suddenly in the Lazaretto on the 1st of April. On the 16th of that month the first suspicious case of disease among the inhabitants was reported to the Proto-Medico, by a Maltese physician; it occurred in the family of a shoemaker, who was supposed to have smuggled some linen from on board the San Nicolo. I purposely omit, at present, a number of minor particulars, published by authors who have written expressly on the subject, and many more stated to me in conversation and writing by the best authorities, themselves actors in

* Tully's "History of the Plague," p. 37.

the scene, because I wish to avoid all controversy, and, fortunately for my present purpose, it is not at all necessary to enter upon minute particulars, or refer to facts which are not generally agreed on; suffice it then to say, that a child, (who was the first taken ill,) its mother, and its father, all died in succession, and so many persons either of the family, or who had communicated with it, were attacked, that at length no doubt was left on the public mind that genuine plague was introduced into the island, and was in course of propagation. Accordingly we find, that by the 16th of May, the contagion, which had previously been confined (as far as is known) to the shoemaker's family, and persons who had free intercourse with it, began to diverge in so many directions, as to bid defiance to all attempts at tracing the line of communication.

It is in vain to deny that many gross errors were committed at first, (both by the public authorities and the population,) from ignorance of the real nature of the disease, and from dread of the quarantine police; and it would be equally vain to attempt to conceal, that, after the disease was known to be plague, the best and most active measures were not at once adopted; but how often do we discover in the annals of the plague, that the cool promptitude which we are so ready to admire in theory is seldom exhibited in practice! It requires a rare combination indeed of knowledge, judgment, and activity, to cope with this insidious and deadly foe; and it is rarer still to meet with them all united in an individual who at the same time possesses the authority and vigour to bring them into full unembarrassed action. Such a man was he to whom Malta and Gozo owe the extinction of the plague which ravaged their shores in 1813 and 1814, and who, by a repetition of the same wise measures, was equally successful in other British possessions. It is with emotions of no ordinary kind, that I here insert an extract from a despatch addressed by him to Lord Bathurst, in April, 1819, a document which, I may venture to assert, displays throughout more solid information on plague, than has hitherto appeared even in the works of professional men. "This is a subject," says Sir Thomas Maitland, "upon which I possibly have had more occasion to pay a very deep attention, than any other individual in his Majesty's service,

and it is one upon which I can say, without flattering myself, I have had more practical experience than almost any other person, having arrived at Malta in the middle of the plague, and having since that witnessed the beginning and the end of three different plagues, one in the island of Gozo, one in the island of Corfu, and one in the island of Cephalonia.

"The subject itself is one of a most important nature; for there is no denying that the treatment of plague, under the ancient system, is one attended with a degree of cruelty and tyranny unparalleled in the annals of the world, and only to be defended on the principle of positive and ascertained necessity.

"This system cuts up by the root all those feelings of domestic life which are peculiarly endeared to the mind of man in a moment of sickness and distress; rends asunder all the usual bonds of society, and places the unfortunate patient in a situation of the most desolate isolation, at the moment when the only remaining comfort of life exists in the kindness of natural friends and connexions.

"The quarantine law, too, in the instance of the plague actually existing, is not only most arbitrary in itself, but to the full as indefinite as it is arbitrary; and the whole of the circumstances attached to it are so revolting to the feelings of every man, looked at in any way, that I apprehend that this is one of the principal reasons why, in almost every instance that can be mentioned, this fatal malady is allowed to arrive at a great height before it is even declared to be plague; and in the two great instances of the plague at Messina and Marseilles, we accordingly find that no reliance was placed on its being the plague till it got to that dreadful head that occasioned those miserable scenes which afterwards ensued.

"The same was considerably the case at Malta at the breaking out of the plague, and it cannot be astonishing to any man who has seen it, that even the last dregs of hope must expire, before any society can submit patiently to a system of discipline which can be stated at best as only an inferior evil to the plague itself.

"The quarantine laws under the same system, with the view to prevent the introduction of plague, are attended, in all instances, with evils of great magnitude, and most of all, in

the very serious effects it universally has upon the commercial relations of different countries. It would be most fortunate indeed, if it could be made out that the world had hitherto been mistaken with regard to its causes and its origin."

I shall hereafter have occasion to refer to this despatch on practical points generally; at present I shall advert to some particulars connected exclusively with Malta.

From the commencement of the plague in April to its extinction in November, 4486 deaths took place in the island, of which 1223 occurred in Valetta. The disease was at its height in July, when no less than 1595 individuals fell victims to its ravages. The following was the rate of progression and decline throughout the island :—April, 3 cases; May, 110; June, 800; July, 1595; August, 1042; September, 674; October, 211; November, 53. In Valetta alone the rate of progression was as follows:—April, 3 cases; May, 48; June, 235; July, 616; August, 275; September, 44; October, 2; after which no more cases appeared in the city*. It is a most important fact, to which I shall advert hereafter, that there were certain populous situations where the plague did not make its appearance at all.

The thermometer ran through a wide range of temperature during that period; but the hopes of the people, that the great heats would stop the disease effectually, were disappointed. At the beginning of July, when they found the deaths increasing fearfully, the writers in the public journals attributed the mortality to the strong winds that blew, and rendered July as boisterous as March, but they were soon undeceived. The mercury fluctuated during that fatal month, from 71° to 88°, but the deaths increased; and upon the whole, it soon became obvious that the increase of temperature and the decrease of plague had no connexion in Malta at least†.

Both the inhabitants at large and the professional men reasoned on a fact, which is observed to hold good very generally

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* See Appendix IV.

† The maximum of the thermometer, from April to November, 1813, as observed at the general hospital, was as follows:—April, 71°; May, 82°; June, 84°; July, 88°; August, 86°; September, 83°; October, 83°; November 72°.

in the Levant plagues, viz. that towards the summer solstice, they subside spontaneously and without any efforts of the police; but Malta was not, like Syria and Egypt, the native soil of plague, and by transplanting, it lost that trait of its character. It is a fact well worthy the consideration of those who boldly assert, that climate, soil, and season, have no effect whatever in the modification of plague, that in Asia and Africa, it generally subsides in the hottest months of summer, while in Europe it subsides with the winter cold*. We know that excessive degrees, either of heat or cold, as of a baker's oven, or a Russian frost, will destroy the contagious matter in clothes and other fomites; but as human life could not be long sustained under such extremes of temperature, we must look for other causes, operative under ordinary circumstances. Whether it is, that some specific change is effected on the matter of contagion itself which weakens its powers, or that the human constitution is rendered less susceptible of its effects, are points which have been debated, but on which I dare not offer a conjecture; but, however this may be in other countries, it is certain, that in Malta, neither heat, nor cold, nor any other agent, except the most rigorous police, appeared to prevent the communication or the reception of the disease, from its commencement to its final extinction.

The symptoms of the disease, as far as they were satisfactorily ascertained, were as follow:—Sudden and excessive prostration of strength, delirium, headach, nausea, bloodshot eye of a peculiar muddy, dull appearance, interspersed with points of an unusual lustre; bilious vomitings and stools; hemorrhage from the nose, mouth, and anus; carbuncles, vibices, maculæ, petechiæ; tumors in the maxillæ, neck, armpits, and groins; death within twelve or twenty-four hours, often suddenly, and very rarely was life protracted to the seventh day. The appetite was very irregular; some lost all desire for food; others ate whatever was placed before them; some were quite free from thirst; in others there was the most furious demands for liquids. Instances occurred, whether from

* See Russell's "Aleppo," Prosper Alpinus on "Egypt," and De Mertens "On the Plague of Moscow."

thirst or delirium, or both, of persons being drowned in the wells and tanks, in their eager search after water. The buboes generally occupied the upper glands of the groin; when in the axillæ, they much oftener were observed in the glands nearest the bend of the elbow than higher up. The petechiæ were spread indiscriminately over all parts of the body, and the carbuncles were sometimes accompanied with buboes, and sometimes without them.

Opportunities of feeling the pulse and skin were so rarely obtained, and under such circumstances, that nothing very decisive can be said on them. The pulse is represented as being rapid beyond counting, and the heat of the skin described by the poor sufferers as intolerable. The tongue was usually white; sometimes it was streaked with red, and sometimes quite clean; in fact, the disease was so rapid, the danger of contagion so certain, and the minds of all men so confused and unnerved, that little opportunity for accurate examination of the sick was afforded. The most zealous reporters stated much from observations of a very cursory character, and the nature of the disease was, in almost every instance, judged of by its fatality, and by the appearance of carbuncles, glandular swellings, and livid marks on the skin, viewed at a respectful distance, either during life or after the patient's decease. The horrors of the mind generally experienced by the patients in plague, were most distressing; their dread of the disorder was even greater than the dread of death. The convalescence of those who recovered, was in general extremely slow and tedious, and their emaciation was extreme. Many persons who did not actually fall into the disease, suffered greatly from dread of it; and in them, whether from fancy or reality, severe pains were complained of in the groins and axillæ.

I had an opportunity of conversing with, and examining an individual who had the disease, and afterwards acted as a nurse in the lazaretto for eleven months. He describes his sensations, when he was first attacked, as those of a drunken man, with great prostration of strength and internal heat and thirst. He had a glandular tumour in his neck, about the size of a large tea-cup; the cicatrix of which still remains; it burst on the third day, and he then began to recover rapidly. Out of sixty

persons in the same pest-house with him, only himself and three others escaped; some of them died while eating and drinking, some while crawling about the ward, and some were found dead in their beds. From his own experience, this man is certain, that many deaths were occasioned from want of proper nursing, and the various comforts necessary for the support of the wretched sufferers.

I made some inquiries after plague occurring a second time in the same individuals, a fact, of which, though rare, no man of ordinary information in the writings of the best authors on the subject can doubt*. I discovered one individual, who assured me that it had been the case with himself; but as I could not have his assertion confirmed by his medical attendants, I laid no stress on the case. From an intelligent native surgeon I received some interesting information. He knew of no instance in the plague of Malta, where the same individual was attacked with the disease a second time, but among the Greeks and Turks who were employed as attendants on the sick, and as expurgators, and who, therefore, touched the diseased and their clothes, without precaution, he has seen repeated pestilential eruptions upon their hands and arms, and the glands of their arm-pits swelled to such a degree, and attended with so much pain, as to obstruct their work, and prevent them altogether from performing it. He was much struck with the fact; and it forcibly brought to his mind analogous eruptions, which appear on the breasts of mothers while suckling their infants when labouring under small-pox. How admirable are the arrangements of Providence! Had not the law of nature, which limits plague to one attack in the same individual, been of very general application, and admitting of few exceptions, the safety of whole communities would be compromised, and the comforts of the diseased curtailed still more than they are. Experiments, in cases of plague, are out of the question, but it would be a very interesting subject of inquiry—whether the matter of plague sores, of those who actually pass through the disease a second time, or of those who

* Russell met as many as 28 cases of re-infection in 4400 patients, or 1 in 157. See his Treatise, book ii. p. 190.

are only locally affected, as in the above instances, is capable of propagating the disease in the same manner as the matter taken from those who undergo a second attack of small-pox, or suffer from local variolous eruptions.

With regard to the mode of propagation of plague, much has of late been said—so much indeed as to darken rather than elucidate the subject; nor has this obscurity been solely attributable to the dissenters from established opinions. We have but too frequently to lament, even in those who are correct in their general doctrine, a tone of flippancy and dogmatism in some of their opinions, which by no means harmonizes with the looseness of definition and unqualified positiveness of assertion, into which they themselves have occasionally fallen.

It has been among medical men, I am sorry to say, that doubts have principally arisen on the subject of the contagious nature of plague. This gross and dangerous error in point of fact, has sprung from that most fruitful of all sources of deception—preconceived theory, and it has been aggravated by a neglect of properly defining the terms employed, which is altogether inexcusable, and which has exposed us to no small proportion of ridicule among the better informed non-professional men who have interested themselves on the subject. The slightest acquaintance with books shows us how often the terms "contagion" and "infection" are used synonymously; how often they are employed in senses diametrically opposite; nay, how frequently it occurs that the same author uses them at one time in one sense and at another time in another. I shall not attempt to settle the disputes of philologists about the original meaning of these terms, nor shall I inquire into the causes, which, in the lapse of time, have led to their adoption in different senses by different authors. I shall simply state that I myself apply the word "contagious," to a disease caught *solely* by actual contact with the persons or clothes of the sick. That the plague is of this nature I have not the most distant doubt; but when I find medical men asserting, or countenancing by their assertions, that season, climate, and indigenous causes have *no influence whatever* on the disease,—then I must take leave to differ from them; because I conceive that the whole evidence to be found in medical history goes to prove that

these causes do very essentially aid the *progress* of plague after it has been *once introduced.*

It would be endless to enumerate all the facts on this subject, to be found in authors, or to be collected from daily observation; one or two will suffice. The most ignorant master of a Levant trader knows that, although occasional cases of plague are to be met with at Smyrna and Constantinople throughout the *whole* year, it only spreads at *certain periods* of the year, and that in some seasons it is slight, and in others aggravated. It is also a familiar fact that plague has never been known to occur in polar or intertropical regions; that it appears every year in one country and not in another—nay, that it is annually to be met with in one province of a country, and not in another. In India it is unknown; in Egypt it is a yearly visiter, but it has never been found to pass a certain boundary even in that devoted land *. Whether we shall ever arrive at a proper knowledge of those marked distinctions, and be able to say why a disease, decidedly spread by contact alone, is met with only under one particular range of atmospheric heat, in temperate climates; and why it is at one season active, and at another dormant even in these, it is impossible to determine. Facts, however, will speak for themselves, amid all the incongruities and deficiencies in our modes of explaining them. An author who rarely indulges in flights of fancy, (Dr. Hancock, p. 225,) has well observed on this subject, that "it is as impossible for the Levant plague to spread in America, in its oriental characters, or the true yellow fever in Great Britain, as for the cinnamon or clove to supplant the pine on the mountains of Norway."

Although I thus freely admit the influence of certain extraneous causes on the rise, progress, and decline of plague, I

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* Dr. Bancroft, on the authority of Mr. Bruce the African traveller, says that it *never* comes farther south than the Cataracts. Dr. Wilson, physician to the Marquis of Hastings, assures me that "Beniseuf" is the boundary beyond which it does not pass. Beniseuf is about sixty miles above Cairo; the Cataracts are considerably higher up, near Thebes. Without attempting to settle the exact line of demarcation, I state the general fact.

feel perfectly assured that it never has been propagated, except by contact with the persons or clothes, &c., of those who have laboured under it *; and amidst the deplorable consequences which followed the introduction of the disease into this island, some indisputable facts have occurred which afford as close an approximation to positive proof of the point as can well be expected or offered. I shall limit my account of them to three or four well-known instances.

The town of "Senglea," or "Isola," as it is commonly called, lies on the eastern side of the harbour of Valetta, the distance between the two shores not exceeding three hundred and sixty yards. This town was inhabited by sea-faring people, and among them many old Levant traders, who were well acquainted with the laws of quarantine and the mode of "shutting up," as it is called, practised in Smyrna, Aleppo, Constantinople, &c., among the Frank merchants. By their influence and exertions, and by the instructions of Colonel Rivarola, who lived in the neighbourhood, Isola was hermetically sealed during the whole period of the epidemic, and *no one instance* of plague occurred in it, while the disease raged in the adjoining towns, and in the city of Valetta. Now is it possible that, if the matter of contagion was floating in the atmosphere, it must not have been carried to a point so close to the focus from whence it emanated, and have spread among people fed, clothed, and lodged in all respects as the inhabitants of Valetta, and the other towns were; breathing the same air and exposed to the same heat †? The winds, it may be said, did not set that way; they did; for during the plague months they blew from all points of the compass. The water may have absorbed the matter of contagion; it did not; for the other towns on that side of the harbour were most severely affected. The distance may have been too great; it was not; for a number of towns at a greater distance, though in the

* Possibly, approach to a plague patient, so as to approximate as close as possible without actual contact, may produce the effect.

† Would it not also have affected the shipping in the great harbour, during its passage across? but the shipping in the great harbour was not affected. Two or three suspicious cases, indeed, were observed in seamen who had wandered drunk about the streets of Valetta, and they were of course placed in quarantine.

same line of direction, were affected. The fact of exemption may be misstated; it is not; it was known to thousands and alluded to in the proclamations of that period; and it is handed down to posterity in a manner which can stand the most rigorous test. There are four infallible rules, according to a very eminent writer on the nature of evidence *, for ascertaining the truth of matters of fact in general, "that where they all meet, such matters of fact cannot be false." First, men's outward senses, their eyes and ears must be judges of them. Secondly, they must occur publicly in the world. Thirdly, public monuments must be kept up, and some outward actions must be performed to commemorate them. Fourthly, such monuments and such actions must be instituted and commence *from the time* that the matters of fact occurred; and accordingly we find that so soon as the work could be got out of the artist's hands, a monument was erected in the centre of the principal street in the town of Senglea, commemorative *of the total and perfect exemption* from plague, which that extensive town enjoyed during the whole of the period of the epidemic of 1813, and a religious ceremony was instituted to commemorate the same annually. The inscription on this monument is given below †.

I shall now give an instance of the complete immunity afforded by separation, where the distance between the infected and the sound was reduced to a few feet, and where the contagion was literally at their very doors. I have already observed that the lower parts of the houses of Valetta are generally occupied as shops, stores, &c., or places of residence for the poorer classes of inhabitants. In the lower part of the hospital of one of the regiments quartered in Valetta during the plague,

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* "Short and Easy Methods with the Deists," by Leslie.

† "Deiparæ Virgini nascenti in patronam hujus civitatis sub appellatione Victoriæ, a majoribus singulari pietate suscepta, quod anno 1813 affligente lue Melitam insulam, cives Senglenses indefessa tantæ Virginis protectione ab omni pestis cruciatu illæsi evaserint. In perenne grati animi monumentum, imaginem hanc impensa pii civis Salvatoris Debarro elaboratam et magnifice erectam eidem sospitæ Dei genitrici ex voto dant, dicunt, consecrant, annuente gubernio decreto edito die 17 Julii 1814." Immediately beneath is a notice of ecclesiastical indulgences to whoever recites certain prayers, &c. &c., after the manner of the church of Rome.

there resided no less than seven distinct families in an equal number of separate habitations. The plague raged among these unfortunate people to such an extent, that four families were totally cut off, and of the remainder little more than a fourth escaped with life: the plague raged in every corner of these dwellings, and yet the hospital, which was situated on the upper floor, but whose inmates were kept under the strictest control, escaped all contamination whatever. The heated air and exhalations from the habitations below were in no way guarded against, but had unimpeded access to the windows of the upper apartments, towards which they must naturally have ascended at all times from their greater levity, and into some of which every wind that blew must have impelled them in a state of great concentration. In front of this hospital, it is true, there is a small square or open space, and on one side runs a street (Strada Ponente) of nearly the ordinary breadth; but in the rear it joins a large mass of buildings, and on the western face there is a narrow blind alley only ten feet wide, into which the doors of all the contaminated houses opened, and as these doors were the only means of communication with the external atmosphere, the pent-up space must have been continually filled with the accumulated exhalations from the diseased *. This was not a solitary instance of the residents on one floor of a house enjoying the reward of proper precautions, while their negligent neighbours above, below, and around them, were falling victims to the plague; but it is rendered remarkable, when we recollect how susceptible to all impressions from atmospheric influence, and from disease of every description, the residents of an hospital usually are, under even the ordinary circumstances of military practice.

I shall now advert to a well known case, in which plague actually existed within the walls of a building, yet was prevented from spreading to the whole of the inhabitants by prompt and strict segregation. The convent of St. Augustine is a very extensive building, the front of which opens on one of the principal long streets of Valetta; immediately in its rear another long street runs, and at each side it is bounded by cross streets.

* This is the building alluded to by Mr. Tully in his "History of Plague," p. 257.

Had the original plan been completed, this convent would have formed one insulated quadrangular pile, each of whose faces would have opened, along their whole extent, on a public street. One of the front angles, however, and the lower part of one of the sides, are completely occupied by private houses and shops: a part of the other side is similarly occupied, and the lower story of the back part is entirely laid out in stores, stables, and the habitations of several poor families. Sir A. Faulkner, who notices the history of this convent as connected with plague, states, that it is "situated in a peculiarly healthful, spacious, and airy part of Valetta;" this is not exactly the case. The church, indeed, and the front gate are entered from "Strada Forni," a good street, but the principal inhabited part of the building is in a low situation, "Strada Zecca;" it is erected against the ridge of a hill, and the rear of it especially, in which the monks reside, opens upon the most confined, ill-ventilated, and unhealthy district of the city—the "Mandraggio," already spoken of as a situation where the plague raged with peculiar violence. From the first alarm, the Reverend Padre Maestro Vella, principal of the convent, had maintained the utmost caution in communicating with the public: at length, however, a servant purchased some old clothes in the Mandraggio; he was soon taken ill, and one of the monks volunteered his attendance on him: they were both placed in strict quarantine in their own cells; all the other monks were also strictly segregated in their respective cells; in short, the convent was, by the activity of the ecclesiastic already mentioned, converted into a well-organized lazaretto, the consequence of which was, that although the unfortunate man who was contaminated and his attendant both died almost immediately, the disease did not spread to any other individual within the walls.

The cases were numerous where on the removal of individuals already affected, the remaining inhabitants of a house were preserved. Even in the palace itself one case of this description occurred; it was in the person of the scavenger who cleared out the yards and passages; he was removed to the pest hospital at Floriana, where he died on the 29th October, but no other individual within the walls was attacked, though the greatest alarm was excited.

The last circumstance which I shall notice, was one of the boldest and one of the most successful measures of plague police ever adopted in Malta, or perhaps in any other part of the world; it would be almost sufficient of itself to prove that the disease is not communicable by the air, or in any other mode than by actual contact; for if it were, the project of confining it by stone walls would have been hopeless and absurd, and the subsequent announcement to the public, that the disorder was stopped, would have been highly criminal. In the preceding instances we have seen plague prevented from entering a house, or making any progress after it had entered, we shall now see it hermetically sealed up within a town in which it had made considerable progress.

The casal of Curmi, situated in the valley already described, (page 438) suffered very severely from plague; its inhabitants for a long time neglected every precaution among themselves, and although the disease appeared among them before the end of the month of May, they kept up a constant communication with Valetta until July. In September it was found necessary to send troops into the village, to surround it with a cordon, and soon after to draw lines of circumvallation about it. After this active measure was resorted to, no more cases of contamination were ever traced from Curmi, not even to the soldiers who formed the cordon, and the disease, under proper internal police regulations, received an immediate check; partial cases, however, occasionally appeared in the village, in consequence of the stealing of susceptible goods out of infected houses or stores, and the secreting infected articles by individuals in places that had escaped the vigilance of the police. The cordon was gradually contracted, and part of the village was exempt from all restriction, as the disease became less diffused; but even so late as the 4th December the Governor was obliged, in consequence of the secreting or stealing contaminated goods, to proclaim, that all that part of the casal, which was still within the cordon, should, as far as related to the plague, be put out of the king's peace, and be declared under martial law. So perfectly satisfied was Sir Thomas Maitland of the strictly contagious nature of the disease, that in due time he admitted intercourse for commercial purposes, and gradually restored the

whole island, first to clean quarantine, and at last (on the 29th of January) to absolute freedom of intercourse, with the exception of casal Curmi, which, after being surrounded by a cordon for four months, still continued to be regarded as a lazaretto of the surest description.

His Excellency's own words, which I shall now quote from his despatch, will best speak his opinion on the subject.—"From some cause or other, it (the plague) proceeded to a very great extent before any solid measures were taken in regard to it; but when it got to this head, though precautions had been undoubtedly taken, government most wisely set up a strong executive police, armed with the most ample power to enforce, in the most peremptory and summary manner, those measures which had been already inculcated, but which, till then, had never been enforced.

"From the instant that this police was so established, the returns will bear me out when I say that the number of new cases gradually diminished, till the plague totally died away.

"At the same time, however, that the plague was raging in Valetta, it made its appearance in several of the casals or villages in the country, where, from the pressure in Valetta until the police was established, no fixed measure was adopted for its suppression; and, accordingly, it raged in three of those with great violence: no sooner, however, did the establishment of police in Valetta begin to show its salutary effects, than it was wisely determined to carry the same measures into effect in these different villages.

"An officer was selected, and fifty men sent into the village of Zebug, where the disease had been peculiarly fatal, and in less than a month from the arrival of that party, the plague totally disappeared out of that village; and, what is extremely remarkable, not one single soldier of the whole party was infected with the disease, though actually living in the village itself.

"About a fortnight after, a second experiment was tried; a similar detachment was sent into a village, called Birchirchara, under similar circumstances, when exactly the same result, in every way, followed. In the remaining one, Curmi, troops were also sent in the same way, but the situation of this village

was somewhat different from the others, and being in a very low swampy spot, remarkable for autumnal fever, it had gone very great lengths, indeed, before the troops were introduced; and, although it gradually declined from the moment the troops entered it, it was not totally extirpated under double the time it had taken in the other villages; but here, too, the troops were healthy, and none of them were attacked.

"These are the principal facts relative to the plague of Malta, and which can be proved by the most undeniable documents.

"If this then be true, I would wish to ask, what becomes of all the doctrine of infection upon the occasion *? The sole occupation of the troops was to prevent *contact;* their sole orders were to that effect; every family was shut up in its house, fed at their own doors of a morning, and sent into the lazaretto the moment the disease showed itself; but so far from the atmosphere being presumed to have any effect on it, that they were all forced, not only to expose themselves, but every article of furniture they had, to the effect of external air. The whole circumference in which the atmosphere might have had an effect, was not one of above four miles; and we have, then, this curious phenomenon, that so long as no police existed the atmosphere always remained in the same temperature, and the disease uniformly increased; but the moment a regular police was established, that moment the temperature totally changed, and the disease was shortly and finally eradicated.

"But those gentlemen, who hold out a doctrine of infection, are inclined to say, indeed, as part of their theory, that, with the decrease of the disease, its violence also subsided. To this I paid the greatest attention, and I can prove by authentic documents, that so far from this being the case at Malta, that the last cases were the most violent; and, in the instance of the last hundred, by much the most fatal. I, therefore, certainly at that time, was convinced, that the only mode

* Sir Thomas limits the term "*contagion*" to diseases caught by contact only; the term "*infection*" to diseases communicated by the atmosphere.

of treating plague was to adhere to the principle of contagion ; and of this I think I can give your Lordship a pretty convincing proof,—and a proof, too, that must convince any man, whose mind is not biassed on the occasion ; for I proclaimed, that the plague was finally at an end, and allowed the whole population of Valetta to mix together, the very day that a strong case of plague had taken place within a mile of that city ; but I think you will agree with me, that allowing it to be an infectious disease, in my understanding of the word, that nothing short of perfect insanity could plead an apology for any man's being mad enough to declare that no case of plague would occur ; but so convinced was I of the accuracy of the grounds I was going on, that I issued this proclamation at the very moment I was driving into the lazaretto infected people from its very neighbourhood ; and it is undoubtedly true, that as I proclaimed it, so it happened, for no new case of plague, after I granted free pratique, ever took place.

"I might now, I think, feel myself authorized to state to your Lordship the natural inferences to be drawn from the facts which I have above stated, but I shall defer so doing till I have apprized your Lordship of the circumstances which happened in the three other cases of plague, which have fallen under my particular observation. I shall follow this course, because, though I think I have incontrovertible grounds to go on, even limiting myself to what I have already stated, still your Lordship will find that I am fortified in all my opinions by what I have to advance, in a manner which it is impossible to get rid of.

"At Gozo, the circumstances attending the disease are as follow ; and I think your Lordship will agree with me in the opinion, that we are much more likely to get at the real character of the disease when it is confined within a small circumference, and when we have time and means to attend to its commencement, its progress, and its end, and to follow all its ramifications in the minutest manner, than when it has taken deep root, and we are so overpowered with the extent of the calamity, that the observations we make can only be general on the occasion.

"Either on the 2d or 3d of March, 1814, a report was

made to me, that a case of fever had happened at Gozo, which appeared to be suspicious. I immediately ordered it to be treated as plague, till it was ascertained how far it might or might not be this disease. This, of course, was immediately carried into effect; but, unfortunately, the weather was so violent, that, for the subsequent four or five days, we could have no communication with Gozo. On the 7th of the same month, however, I received intimation, that there was no doubt but that it was the plague, and although I should not be able to prove it in law, yet I have a perfect moral conviction, that it was carried into the island of Gozo, in the following manner:—

"When the cordon of troops was originally drawn round Curmi (the third village I mentioned when treating of Malta), it embraced a space of full a quarter of a mile on all sides beyond the village itself; and this was nearly covered with small houses and gardens. In these houses and gardens the plague had made its appearance, and, of course, the first operation was to expurgate these houses, and send the suspected people to the lazaretto, that we might gradually have the means of diminishing the extent of the cordon, by drawing it round the village itself. This operation was accordingly carried into immediate effect. It appears, however, that one of the persons who had been sent into the lazaretto for forty days, on his being liberated, directly proceeded to his house which had originally been within the cordon, but which was now without it, in consequence of its having been straightened, as above mentioned. This person, it appears, had, before he went into the lazaretto, concealed a small box in his garden, which had passed undiscovered by the expurgators, and which he immediately dug up, carried off to town, and proceeded with it forthwith to the island of Gozo, where he had some relations in the village in which the plague appeared; that he then opened it, and gave what they term a faldetta (a black silk cloak universally worn by the women of Malta) to his relation, from which I do not entertain the smallest doubt the plague was generated in the island of Gozo.

"The moment I received the report of the 7th of March, as

above stated, I instantly sent a detachment of different persons, (who, from their practice at Malta, had now some experience in the treatment of plague,) with the strictest orders to enforce the system I had there pursued.

"The plague had, by this time, shown itself in five or six houses in the neighbourhood of that in which it originally broke out, and in this circumference it was immediately confined. Unluckily, however, the commanding officer, contrary to his orders, I believe from necessity, employed, a few days afterwards, a guard of the *island militia,* instead of the *regular* troops, consisting of seven men, one of whom being a relation, had communication with the infected houses, caught the plague himself, and gave it to the rest of the party, and these again gave it to their families.

"We had now then to begin anew, and to adopt measures against these families. They were immediately seized, put into the lazaretto, and the further progress was immediately stopped, and here the plague of Gozo ended.

"Now, how this can have any thing to do with infection, I am totally at a loss to imagine. This took place notoriously at the very best season of the year. The village itself lies particularly high; we traced every one who had the plague from beginning to end; there was no difficulty in ascertaining how they got it, and as little difficulty in stopping it when it was traced. We held from first to last that it was got by contact, that it was stopped by preventing that contact, and I here again proclaimed that the plague was at an end; and so it turned out."

His Excellency, after some remarks on the plague of Corfu and Cephalonia, goes on to say:—"This is the short but true history of the four plagues to which I have been witness, the whole of which have passed under my own superintendence, been treated according to my own feelings, and declared to be extinguished *according to my own fiat.* It is but fair, however, to say, that I did not arrive in Malta till after the police had been established in Valetta, and until the number of new cases had decidedly very considerably declined."

I shall scarcely be suspected of wishing to underrate the talents and the merits of Sir Thomas Maitland, after having

given such proofs that he possessed both in no ordinary degree, but many exaggerated statements have been from time to time afloat; the decisive measures he adopted to stop the plague at Curmi have afforded a wide scope for the language of unqualified admiration, and the double cordon of troops and the double stone walls have been spoken off as unparalleled even in Grecian story. But the establishment of cordons and lazarettos, in cases of plague, is not novel, and the walling in of a Maltese village is not an Herculean task *. The nature of the soil and surface of Malta is such, that thousands of walls cover it in all directions, and by tearing down or connecting them in appropriate points, not only a double, but a *centuple* line of walls might be rapidly thrown around any given point in the island, and they might be multiplied, if not in regular concentric circles, at least in distinct circumvallations, until the sea put a stop to their future extension. This part of the plan was devised and ably executed by the Inspector-General of Police, Colonel Rivarola, but the energetic measure of proclaiming the plague extinct, when it was once shut up within these lines, was adopted by him who had the power to order the execution of the subordinate means—it was for this he deserved the meed of praise, and for this he was not unwilling to accept it.

Every rational precaution, I believe, which human skill could suggest to prevent the introduction and propagation of plague into Malta, has, from that period, been in force, and is fully detailed in the Appendix, under the head "Plague Police." There are, however, a few prophylactic means which have been proposed by medical men, and which were partially adopted during the existence of the disease.

The first of these was oil-skin dresses; these dresses were composed of a jacket, trowsers, gloves, and hood for the head; but they produced such profuse perspiration, that Dr. Calvert and many other medical officers who did duty in the hospital, threw them off altogether. The forzati or convicts who carried out the sick, the dying, and the dead, from the infected houses, also threw them off, and would use no precautions whatever;

* See especially the work of Cardinal Gastaldi, "De Avertenda et Profliganda Peste," folio, published at Bologna so far back as the year 1684.

hence great numbers of them perished. The most intolerable part of their duty was the wearing these dresses, which exhausted them to the lowest degree *.

The fumigations with the mineral acids were much employed, but were not found of any use.

Camphor was considered as a preventive, but without good grounds †.

The employment of a tobacco leaf between the fingers of the attendant and the wrist of the patient was used, it was thought with the effect of preventing the communication of the disease; nevertheless the person using it was always placed in quarantine as a necessary precaution.

Oil frictions were had recourse to with considerable advantage. Dr. Faulkner, indeed, states, that "notwithstanding the extravagant terms in which oil has for some time been extolled for its preventive powers, there was a superabundance of proof in Malta that it is by no means entitled to so high a character." "The facts," he remarks, "upon which this opinion is founded, are not limited to my own observation only, but confirmed by the experience of *every intelligent* observer from whom I could obtain any satisfactory information ‡."

I am particularly averse to criticising Dr. Faulkner's book, but in points of practical importance like this and a few others which I shall have to notice, it is indispensable that I should do so. On the present occasion I cannot avoid observing, that Colonel Rivarola, the Inspector-General of Police, one of the *most intelligent and best informed authorities*, has given me his assurance that he *entirely dissents* from this opinion; indeed, he admits that the greater part of the Sicilians who came to Malta for employment in the service of the sick, perished, (as

* These dresses were used with eminent success at Marseilles in the plague of 1720; they are called "Sarrots," and were issued at the expense of Government. See "Journal of the Plague at Marseilles, by Pichatty de Croissainte," 8vo. London, 1721, p. 11. Mr. Green, the principal medical officer of the British staff, used them in all the Military Hospitals of Malta, and they were very generally employed throughout the island.

† In the Malta Journal of June 9th, 1813, there appeared an advertisement from a druggist, giving to camphor the most unqualified praise.

‡ "Treatise on the Plague," p. 231.

stated by Dr. Faulkner,) although in the practice of inunction before engaging in their perilous duties, yet he says that this practice was not had recourse to *daily*, as the Doctor states; on the contrary, they frequently omitted it, and to this omission Colonel Rivarola attributes much of the mortality among them. The same reason which occasioned almost every individual to throw off the oil-skin dress after some time, forced these unfortunate creatures to omit the oil frictions, viz., the profuse perspirations they produced.

Besides the authority of Colonel Rivarola, we have a published document from Mr. Green, the head of the medical department upon the spot, in which he states, that he did not know of a single case where an English soldier, who had anointed himself with oil, had contracted the disease while employed about the sick and dead; he further states, that he had daily examples of families escaping by means of the oil frictions, although sleeping in quarters occupied by persons who had perished of the disease; and without any hesitation he asserts, that he is fully convinced of the benefits resulting from them, as preventives against the plague. This communication appeared in the "Malta Journal" of the 25th August, 1813, and in that of the 4th of the same month an anonymous communication to nearly the same effect was published, with extracts upon the subject from various authors.

It is apparently inconsistent that Dr. Faulkner, at page 150 of his book, praises oil-skin dresses, the benefit of which was, in his opinion, not a little aided by the profuse perspiration which they produced, and yet at page 231 he states it as his opinion, that the profuse perspirations occasioned by oil frictions were hurtful.

Vaccination was looked up to at one period in the Mediterranean with all the enthusiasm of hope, as a certain preventive of plague, but it failed altogether to preserve those inhabitants of Malta who had undergone the operation only a very short time before the disease broke out. This might, indeed, be naturally conjectured *à priori* by any cool reasoner—for smallpox itself was never known to afford immunity from plague, and it was rather too extravagant to expect more from vaccination. The idea merits attention, chiefly from the evil it pro-

duced in the Levant, especially at Constantinople, some years ago, when a preservative pomatum, composed of vaccine and plague matter, was privately vended, and by all accounts produced great mischief by spreading the plague more extensively*.

The false hopes inspired by such prophylactics as perfumes, &c. &c., are most dangerous, and it should ever be laid down as an axiom, that the only true preventive against plague is to avoid actual contact, and as much as possible even a near approach to the sick, or to any persons or substance that have been about them. I shall here offer some further illustrations and remarks upon this subject.

The following is a very striking fact, and shows that while other concomitant diseases are communicated by atmospheric influence, plague, happily for mankind, is amenable solely to the law of contact; although the case did not occur in Malta, I think it worthy of recording here. The Rev. Mr. Jowett, my informant, was in Cairo during the plague of 1819, and shut up in the house of Mr. Salt, the Consul-General. The key of the door was constantly in his possession, or that of his host; no persons were admitted within the walls, and all inquiries were answered, and all food, &c. received under the immediate inspection of these two gentlemen. At this period the measles also existed in Cairo, and after some time a child in Mr. Salt's house was seized with them; but while the measles, a disease of an infectious nature, and communicable by the atmosphere, was introduced, every individual in the establishment escaped the plague!!

In Mr. Salt's house the utmost precautions were taken, and the cats and all other domestic animals were sent away or

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* An account of this pomatum is given by Dr. Granville. In speaking of the proposals for inoculation of the plague, Dr. Granville says, that Samoilowitz was the first that *proposed* it, and Desgenettes the first who *executed* the proposal. He is wrong in both these assertions. The proposal was made by Vespremi in 1755, in his "Tentamen de inoculanda Peste." It was again proposed and executed by an army surgeon in the service of Russia, Mathias Deggio, who performed the operation on himself at Bucharest in the year 1772, took the plague on the fourth day, survived, and was ever afterwards invulnerable to the disease. See Guthrie, in Dr. Duncan's Medical Commentaries for 1781-82, vol. viii. p. 348.

destroyed. I have no doubt that in the great majority of the cases of plague occuring among persons strictly shut up, and charged upon the atmosphere, have been introduced by domestic animals, and the remainder by negligent or dishonest servants. The following I know from the Inspector-General of Police to be a correct statement. While the plague raged in Malta a Greek merchant shut himself up very strictly, and long escaped the disease; at last, without any human being having entered his doors, he was seized with plague and died. From the nature of the roofs of the houses in Malta, the inhabitants spend much of their time on them; in many situations they can converse with their nearest neighbours, and frequently can see what passes on the more distant terraces. It so happened that the merchant's house, which was in Strada Ospedale, was thus circumstanced: he was seen from a neighbour's roof to go down from his terrace, on which he usually lay, to attend some domestic concern; while absent, a cat was observed to make its way from an infected neighbourhood over the house tops and to lie down on the mattress which the unfortunate man had just left; after some time he returned, and the cat, frightened by the noise, made its escape unnoticed by him; the inference was, and it was a very natural one, that the contagion was communicated to him in this way.

The opinions of the very ingenious Professor Assalini, on the non-contagious nature of the disease which appeared in the French army in Egypt and Syria in 1798 and 1799, are too well known to be here recapitulated. I think it proper, however, to state, that in the winter of 1821 I had an opportunity of conversing with him in Malta, when he candidly avowed to me that he believed the plague to be contagious. I spoke to the Professor for some time on the definitions of contagion; he agreed with me in confining the word to its strict meaning, as connected with contact, and after much discussion on the opinions expressed in his book, he was left with no other defence of the principles contained in it, than the possibility that the disease he saw was not true and genuine plague.

I have it on the best authority, that the Turks, Arabs, and Syrians themselves, are now getting into the habit of taking precautions to guard against contact whenever the plague rages

in their country; and that this judicious measure is gaining ground daily among them. It appears, by reference to their history, that before the age of the impostor Mahomet, the doctrine of contagion was held by them; but he rejected this doctrine as sinful, and referred all events to a predetermined arrangement by the Almighty. Plague, especially, the Arabs consider as a settled point, and the name they give it, "Alamer," is quite expressive of their opinion; it means, according to Dr. Good, "the mandate decree, or fate;" at present, however, they do not scruple to quote a saying by Omar, Mahomet's successor, in justification of their precautions: "When a man," said he, "is *actually* in a furnace, he should be resigned; but when he is *out of it*, he should keep so."

In the plague of Malta of 1813, several instances occurred in which there appeared no susceptibility to the effects of the contagious matter. In the manuscript of Mr. Naudi, mentioned in the Introduction, several cases are stated in proof of this. In one, a woman held her dying husband in her arms. In another, the husband nursed his dying wife and children with perfect impunity; and several instances occurred in which children sucked their dying mothers, and lay infolded in their arms, without contracting the disorder from them. These, I think, are conclusive as to the fact that some of our ordinary diseases, as typhus, small pox, measles, &c., are in many instances more readily contracted by contact with the diseased than even the plague. It was observed by the author of the manuscript, that no peculiar or heavy smell emanated from the bodies of his patients, as in small pox, typhus fever, and other diseases of a similar character.

In studying attentively the history of pestilential epidemics, we find that, although the exact nature of the constitution of the air, as it is called, for want of a more appropriate form of expression, may escape our cognizance, yet that certain deviations from the ordinary course of concomitant or antecedent circumstances, are, in many instances, clearly distinguishable.

I do not feel myself authorized to enter into the question, whether these deviations are necessary precursors, or accompaniments of plague; but I speak of them as matters of fact, and I introduce the observation here, solely with a view to

supply what appears, to me, to be a deficiency in the printed works on the plague of Malta, which have hitherto been given to the public: in none of these do I find satisfactory notices of the state of the weather, or of the public health, for some time previous to the breaking out of the plague; and although I cannot, to its fullest extent, supply the deficiency, I have ascertained a few interesting facts, which I offer on the authority of Mr. Naudi's manuscript, and of his written answers to some of my queries. From these it appears that no peculiar meteoric phenomena had been observed for some time before the plague broke out; a shock of an earthquake, indeed, was experienced in the February of 1810, but no other from that period. The winter immediately preceding the plague was mild, as was also the succeeding spring; but during the whole period of the disease high winds prevailed; those which were most so, were from the north-west, and it was a coincidence constantly observed, that in those days on which the winds blew strongest, the number of attacks and of deaths were always greatest. The rains in the plague year fell early, and were copious; this, however, caused no alteration whatever in the progress of the disease. For four or five years preceding that in which the plague raged, sudden deaths were much more frequent than ordinary, and during the twelve months immediately preceding, and especially for the last month of the period, the increase was still more observable, insomuch as greatly to excite public observation and alarm. Canine madness, during these years, prevailed with a frequency and violence never before observed, and many individuals perished in a state of hydrophobia. Apoplexies and palsies were increased in a remarkable degree, and intestinal worms, tæniæ, ascarides, and lumbrici, were never so general or so numerous in the memory of man. In this state of the public health, the contagion of plague was introduced and spread among the people. In the towns and villages where the disease was not introduced, and in those where, although introduced, it was soon extirpated, of whatever size they were, either no deaths occurred from other diseases, or they were confined to infants in teething, to debilitated persons, or to those labouring under chronic complaints. Nevertheless, some cases of petechial fever and of

natural small-pox were observed. The latter was, in a manner, exclusively confined to one casal (Zabbar), and here it remained during the plague season, and it continued to rage violently in the village till the spring of 1815. No other diseases were particularly observed concomitant with the plague among the natives. I believe that in the military hospitals the usual diseases were treated, but of this I cannot speak positively, for want of official documents.

I have already stated my unwillingness to enter upon debated ground, but in the present stage of our investigation, I think it necessary to mention, that notwithstanding the confidence which Salvator Borg's package of linen has been spoken of as the immediate source from which the plague was derived, and the precision with which the 14th of April has been fixed upon as the date on which the effects of that cause were first observed, there is reason *for more than doubt* upon the subject. Disease, though not recognised as plague, was in Borg's family on the 2nd of April, and small packages from Alexandria were in common circulation about Valetta, enveloped in their original wrappers and cordage, for a considerable time before the arrival of the San Nicolo, in consequence of the most criminal evasions of the regulations of the lazaretto, insomuch that it is a matter of surprise that the plague did not break out before; for it raged with peculiar violence in different parts of the Levant, with which Malta had, at that time, a constant communication *.

When introduced, we have seen how rapidly the disease spread among all classes, but it was in low, damp, ill-ventilated places, such as the "Mandraggio," in the city of Valetta, already mentioned, (p. 486), that it assumed its most violent and destructive form; the cellars and the mezzoninos seemed to be its favourite places of residence; and as an old resident practitioner remarked to me, in the course of professional conversation on the subject, "it was a disease that seldom

* I state these facts on the written authority of Count Rivarola, the Inspector-General of Police, and Mr. Naudi, one of the hospital surgeons. In a letter now before me, the president of the board of health candidly confesses, that the *only* clue to inquiry, as to Borg's guilt, *was his dying exclamation*,—"Oh! linen, the linen."

went up stairs." Without the walls of the city, also, a similar elective attraction to low, damp places seemed to influence it: witness the devastation at Curmi; and if, as Dr. Faulkner states (p. 153), the neighbourhood of Paoles, at St. Paul's Bay, escaped, the immunity is, I apprehend, to be attributed to the circumstance, that the houses are not congregated into one cluster, but are dispersed along the edges of the marsh, and principally tenanted by the permanent residents of the adjacent villages, who take up their abode there only in particular seasons, and under ordinary circumstances.

With regard to Casal Paolo, Dr. Faulkner justly remarks (p. 96), "that it was long known to be, without exception, the most unhealthful spot in Malta, being situated in the vicinity of wet ground, formed by the tide running up where the shore is flat;" it is true, also, as he remarks, that there were only a few solitary cases in this Casal and the neighbouring one of Zeitun; but when the doctor states this as *very extraordinary*, considering the situation of Casal Paolo, I must observe, that it would have been still more extraordinary if they had occurred in this Casal, for this very simple reason, that it has been for many years *without inhabitants;* it is absolutely deserted, and is known under the name of the "deserted village." In summer, indeed, we see a solitary straggler, or a squalid gardener to watch the fruit of some orange ground, and it was among these the two deaths occurred which Dr. Faulkner notices. Great doubts, too, have been expressed to me, whether these two cases really were plague, or rather, I should say, that it has been positively asserted that they were not, but were occasioned by remittent fever—the produce of the marsh. On this point I can offer nothing with certainty; but the doubts, or rather the contradictory statements, may be reconciled, by recurring to an interesting fact which took place in our army in Egypt. We know, from the best authority, that when the Indian army was encamped near the marshy ground at El-Hamed, the cases of plague were all of the intermittent and remittent type*.

* See M'Grigor's "Sketches," p. 112. Bancroft "On Yellow Fever," p. 565.

I consider it but fair to explain, as far as I possibly can, all the causes which appear to have contributed to exemption from, or introduction of the disease, without reference to their adaptation to any theory whatever; and therefore it is that I have stated these facts, and shall now give a few others on equally unquestionable authority.

Safi, a small Casal on high ground, was free from plague during the whole period of pestilence: its inhabitants were principally sportsmen who live in the open air, and there were no trades, or pursuits of industry carried on in it; hence little chance of the inhabitants mixing in crowds, or visiting the city.

In Curmi, the lowest inhabited ground in the island, all the back houses which supplied the city with bread, and a majority of the gardeners which supplied it with vegetables, were situated. Most of the city porters and carmen, also, resided there, so that it always had a great intercourse with Valetta; hence numerous cases of disease were introduced.

Casal Crendi, which is on low ground, early put itself into quarantine, and cut off all communication, insomuch, that the inhabitants would not permit a single individual of their village to quit it; hence they escaped.

Casal Zebug, which is on high ground, was dreadfully ravaged. It furnished almost all the masons and stone-cutters employed by the government in Valetta; hence plague was introduced into it by numerous channels: it long escaped, until most unfortunately the services of these artizans were peremptorily called for, after the magistrate of the village had restricted them from quitting it.

Here then are causes of exemption, and causes of introduction, entirely independent of soil: none were exempt, whether high and dry, or low and damp, when the contagious matter was once *introduced*, but when it was actually introduced assuredly the deaths were more numerous in the lowest and worst ventilated situations, in proportion to the number affected.

One of the most prominent causes of the introduction of plague into the villages, was the wants of the people, which compelled them to come into Valetta for grain; on these occasions they crowded together in spite of all remonstrance; but

the circumstance did not escape the vigilant eye of the superintendent of police. He stopped the issue of grain in the town, and constructing a machine (which stood till very lately) on the top of the works at Floriana, he opened a new gate in the adjacent curtain, through which the country carts entered, the corn was shot into them from the machine, and they drove off through another gate, without having any communication whatever with the inhabitants of the town, or with each other.

The exemption of the Sicilian corps was perhaps one of the most striking illustrations of the benefits of segregation, and the agency of actual contact, that could be given. Dr. Faulkner states the conclusions, but he does not exactly give the facts their full force. "The Sicilian regiment," he says, "had the good fortune of having only *one* person infected during the whole period of the plague." He then pays a well-merited compliment to the vigilance of the commanding officer, and goes on to notice the peculiar exposure of their situation, "being quartered in the town of Floriana, which for a long time was ravaged with extreme severity, and in a part of it close to streets filled with pestilence and remarkable for their crowding and every kind of nastiness." To this he adds the following note, "I have not been so fortunate as to discover the cause of the importation of the contagion into this regiment. Its sudden extinction is among the clearest proofs of what proper means may effect under active and judicious superintendence." The fact is, that the regiment *had* been quartered in Floriana when the disease *broke* out, but they were afterwards dispersed as guards, and to form the cordon round the infected villages, where they were much more exposed than if they had remained in other barracks, but they escaped to a man. The solitary case mentioned by Dr. Faulkner, did indeed belong to the Sicilians, but he was not at the time with his corps; he was servant to a staff-officer in Valetta, and joined his regiment, into which the disease never was imported, although it was upwards of one thousand strong and had between six and seven hundred women and children attached to it.

It now only remains for me to state in this place, that from the best accounts that could be procured, the mortality was about eighty in one hundred of the whole attacked, whether vio-

lently or slightly. Much difficulty arose in collecting accurate accounts of the numbers actually sick, because the minds of all concerned were in a state of too great agitation to admit of protracted inquiries, and no man would risk his life by going into every house to ascertain the exact numbers taken ill, and the truth of all the reports. Conjecture therefore, but a very plausible one, must be offered in the room of positive evidence. Public notices, it is true, were given of the numbers of fresh cases reported daily, and of the daily deaths. Of the correctness of the latter there could be no doubt—they were 4486; and hence it is reasonable to conclude that the numbers attacked were about 5600*. Dr. Granville, of whose inaccuracies I have already had occasion to speak in my report on Corfu, says that the plague of Malta "cost the lives of upwards of 6,000 inhabitants, in a population of not more than 80,000 souls." We have seen that his statement of loss is greatly exaggerated, and he is in a still greater error as to the population; by a rough census ordered by Colonel Rivarola, at the time, it was found to be between 90 and 100,000.

The process of expurgation so often alluded to in the history of plague, is simple in itself, but numerous additions have been made to it, according to the theory or the habits of those who superintend it. In many instances I have little doubt that these labours have been works of supererogation, and I think it questionable whether, in some, they may not have been noxious. The best plan appears to me to be, first, the free and continual admission of air to all parts of the house and furniture, the removal of filth of every species, ablution of all the wood work, by a strong lye of soap and water, and the

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* See Appendix. I made many inquiries after a copy of the original notices, but in vain. They gave an account of the fresh attacks daily. On referring to a file of the Malta newspapers, I ascertained the contents of several of these notices, but not all, and they are evidently defective, inasmuch as they give a total of seizures considerably below the actual deaths. They stand as follows, May 112, June 810, July 1378, August 826, September 512, October 146, November 34, or a total of only 3828 attacks; while we know *positively* that the deaths were, as above stated, 4486. Upon the whole I am satisfied that the calculation I have given is as close an approximation to the truth as can now be procured.

application of hot lime-wash to all the walls, from the cellar to the garret*; taking care to remove and repair all loose or decayed pieces of plastering. All the drains, necessaries, &c., should be thoroughly cleansed, which may be well done after the grosser matters are removed, by pouring down them the water of the tanks, which, as well as all other reservoirs, should be completely emptied of their contents, in order to undergo a thorough cleansing. The clothing and furniture should be most minutely cleansed, and such parts as are not susceptible of damage from water should be submitted to copious affusions and even boiled in a strong lye when practicable. Books, and all other similar articles, should be placed in the open air, on the terraces, &c., and every decayed, superfluous, or useless article, particularly in the form of rags, cordage, paper, clothes, hangings, &c., &c., should be destroyed. During the plague in this island, a very large sum of money was expended, and most laudably expended, in the work of expurgation, by the government. Immense quantities of susceptible or infected articles, of little intrinsic value, were hoarded up by the inhabitants, and these were either burnt or properly purified, the government paying one-third of the expense; the cost of transport often exceeded the value of the articles, as the expurgating carts to and from the Lazaretto were maintained at an expense of nearly five pounds currency per day each †.

To these precautions were added fumigations of various kinds, mineral and vegetable; those from the mineral acids were very generally used in the public hospitals. The smoke of straw, damped with water, and the fumes of vinegar, were also a very frequent means of fumigation; but the great officinal formula of the Levantine Lazarettos is as follows: it, however, was principally applied to goods, letters, &c.

Sulphur, six pounds.
Orpiment, crude antimony, litharge, cumin seed, euphorbium, black pepper, ginger, of each four pounds.
Assafœtida, cinnabar, sal ammoniac, of each three pounds.
Arsenic, one pound.
All reduced to a fine powder, to which is added raspings or sawdust of pine wood, six pounds; bran, fifty pounds.

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* See Report on Corfu on this head.

† Government proclamation, November 27, 1813.

The inventor of this most offensive and penetrating composition I know not; it appears to have been long in use, for it is noticed by Dr. Russel in his History of Aleppo *. The exposure of clothing to the night air was supposed by many to be the most effectual of all means of purification, and the Turks and other inhabitants of the Levant place the most implicit confidence in its efficacy, which they attribute principally to the operation of the dew.

A regular body of expurgators was organized in Valetta, who marched through the city by beat of drum and sound of bugle, so as to warn all parties of their approach; but one of the most important establishments was a corps of volunteer guards, called the "Guardia Volontaria Urbana," organized by the Inspector-General of Police. They were composed of inhabitants, who never moved out of their own streets, and did duty at the doors and windows of their own houses. Their business was to prevent all improper communication; to see that all susceptible articles of food were immersed in water for, at least, half an hour; that pigeons, fowls, rabbits, &c., were stripped of their feathers and skins; that wine, &c. was received in clean uncorked bottles; that all non-susceptible articles were cautiously examined, and all filaments of thread, wool, feathers, &c. were removed by pincers and burned; that all coins received were passed through vinegar; that all contact with the porters of provisions, water carriers, &c. &c. was cautiously avoided; and finally, that individuals of the family anointed themselves well with oil, as the surest preventive †.

I hope the incalculable importance of the subject will be my excuse for dwelling so long on it, and enlarging on points apparently minute: but many of them are of such value, that I could not omit them, and others are not within the reach of every inquirer; I, therefore, consider it my duty to rescue them from oblivion.

Upon the whole, the history of the plague of Malta furnishes us with the strongest arguments in favour of the theory

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* Vol. ii. p. 381. There are some papers in my possession which after ten years retain the smell almost as fresh as ever; I believe at present they "spare the assafœtida," and some of the other ingredients.

† "Malta Journal," August 4th and 28th, 1813.

of contagion, and justifies, in the most ample manner, the practice of those, who place their sole dependence on prompt and decisive measures of police, persevered in long after the exigencies, which first rendered them necessary, may, to the inexperienced eye, have appeared to cease.

Medicine, generally speaking, is of little avail; but however useful the rules of the physician may be found, under certain circumstances, the old distich should never be forgotten, which, though trite, contains the correct rule of conduct :

" Hoc tria labificam tollunt adverbia pestem
Mox, Longe, Tarde, cede, recede, redi."

HEREDITARY DISEASES. FEIGNED DISEASES, &c.

I HAVE not been able to discover anything peculiar under the head of hereditary diseases; and, although there are, doubtless, many inmates of the hospitals and others, who make the most of their existing maladies, and even feign some which have no existence, I am not in possession of any information which I deem worthy of being communicated under the head of feigned diseases.

BIRTHS, DEATHS, LONGEVITY, &c.

REGULAR registers are kept in each parish, of the marriages, births, and deaths, but they do not afford such ample or exact information as they might, and as I hope they hereafter will, in consequence of some suggestions I have made. In their registers of deaths, it is to be regretted that the ages of the deceased are not classified, which would at once lead us to an accurate view of the longevity of the inhabitants; at present we can only say, that many old people are to be seen in the towns and villages of Malta. In a hot climate like this, the external indications of age increase rapidly, and often give to maturity, and even to youth, the appearance of a much greater advance in life, than they have really made ; but without trusting to these fallacious guides, we have the evidence of Abela, of persons living to 80, 90, 100, 105, 107, and 110 years. He notices one man, a native of Zabbar, who lived to nearly 120 years of age, and preserved his strength, his teeth, and, in part,

the colour of his hair; and another, a resident in the civil hospital at Citta Vecchia, who had completed 120 years, and retained his memory and his judgment. This case is quoted on the authority of a manuscript account of the grotto of St. Paul, composed in the year 1623, by an eminent Maltese physician, Marc Anthony Hasciac, and deposited in the public library. The same author states, that, among the ancient inhabitants, some lived even to an hundred and thirty years of age, which he attributed to the great purity of the air, and their temperate mode of living *.

I could not procure regular returns of births for more than five years; by reference to those I have procured, and by comparing them with the bills of mortality, and the other returns of deaths in the civil hospital, I have constructed the following Table :—

Comparative Table of Births and Deaths among the Inhabitants of Malta, from the year 1819 *to the year* 1823 *inclusive.*

Years.	Mortality.		Total Mortality.	Births.	Increase of Births.
	Throughout the Island.	In the Hospitals.			
1819	2029	367	2396	3687	1291
1820	2297	366	2663	3761	1098
1821	1912	354	2266	3468	1202
1822	2310	356	2666	3219	553
1823	2566	363	2929	3388	459
Total	11114	1806	12920	17523	4603

Thus it appears that the population is increasing upon the whole, though not steadily; the falling off for the two last years is very remarkable; the causes I cannot assign, but I conceive it possible that the great want of employment among the natives has tended considerably to deter them from marriage: it is also possible that the marriages which have taken

* "Malta Illustrata," tom. i. p. 373. See also the "Bibliotheca Maltese" of Mifsud, p. 116.

place may have been somewhat less productive; the mortality, too, appears to have been somewhat greater; but giving full value to each of these causes, it will be seen that the decrease in 1822 and 1823 is still unaccounted for.

EPIZOOTIES AND DISEASES OF PLANTS.

Very little information is to be obtained on the diseases of the lower animals in Malta. The cattle used for food are not reared in the island; and after they are imported little time is left for them to contract disease, for, generally speaking, they are very soon consigned to the hands of the butcher. The government turn a watchful eye to the exclusion of all diseased cattle from the island, and the ports are invariably shut against them, when any contagious disease or epizooties are known to prevail in the countries whence they are imported. In 1818, a contagious disease appeared amongst the cattle in the island of Sicily, as announced by official authority at Palermo; on which occasion no cattle of any description were allowed to be landed in Malta, without a written permission from proper officers, and an inspection by qualified persons, appointed by government, was necessary, after their being landed, previous to their being removed from the point of debarkation. From this praiseworthy vigilance and active exertion on the part of government, little opportunity is ever afforded of seeing diseases of this description in Malta, and the inhabitants by these means, in conjunction with the strict police of the markets, are completely secured from any of those ill effects on their health, which so often result in other countries from negligence as to the state in which animals are when slaughtered for the food of man.

Hydrophobia is far from an unfrequent occurrence among the dogs of Malta, nor is the disease confined to the summer months; in November and December, 1818, considerable alarm was excited upon the subject; and again in February, 1819, as appears by the government notice of that period. In the extremely hot summer of 1820, the special attention of the government was again turned to the subject, and every precaution was taken to avert the expected effects of the heat on

the canine species. No dogs were allowed to range at large in the streets, without being subjected to immediate destruction *.

The winds are the most common causes of the diseases of the vegetable kingdom in Malta. The sirocco, when it blows long in the beginning of summer, is very frequently succeeded by a blight of the corn, and in autumn a similar effect is produced on the cotton: the police, however, is so rigid, that the damaged wheat or other grain is excluded from the market, and its deleterious effects upon the health of man and the lower animals are prevented.

The plants of Malta also suffer severely from a variety of insects of the "Apis" genus; they are also infested by other insects in great abundance, some natives, others said to be imported by the sirocco winds. The most noxious of these is the Hister unicolor. These insects are very abundant in the spring, and are called by the English the "Barbary bug;" they much resemble a bee, but their motions are very torpid, insomuch that they are easily picked off the plants by the hand. The "Hister" greedily attacks the rose, (one of the finest and most abundant productions of the Maltese gardens,) rolling itself up in the flower-caps and luxuriating on the young blossoms; but it is by no means confined to them; it does a vast deal of damage to other plants while in flower. Like some other insects of the coleoptera order, and of the genera Dermestes and Byrrhus, they possess the singular property of counterfeiting death when touched.

The figs of Malta, which, under ordinary circumstances, are a very wholesome article of food, are often diseased, whether from insects or not, is not well ascertained, but under those circumstances they do not ripen properly, and retain a very viscid and acrid juice, injurious to the bowels in no ordinary degree. Under other circumstances the insects materially improve the bulk, flavour, and number of the figs †.

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* Some interesting dissections given by Mr. Warren, in his report for March, 1819, show the existence of worms in the glands of the œsophagus of rabid dogs; the worms were round like earth-worms, and two or three inches in length, but very small in circumference.

† See the different systems of Botany, article "Caprification," and "Boisgelin's Compilation," vol. i. p. 137.

POPULAR MEDICINE.

Like the natives of almost all other countries, the Maltese have a traditionary code of popular and domestic medicine, which, if not infallible in all cases, is in most innocuous; and I greatly doubt whether, in the constitutions of the natives, their own remedies may not be, in many of their less important cases, as efficient as more active measures.

The leading popular remedy of Malta is the oil of sweet almonds; this is quite a panacea, and had recourse to on all occasions; it is a good laxative.

Lemon juice is also a frequent application in domestic practice, especially in disorders of the eyes; and it appears to be a tolerably active stimulant, and useful in certain stages of disease.

The next remedy, though very harmless, is certainly a very extraordinary one; it is the "Aqua distillata catellorum," or puppy water; it is not prepared like Ambrose Paré's celebrated emollient ointment, by stewing down the whelp with oil, but is effected simply by distillation; of course this is no more than distilled water with a very minute admixture of the animal matter, capable of rising in the heat of 212. It is held to be sovereign in frights and the nervous affections of women, or "Scanto," as they are called.

The distilled waters of various plants, especially of the "Sambucus," are very favourite domestic remedies in febrile diseases, as diaphoretics.

The acrid milky juice which exudes from the branches of the fig-tree when cut, while the sap is in motion, is employed, and very successfully, for the removal of warts and other excrescences. This fluid coagulates milk, but will dissolve the curd after it is formed, if allowed to remain on it.

The absorbent earth found in St. Paul's cave is much used in popular medicine, but its efficacy is considered to depend more on the miraculous interposition of the saint, than on its power of neutralizing acidity. This cave is hollowed out by art, in a soft calcareous rock, into a natural fissure or excavation of which St. Paul is reported to have entered after his landing. The primitive Christians of the island used it as a

church, and still the entrance serves as an occasional place of worship *. The earth is absorbent, and it is used in all cases attended with acrimonious humours, and as a specific in fevers. There is a circumstance connected with this earth which is deemed miraculous, but is, I apprehend, to be accounted for on natural principles; it is said to be constantly regenerating. This, I imagine, proceeds from the exposure of the cave to the action of the atmosphere; the absorbent earth swells by the moisture it imbibes, and when one layer of the surface is removed, another comes into contact with the atmosphere, and its texture loosens and swells out as the preceding layer did, after the manner of slaked lime; the same phenomenon is to be observed in various other places.

Another popular remedy is the sand-bath. This remedy is chiefly used for rachitis and pertussis. The practice is generally confined to the summer months, and to the bay of St. Julians, a short distance from Valetta. The patient is kept in the pit closely covered up with sand for different periods from ten minutes to half an hour, a copious perspiration is produced, and is kept up by the use of diluents and artificial warmth, after which a cordial is administered. It is said to be occasionally effectual.

The corallina is not only a popular, but a very efficacious remedy for worms.

The fungus Melitensis is now fallen into disrepute. This substance abounds on a rock on the coast of Gozo, and on the neighbouring cliffs; it was formerly the exclusive property of the Grand Master, who sent it in presents to foreign princes, and distributed it to the great hospital, to the knights and inhabitants, as a sovereign remedy in almost all diseases, but especially in those requiring a powerful astringent. This substance is also found in other parts of the Mediterranean at Tunis and some of the neighbouring islands, and at Leghorn and Pisa.

I am indebted to Staff-Surgeon Tully for the information

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* The village of "Nasciar," or, as the Arabic word signifies, "of Nazarenes," (the contemptuous epithet bestowed upon the Christians,) was the first Christian village in the island, and is not far from this cave.

which he has collected for me on these two last remedies, and I extract and abridge from his report the following account of them.

"*Corallina Officinalis* of Linnæus. It is apparently of a fungous texture; its colour, when fresh, is a pale red, but when dried, becomes much darker. The smell strongly resembles that of the common sea-weed; it is composed of many tenacious fibres springing from one common base, and so intermixed with each other as to form compact bunches; when immersed for a short time in water, the different fibres are distended and separated from each other—when taken in any quantity in its fresh state, it is apt to excite nausea; it is gritty, and when chewed, gives out rather a nauseous taste. It is found among the rocks on the sea-shore of Malta and Gozo, on the shores of the Ionian islands, and many other parts of the Mediterranean. Ellis and other naturalists have clearly proved the Corallina to be the cretaceous habitations of a species of polypi; and Linnæus, who at first classed them among the 'Cryptogamia,' subsequently considered them as Zoophytes, and as such described them in his 'Systema Naturæ.'

"In the first volume of Fourcroy's 'Médecine éclairée par les Sciences Physiques,' pp. 85, 86, we find Bouvier's chemical analysis of the 'Fucus Helminthocorton,' the name given it by Tournefort.

"Experiments similar to those of Bouvier's were made during my residence in the Ionian islands, by Dr. Dellaporte, of Cephalonia, and the result in both instances was as near as possible the same. According to the analysis of Bouvier, one thousand parts of the fucus yielded—

1st, Gelatin	602
2nd, Sulphate of lime	108
3rd, Woody fibre	109
4th, Muriate of soda	92
5th, Carbonate of lime	72
6th, Phosphate of lime	2
7th, Carbonate of magnesia	5
8th, Oxide of iron	5
9th, Silex	5
Total	1000

" So far back as 1775, experiments were made in the military hospitals of Corsica, to ascertain its efficacy as a vermifuge, and the great success that followed the practice, induced the surgeon of one of the military hospitals of the island, M. Paologreck, and an apothecary of the name of Fleurii, to recommend it to more general notice; the consequence was, that it received many trials in various parts of Europe, and continued for some time to be an acknowledged remedy for worms; however, it soon fell into disuse amongst the profession, but not so amongst the lower classes, who, from the first discovery of its efficacy, have invariably continued its use.

" Both in the Ionian islands and Malta, the Corallina is now almost the only remedy recommended by the native physicians as a vermifuge, and many military surgeons have resorted to it with good effect, these last confining its use chiefly to females and children; for the latter it is found to be a mild and safe remedy, particularly if its use is preceded by a brisk purgative, the mode I have always adopted. For the expulsion of the tape-worm it is of no avail whatever, as I have frequently seen it given for this purpose, without producing the smallest effect.

" One of the great advantages of the Corallina is, that it may be administered in any form. In the Ionian islands it is given in powder mixed with the yolk of an egg, in the quantity of from half a drachm to two drachms to a dose, repeated for several days according to circumstances: this is considered as the most efficacious manner of exhibiting this medicine, although it is frequently prescribed both in infusion and decoction, and as often taken in its natural state, fresh from the rock, as well as with oil in the form of salad. Independent of all these forms it is frequently used by the Maltese fried with garlic. The doses above mentioned are the smallest quantities resorted to; the quantity is increased according to age and strength, and many even exceed an ounce and a half without producing any ill effect.

" Linnæus, in his 'Amœnitates Academicæ,' notices the fungus 'Melitensis,' and names it *Cynomorium coccineum*. The growth of the fungus is observed to commence about the middle of December, and in general it is fit for gathering the

latter end of April; when fresh it has somewhat of a scaly appearance, and rises from six to seven and eight inches in height from the stem; the form approaches to the cone, and in substance resembles very much the common mushroom; the colour upon the rock is grey, but changes many shades darker upon being removed and dried; the taste is not only strongly astringent, but also mucilaginous. It is asserted that the fungus, which is allowed to remain upon the rock, regularly runs to seed, producing the following autumn a fresh supply, thus affording annually two complete crops.

"The mode of preparing the fungus for medicinal purposes, according to Abela, was as follows:—After being well cleaned and freed from all extraneous substances, a certain quantity was put into an earthern vase, closely covered; the vase was then put into an heated oven, where it was kept until the fungus was supposed to be sufficiently dried for pulverizing, it was then powdered in a marble mortar, and sifted; the powder was infused in old wine and given in this form. The Maltese physicians prescribe it in doses of from half a drachm to a drachm, mixed with honey, in the same diseases for which it was formerly given, and ascribe considerable virtues to it, in cases of menorrhagia."

STATE OF PHYSIC AND SURGERY.

Physic and surgery are not on a lower footing in point of respectability in Malta than among the Continental nations in the neighbourhood. No person can practise the profession of a physician, surgeon, apothecary, or druggist, without application being made to the government, with a regular certificate as to the character and abilities of the applicant. This application formerly came through the Proto-medico, but at present the right of granting it is vested in a medical committee of five persons, of which the Police Physician is a member, and the Superintendent of Quarantine president *.

There are several native members of the profession settled in the island, and a few English and other foreigners. The prin-

* Government Minutes of 18th June, 1814, and 28th March, 1821.

ciples of the native practitioners are a sort of mixed Brunonian; their practice, however, as compared with ours, appears peculiarly inert; the administration of diet drinks, gentle purgatives, and a few simples of little active power, comprise the principal part of their practice. Blood-letting, to the extent that we employ it, they hold in great abhorrence, and with them the abstraction of six ounces is an ordinary bleeding. The people themselves are so wedded to old practices and established usage, that the physician who should attempt any innovation in this respect, would assuredly be left without any subjects to practise upon. Their surgeons are steadily attached to all the old modes of dressing and operating, and admit of little or no innovation: their surgery is about the age of Heister. Their apothecaries are expert in the various pharmaceutical operations. Their pharmacopœia is principally that of Brugnatelli, but the Edinburgh Pharmacopœia is followed in the Civil Hospital practice.

It is not to be supposed that all their medical men are in the dark; some of them of my acquaintance are well informed, and I believe well inclined to communicate their information to their brethren; and in the hospital, modern medical and surgical practice is lectured on and exhibited by the Professors Grillet and Portelli in an able manner.

The fees of the native medical men of Malta are not very liberal. I annex a schedule of them, as regulated by government; the English and other foreigners settled in the island expect a very different remuneration; and hence the natives seldom call them in, except in rare and desperate cases, contenting themselves with the economical aphorism, "that the Maltese doctors best know Maltese diseases *."

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* The following is the schedule alluded to, it is dated March 28, 1821:—

For a visit by day in Valetta, or in the Professor's place of residence, 6 taris (the tari equal to 1¾*d.* sterling).

For a visit when accompanied with another Professor, 1 scudi 6 taris (the scudi equal to 1*s.* 8½*d.* sterling).

	Scudi.	*Taris.*
Ditto, between ten at night and four in the morning	2	6
A consultation by night 5 scudi, ditto by day	2	6
For applying a blister, and dressing the same	1	3
Bleeding, cupping, or applying leeches	0	6
A visit from Valetta to Floriana, or to the Marina	1	3
Ditto ditto, by night	3	0

I refrain from any observations on this official schedule, which speaks sufficiently for itself, especially "the complete mercurial course." Some of the more distant casals, a visit to which amounts to 6*s*. sterling, are from eight to ten miles from Valetta!

Formerly the Order of St. John sent young men annually to study in Paris, as the Russian government sends them to Edinburgh; at present this is not the case, and many take their degrees without ever having left their native island.

The candidate must have attended the University four years, and heard lectures on Anatomy and Physiology, Theory and Practice of Physic, Chemistry, and Botany; the latter, however, is not deemed indispensable. They write a thesis in Latin, and undergo a private examination in Italian, and a public one in Latin.

VACCINATION.

Vaccination is universally practised and enforced by law. The small-pox has been unknown for several years past, and not an instance of death by it appears on any bill of mortality I have seen or could procure. The stock of virus, however, often runs low, and is obliged to be supplied from England or the continent. It is a fact perfectly well established, that vac-

	Scudi.	*Taris.*
A visit when accompanied by another professor	2	0
A consultation in the above places	3	0
A visit from Valetta to Cospicua, Vittoriosa, or Senglea	2	6
Meeting a professor in those places	3	0
A consultation in those places	3	9
A visit from Valetta to Zabar, Luca, Tarxien, Curmi, Birchircara, or Missida	3	0
Meeting a professor in the above places	3	4
A consultation in the above-named casals	4	0
A visit to the more interior casals	3	6
Meeting a professor in the said casals	4	0
A consultation in the said casals	5	0
The introduction of the catheter	2	6
The reduction of hernia	3	0
The operation for dropsy	2	6
Other operations, such as amputation, &c., shall be submitted for the consideration of the Medical Committee.		
For a medical or surgical certificate	1	3
For a consultation in writing	2	6
The cure of a simple syphilitic complaint, if the patient goes to the professor's house	5	0

A complete mercurial course to be charged according to circumstances. Dressing wounds, bandaging and unbandaging fractures, shall be submitted for the consideration of the Medical Committee, to be decided upon according to the circumstances and time employed.

cination performed while the sirocco winds prevail often fails. Small-pox inoculation fails also while the harmattan wind of Africa blows.

EMPIRICS.

MALTA is fortunately exempt from the disgraceful presence of any professed quack. The last person of that description known in the island was a Jew, who, during the pestilence of 1813, held out the most confident promises of curing the very worst stages of the disorder. His remedy was elder-flower tea, and his success was such as might be expected. He was driven off the island, and no successor has since appeared *. The natives, however, are not exempt from empirical notions and practices, but they are, as far as I have learned, simple and innocuous. I have already spoken of their puppy water in the "scanto," or nervous affections of women; I should have mentioned, that although evidently an empirical trick, its employment is defended on a medical principle, viz. the violent reaction it produces when the patient is told of the remedy she has swallowed. Epilepsy and ague were formerly treated on a similar principle in our own country.

MEDICAL SCHOOLS, COLLEGES, COLLECTIONS OF NATURAL HISTORY, &c.

I HAVE already, under the head "Civil Hospital," mentioned the medical, surgical, and anatomical school; the lectures are delivered at the hospital upon these subjects, but the professors belong to the university. This university was established on the expulsion of the Jesuits, under the Grand Master Pinto. The lectures delivered by the professors are very respectable,

* The public calamity attracted several adventurers at that period. In the Malta Journal, of the 21st July, there appears a notice, that a physician, twelve persons conversant with the plague, and a dragoman, had arrived from Smyrna, by invitation. In a small pamphlet, published by Antoine Cabany, in 1777, is a reply to the falsehoods of a styptic vender, who, it appears, was allowed to try his nostrum in the great hospital of Valetta, where it failed.

and they confer degrees in medicine, &c., although, for a complete medical education, it is deemed very desirable to add a short residence at some of the continental schools. The following are the branches of science taught in the university, in addition to those noticed, as taught at the civil hospital, viz. Natural Philosophy and Mathematics, Chemistry and Botany; besides these, there are professors for Theology, Canon Law, Moral Philosophy and Metaphysics, Rhetoric, Painting, Drawing, Navigation, and the English, Italian, Latin, and Arabic languages.

There formerly existed a small collection of minerals, animals, and other objects of natural history, attached to the Library of the Knights; and when I was in this island, shortly after the capture in 1801, it was kept in tolerable order; since that time, however, the books have been removed to a more splendid building, and the articles alluded to no longer exist as a collection, but are either left in the cases in which they were packed up for removal, or otherwise disposed of.

In my report of Corfu, I mentioned an attempt at a small collection among ourselves; I hope that, hereafter, it may meet with more encouragement than it has hitherto experienced. The specimens, at present, do not amount to more than three hundred, including the minerals, and some of the insects of the Ionian islands.

WORKS CONNECTED WITH THE MEDICAL TOPOGRAPHY, &c. OF MALTA.

The earliest special description of the island of Malta was published at Leyden, in the year 1536, in 4to., by Quintino, under the title of "Insulæ Melitæ Descriptio." It is a very superficial performance, illustrated with a wretched map, in which the south-east extremity of the island is made to be in the same meridian with, and close to the Morea; and sundry different islets are scattered around!

The great work of Abela was published in the year 1647, under the title of "Malta Illustrata." It is now of rare occurrence as a separate work; it was, however, republished with considerable additions, by Ciantar, in two folio volumes,

in the year 1772, and contains a great mass of information on various subjects connected with this island: several valuable and authentic notices, on many points of its natural history, are contained in it, of which I have availed myself. There is a Latin translation by Antonio Seinero, of the original work of Abela, preserved in the fifteenth volume of Burmann's collection, Leyden edition. An abridgment was published at Helmstadt, in 1660, by Niderstadt, under the title of "Malta Vetus et Nova." Abela's work may be considered as the great magazine of facts, with regard to his native island, and it is the basis of almost every work written upon the subject.

In 1674, Paul Boccone published a quarto volume of plates and descriptive letter-press, entitled "Icones et Descriptiones variarum Plantarum Siciliæ, Melitæ, Galliæ et Italiæ."

In 1689, Philip Cavallini published a duodecimo volume on the botany of Malta, entitled "Pugillus Meliteus, seu Notitia Plantarum in Melita et Gaulo insulis."

In the "Museo di Fisica e di Esperienze," Venice, 1697, were published notices on the Fungus Melitensis, the Terra Melitensis, and the Glossopetra of Malta. I have not seen them.

I omit several books of travels, and among them the romantic little volume of Brydone, as they are more works of entertainment than of science, to come to an anonymous work, entitled "Malte par un Voyageur François," printed in 1791, in 12mo. Though small it is a very useful compilation: it is divided into two parts,—the first is historical; in the second are contained various notices on the geography and natural history of the island, all of which were written by the commander, M. Dolomieu: it also contains a report of part of the paper on the climate of Malta, from his work on the Lipari islands. The author of this little book was, as is generally supposed, M. St. Priest, a Knight of the Order *.

In 1805, another knight, M. Boisgelin, published a work in two volumes, quarto, entitled "Ancient and Modern Malta."

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* See Bre's "Malta Antica," 4to., Rome, 1816. This is a work on antiquities, but the author (p. 8) attributes the book to St. Priest, without hesitation.

This work is in every one's hands, and, therefore, it is scarcely necessary to say, that it is a compilation, and a somewhat clumsy one. The personal knowledge of Boisgelin is said to have been very limited, but, be this as it may, the book is far from wanting a certain degree of merit; he confesses it to be a work gleaned from others, but his acknowledgments are given generally, and his quotations, for want of being distinguished as such, often appear to be original when they are not.

In 1802, M. Larrey, in the first volume of his "Mémoires de Chirurgie Militaire," gives a short topographical sketch of the island: in some points it is correct, as where he notices the heaviness of the dews, and their effects in giving rise to ophthalmia; but the short stay of the French army in the island necessarily limited his personal inquiries. Dr. Domcier, who, it appears, was a physician on the British staff, practised for some time in Malta, and has given an account of the climate in a small octavo volume. I have it not at present, and so little is it known here, that I cannot procure a copy in the island. If my memory fails me not, his account of the climate is, in general, far from correct, and his assertion, that no dews fall, is utterly groundless. I do not know the date of this work.

A small volume on the produce and agriculture of the island, was published by Padre Carlo Giacinto, keeper of the Botanic Garden. Of this work, also, I am ignorant of the date; it is entitled "Saggio di Agricoltura per l'Isole di Malta e Gozo."

I am acquainted with only seven authors who have treated on the last plague of Malta, four especially, and three incidentally. The former are Messrs. Faulkner, Calvert, Stafford and Tully, officers of the medical department of the army; the latter, Messrs. Maclean, Granville, and Hancock, physicians in civil life. I shall notice them in the order of their publication.

The first, in point of time, is Dr. Faulkner, physician to the forces, who, in April, 1814, published a paper in the "Edinburgh Medical and Surgical Journal," which he incorporated in

an octavo volume in 1820, under the title of a "Treatise on the Plague." I am authorized by a gentleman, of whom he often makes mention, to say, that, considering the very few opportunities which Dr. Faulkner enjoyed of seeing the disease, a considerable part of his statements are correct. It does not come within my province to discuss the complaints of Dr. Faulkner, given to the public in his work; but it is greatly to be lamented, that, in exposing the mistakes of some individuals, he is so entirely silent on the merits of others as to leave a casual reader to suppose, that the whole weight of medical exertion devolved upon himself.

In 1815, Dr. Calvert, physician to the forces, published in the sixth volume of "The Medico-Chirurgical Transactions," an account of the origin and progress of the plague of Malta in 1813. He had considerable personal knowledge of the disease, and the facts of his paper are admitted by all parties to be given with candour and accuracy; though of the correctness of the theory, that the matter of contagion was conveyed by the air, the majority of readers doubt.

In the January number of the "Edinburgh Medical and Surgical Journal" for 1816, is a paper by the late Mr. Stafford, surgeon of the garrison battalion which was stationed at Malta during the prevalence of the plague; he gives a few practical remarks, together with the cases of six men; whether these were all cases of plague has been doubted.

In 1817, Dr. Maclean published a work on Epidemic and Pestilential Diseases, in two volumes octavo. The gallantry of the doctor, in volunteering on the forlorn hope of non-contagion, might shield him from all the acrimony of criticism, but it is impossible to read his work without detecting, in various instances, misrepresentations of matters of fact, and gross historical blunders. His notion that the doctrine of contagion was an invention of the Pope's, scarcely deserves a serious reply; it is true he quotes Father Paul Sarpi's "History of the Council of Trent," and it is also true, that it was a great ecclesiastical object to remove the "Council to Bologna;" but with all possible respect for Father Paul, we should not forget, that the persecution of that gifted man must naturally

have led him to suspect every movement of the court of Rome; but, not to analyze personal feelings, the assertion is positively incorrect, as I have already shown in my report on Corfu.

In 1819, Dr. A. B. Granville, a navy surgeon, published a letter, addressed to the Right Honourable F. Robinson, "On the Plague and Contagion;" it is in the form of an octavo pamphlet, and is an amusing little production, well "got up" on the spur of the occasion, but not possessed of value adequate to its pretensions.

In 1821, Staff-Surgeon Tully published a "History of the Plague of Malta, Gozo, Corfu, and Cephalonia," in an octavo volume. He was not in Malta during the period of the plague, but his situation as inspector of quarantine in the Ionian islands was very favourable to collecting information, and, accordingly, many important facts will be found in the work. The author is a dauntless champion of the doctrine of contagion.

In the latter part of the same year, Dr. Hancock published "Researches into the Laws and Phenomena of Pestilence," in one volume octavo. In this little work, an immense mass of information is brought together on the subject of various plagues, including that of Malta; and though the subject is dry, and the style not very inviting, I consider that the volume will amply repay an attentive perusal. His cross-examination of evidence, if I may so express myself, is managed with great adroitness.

NATIVE MEDICAL AUTHORS, PHYSICIANS, &c.

We have, in the "Bibliotheca Maltese" of Mifsud, in one volume quarto, published at Malta, in the year 1764, a useful account of the works of some native writers. They are principally confined to theological subjects; some few, however, on medicine, or subjects connected with it, and some cursory notices of the lives of medical men are to be found in Mifsud's book. He comes no lower in his dates than 1640. In Ciantar's edition of Abela, they are brought down to 1780; from these sources, principally, I have compiled the list

of such books as I have not seen, but I feel certain that many have escaped me.

In 1505, the works of Nicholas Bonetti, bishop of Malta, appear to have been published in four volumes folio, consisting partly of Natural Philosophy. I have not seen the book, but, judging from the general tone of works of a similar description, published in these countries at that period, I presume the natural philosophy to have been intimately connected with metaphysics and theology.

In 1603, Dr. Gregory Mamo, a native physician, published a work on the plague, entitled "Relazione circa lo Stato dell' Isola di Malta in occasione del Morbo Pestilenziale." In the same year, Dr. Parisi, of Trapani, published a narrative of the plagues of Malta, entitled "Aggiunta agli Avvertimenti sopra la Peste per l' occasione della Peste di Malta gli anni del Signore, 1592-1593, infino all' anno 1603." (Mifsud, p. 85.)

I know not whether I should give a place to a work by Mario Pace, a Maltese Jesuit, "De Morbis Animi," printed in 1631; it appears to have been published under another name at Catania. I have not been able to meet with it.

In 1623, Marc Antonio Hasciack drew up a manuscript account of the effects of the earth at St. Paul's cave. It is deposited in the public library.

Lorenzo Hasciack published, at Palermo, in 1677, a work on the plague, entitled "Laurentii Hasciack Medici et Philosophi, de postrema Melitensi Lue Praxis historica."

Dr. Bonamico was contemporary with Hasciack; he was a great traveller, and a voluminous writer, and left behind him several works, rough draughts, and complete manuscripts on medicine and natural history; the following is a list of them as given by Ciantar:—A Treatise on Chocolate; a Treatise on Issues; a Treatise on the Fungus Melitensis, and other Maltese plants. In manuscript, some incomplete letters on the plague; a Treatise on an Epidemic Tumour of the Neck—on Convulsive Cough, and on an Unusual Rising of the Sea. He also had made some progress in a physico-critical account of Malta and Gozo. I have seen none of his works. On his return from his travels, he became surgeon to the gallies*.

* Boisgelin, vol. i. p. 321. Ciantar in Abela. Mifsud Introduzione.

There is a long chasm in the history of medical and surgical publications by natives of Malta, for I cannot find any from the period of Dr. Bonamico's decease in 1680 until the year 1748, when Dr. De Marco, physician to the hospital, and a man of eminence in his day, published a work "De Nonnaturalibus."

In 1749, Salvatore Bernard published a work, which is rather metaphysical than medical, entitled "Trattato filosofico-medico del Umo."

In 1759, Dr. De Marco published again, "De Lana," a quarto of four hundred pages, on the use of flannel; to which he added a dissertation on chocolate. Much learning is displayed, though rather formally, in both these treatises. Dr. De Marco's manuscripts, left in the public library, are numerous. I have seen one, "De Morbis Cutaneis."

In 1762, Dr. Cren, physician to the gallies, published a work on Syphilis, and on the use of corrosive sublimate, in the cure of that disease; it is entitled "Tractatus Physico-Medicus de Americana Lue;" both this and Dr. De Marco's books were printed at the government press of Malta, during the grand mastership of Pinto, who appears to have collected about him a number of clever men, many of them of our profession, though not generally known by their published works beyond the precincts of the island.

The most celebrated and best known of Pinto's protegées was Dr. Michelangiola Grima, who in the year 1773 published his folio volume on surgery, entitled "Della Medicina Traumatica." It is, considering the period at which it was written, a very respectable publication on gun-shot wounds, illustrated with cases, dissections, and engravings. It was published at Florence, and consists of two parts. In the first he treats of gun-shot wounds in general; in the second, he treats of them in particular, as they occur in various parts of the body. This, I believe, is the only work, of any reputation, written on surgery by a Maltese. On perusing it, I find that the author, also, composed a prize essay, "De Cranii Repercussione," presented to the Royal Academy of Paris, and a history of injuries of the spleen. The latter was read to the academy of Florence in 1756, and printed in 1760. The date of the first

is not mentioned. He also appears to have composed a dissertation on the sensibility of tendons in 1760; a dissertation on popliteal aneurism in 1773, printed at London; and in 1781 a work on anatomy. I have read none of his works except that "Della Medicina Traumatica." The work on Anatomy was a manual for the pupils at the hospital.

Grima holds a very conspicuous place among the native medical men of Malta. He studied his profession in France, as an army surgeon, in the service of that nation; especially at the military hospital at Cassel. He then became surgeon to the great hospital of his native island, and professor of surgery. He exerted himself strenuously to advance the interest and respectability of his profession, and was one of the contributors to the foundation of a medical library at the great hospital, which has long since been incorporated with the public library, hereafter to be mentioned.

In 1774 Dr. George Locano published an oration, "De Imperio Musculorum." This oration had been previously pronounced in the theatre of the hospital with great applause; he also published another piece of the same description, "De Imperio Gangliorum," but of its date I am uncertain, the copy in my possession wanting the title-page. Dr. Locano is highly spoken of by his countrymen, as a most able and learned physician: he was educated at Montpellier where he graduated in 1749, and then became professor of anatomy and surgery in the university of his native island.

Besides Grima and Locano, the names of Zammut, Saura, Hennin, and Gravagna, are held in high esteem among the Maltese. Zammut was the founder of the medical library just mentioned; Saura was the founder of an hospital at Citta Vecchia; Hennin was surgeon of the great hospital and lecturer on surgery. He was the immediate predecessor of Grima, and was considered one of the most celebrated surgeons of his day. Gravagna was proto-medico of the island, and an active member of the council of health so late as the year 1813. He is spoken of by those who knew him as a most amiable, intelligent man. He was carried off by the plague. His son is the present police physician.

LIBRARIES.

In the year 1761, the Baile De Tencen founded the public library of Malta, which was increased by many gifts from distinguished private individuals, princes and kings. The king of France contributed a select set of books to it; and it was privileged to receive copies of all works published at the royal press at Paris. The library formed at the general hospital was transferred to it, and a regulation was established, by which the books of all the deceased knights became its property; it also had an annuity of three hundred crowns left in perpetuity to it, and derived some additional income by the sale of duplicates, insomuch that in 1798 the number of books, if we are to credit Boisgelin, amounted to upwards of sixty thousand. This library was, since the capture of the island from the French, removed to a large building adjoining the palace, formerly called the Conservatorio. It is a very respectable foundation, and contains a number of excellent, and some very valuable works; but to the disgrace of those who have had the power of inspecting it, and regulating its internal management, it wants a printed catalogue; and hence more than half its value is lost to those who wish to consult it. This library is open to the public at certain hours of the day, but from the want of a catalogue, and of proper internal arrangements, its utility is considerably diminished. I have no doubt that whenever the desideratum is supplied, many works of high value connected with the sciences of medicine, natural history, botany, &c., will be brought into view; at present hundreds of volumes are as effectually excluded from perusal, as if they were locked up in the deepest mines of the garrison. No books are lent out.

The garrison have also a library, both for reference and lending out; it was formed in 1806, but it is, in my opinion, inferior to what it ought to be, considering the number of years the island has been in our possession, and the amount of subscriptions. The books are distributed under the five following heads, to which I annex the number of volumes as they stand in the library catalogue and supplement to February 1824.

	No. of Volumes.
Divinity, Ethics, Arts and Sciences . .	426
History, Biography, Voyages, Travels, Military publications	835
Polite Literature, Poetry and Dramatic Works	644
Novels and Romances	356
Periodical Publications, Pamphlets, and Miscellaneous Works	273

A few books on medicine, surgery, and the accessary sciences, are to be found in this library; but the selection is not good, and the tide of opinion sets too strongly in favour of works of amusement and imagination to give much encouragement to hope that it will soon be better.

In the general hospital is also a small collection of medical books, founded by the military medical officers of the garrison, while Mr. Warren was at the head of the department.

TRIBUTARY ISLANDS OF GOZO AND COMINO.

In the preceding part of this report I have mentioned many circumstances which are common to these islands and Malta. I shall now offer such observations with regard to them, as I consider necessary to the completion of the present memoir, following the same plan that I have already adopted with regard to the greater island.

Gozo was originally known under the name of "Gaulos" by the Greeks, and "Gaulum" by the Romans, and by corruption in the Arabic language "Gaudesc," which in process of time was italianized into Gozo, (pronounced Godzo.) This name was given it, according to Abela, from its imaginary resemblance to a cup; the real shape is an irregular oval.

The distance from the nearest part of Malta is about three miles, though somewhat more between the ordinary places of embarkation and disembarkation; and in some parts the strait which separates them is five in breadth. The circumference of the island is from twenty-five to thirty miles, its greatest length eleven, and its greatest breadth about six. It contains neither river, lake, nor morass, but is plentifully supplied with excellent springs. The surface of the island is very agreeably

diversified with hill and dale; several of the former reach a height, which, when compared with Malta, may be denominated considerable. I am not aware that accurate measurements have been taken of any, but, judging from my eye, I should suppose that some of the elevated grounds at Gozo, in the north-western parts of the island, could not be much less than two thousand feet above the level of the sea, at which they are generally estimated. A chain of these elevations nearly encircles the island, and embraces a beautiful and fertile series of valleys, separated by gentle rising grounds. Viewed from the highest village on the island, the scene is very delightful to the eye, which has long rested on the rocky surface of Malta. The summits of some of the mountains are flattened, and are truly table-lands, others are rounded or mammillary, and there are four or five remarkable detached hills, perfectly conical in shape, and presenting the appearance of old volcanic productions. The interior of the island and its shores abound in caves; the rocks are of the same calcareous nature as those of Malta, but the soil is incomparably richer, the fields larger, and the whole character of the country more rural.

The climate of Gozo is much cooler, and more agreeable to the senses, than that of Malta, influenced, no doubt, in a great measure, by the cultivated state in which the whole island, up to the very tops of some of its hills, is constantly kept. I have not been able to procure as long continued, or as correct states of the weather for this island, as for Malta; but it may be safely assumed, that, in the summer months, the thermometer is generally two degrees lower.

The products of Gozo are similar in kind to those of Malta, but those of the vegetable class are more abundant; and from thence the markets of Malta are supplied daily. The fowls and the lamb of Gozo are highly prized; and its honey is reckoned inferior to none in the Mediterranean.

The roads and communications are excellent. The population is a robust healthy race, and is estimated at about 12,000. Their dwellings are of the same materials and general character as those of Malta, but less magnificent. The same may be said of their furniture, bedding, clothing, fuel, diet, &c., as well as of their morals and customs. The inha-

bitants are distributed into six towns; the principal of which is Rabatto. Their affairs are administered by a military officer, under the Governor of Malta, with the title of Commandant, or Lieutenant-Governor. The police of the island is nearly on the same principle as that of Malta; and they have a civil hospital, workhouse, and Monte de Pietà in the capital casal of Rabatto, but all on a very small scale. When I visited their civil hospital, I was highly pleased with its management; it is under the charge of Mr. Montanaro, a very intelligent native, assistant-surgeon of the Maltese corps, to whom also is intrusted the medical charge of the British detachment, for which he has an additional allowance from the civil government of two shillings sterling per diem.

The diseases of the natives, and the practice of medicine and surgery among them, differ in no essential particular from those already described, as prevalent among the Maltese. They are said to be more healthy, and to afford more instances of longevity than their neighbours.

In the channel between Gozo and Malta lies the uninhabited islet of Comino*, formerly called "Hephostia." Its circumference is about five miles, its shape oblong; it produces some corn, but is principally noted for its numerous rabbit warrens.

A small islet, or rather rock, called Cominetto, lies off its north-western end.

Whatever doubts may reasonably be entertained with regard to the connexion between Malta and the adjacent countries, it seems very probable, that the island now described originally formed a part of it, but an inquiry of this kind would lead me far from my subject. I shall, therefore, proceed to give a short sketch of the barrack and hospital accommodation of Gozo.

Fort Chambray was commenced in the year 1749, and contains the principal accommodation for troops; it lies on the south-eastern side of the island, and is built upon an elevated promontory, forming one side of a little bay, in which the

* From a corrupt Greek word of similar sound, which signifies "adjacent," according to Abela.

boats to and from Malta anchor; the shore all round is very bold, especially to the south, where it rises into rugged and inaccessible cliffs, with huge masses of rock broken off from them, and projecting into the sea. On the west, the coast is less abrupt, and the descent from the fortress to the sea is gradual, and terminates in a small sloping valley. On the north, the promontory is insensibly lost in the main land of the island. On the east, the road gradually winds up from the sea to the fort, which it reaches after a circuit of about 700 yards. The elevation of the fort above the level of the sea may be about five hundred feet. It is a regular fortification, including, within the works, an area of about two thousand five hundred feet in circumference. An excellent barrack stands within this area, and a very comfortable and neat hospital. The barracks are contained in one very massy bomb-proof stone building of three stories high, forming a quadrangular pile of forty-two paces by thirty-six, the longer side lying nearly east and west, the shorter north and south. In the interior this pile contains only two stories; there are four large rooms on the ground-floor thirty-three paces in length by six broad, and twenty feet high, with windows at each end; above are four rooms, of similar dimensions; one partitioned off for officers, and the others for non-commissioned officers: besides these, there are twenty-eight smaller rooms, from a square of three paces to a square of four, and all about ten feet high; these rooms, which are dispersed on the different stories of the building, are variously occupied: the whole forms an establishment in which two hundred and fifty men can be well accommodated *.

Within the walls of the fort is a very comfortable and compact little hospital of four wards, capable of accommodating twenty men extremely well; with kitchen, surgery, &c. &c., but it has very rarely more than two or three inhabitants.

Besides Fort Chambray, there is a tower called "Torre de Garças," in its immediate vicinity, capable of accommodating twenty men, but it is never occupied by troops. There are

* The measurements of these barracks were made by Assistant Staff-Surgeon Kennedy.

also several detached towers or castles round the coast, and one on the island of Comino, but they are only occupied by two or three native soldiers.

There are also some barrack-rooms within the old fort of the capital casal, Rabatto, in the centre of the island. Within this fortification are the principal church, the prison, a court-house, a house of the commandant, and many dwellings; some of them inhabited, some ruinous. The barrack accommodation consists of two bomb-proofs, occupied as stores by the artillery, and eleven rooms, all of small dimensions, but more than sufficient for the few men that occupy them. They are generally of the native fencibles, with two or three British artillery-men.

The following extract of a letter addressed by me to Major-General Sir Manley Power, in May, 1822, when it was proposed to make Gozo an hospital station for convalescents, may give a more clear idea of the capabilities of the island, and especially of Fort Chambray, for accommodating troops:—

"In a medical view I have never seen any situation which appears to me so peculiarly well adapted for the proposed purpose as Fort Chambray; it is a cool, airy, and healthy spot; it is well supplied with water; it is completely insulated; it is at a distance from any town, which would hold out inducements to debauchery; it has ample space within its walls for exercise and amusement; it has a very commodious hospital for such convalescents as might occasionally require hospital treatment; and the barrack buildings, with some necessary repairs, are, in my opinion, extremely well adapted for the purpose; for it is to be held in view, that the men who are proposed to be sent there are not actually sick, but in various stages of convalescence, for which change of air is deemed the most promising remedy." After offering some suggestions on necessary repairs and arrangements, I add as follows:—

"I would recommend that, while at Fort Chambray, the convalescents should be made to perform duties of an easy description, and which do not subject them to exposure to the sun or night air. This would both tend directly to improve their health, and obviate idleness, which is the greatest enemy to their recovery. As their health became re-established,

they should be returned to their respective corps by every favourable opportunity, while such of them as were totally unfit for service, or for whom removal to England was indispensable, should, from time to time, be sent home, as proper opportunities offered. The saving of health and life, which would accrue from the establishment of a convalescent station, will, I have no doubt, be a matter of most serious importance to the Mediterranean army, especially that part of it quartered in the Ionian islands; and will, I conceive, effectually supersede the necessity of sending annually a very large proportion of invalids to England."

Besides the islands already enumerated, there are four or five other islets, or rather rocks, belonging to Malta and Gozo. On the southern coast of Malta is an islet called "Folfola," or "Felfla;" it contains an ancient parish church. Nearer the shore and more to the eastward is a rock called the "Pietra Nera," and at the north-western end of the island towards Gozo is another rock called the "Scoglio Marfo." At the north end of St. Paul's bay is the island of "Salmonetta;" but the most important, or at least the best known of these appendages, is the Fungus Rock of Gozo, or "Hagira tal general," already spoken of under the head "Popular Remedies."

SECTION THE SECOND.

BARRACKS.

I SHALL restrict what I have to say on this head within a very narrow compass; to give a minute description of these buildings would be in a great measure to give an account of the stupendous fortifications themselves, for the barracks form integral parts of the works, and the principal walls are common to both. The barrack-yards and squares are in numerous instances formed out of the quarries whence the materials for the fortifications were raised, and the lower floors of the barracks are

formed of the surface of these quarries, while the lower part of the walls is merely the rock perpendicularly scarped.

In some instances this peculiarity of structure renders thorough ventilation impossible, but the deficiency is supplied by long galleries and large doors of communication, while the disadvantage is in some measure counterbalanced by the decreased temperature in the summer months.

The principal occupied barracks in the city of Valetta are those of St. Elmo. They are divided into the upper and lower; the former are permanently occupied by the Royal Artillery. The principal rooms are built around an open quadrangular space of about 80 yards by 40; there are others built in a range on the upper part of the works; in the whole there are 56 rooms of various sizes, from 10 feet by 9, to 20 feet by 15, and from 9 to 15 feet in height. The ventilation is good and complete.

The lower barracks of St. Elmo are always occupied by the corps of infantry quartered in the city of Valetta. They lie on the western side of the fort, and are constructed behind the parapet wall and that part of the rock which is scarped out to form the sea front of the works looking towards the quarantine harbour. These barracks are of three tiers or stories of 175 paces in length, and run nearly east and west; the back of the rooms is principally formed by the solid rock; the front has a southern aspect, and opens to a space from which was originally quarried the materials of the buildings: this space is 180 yards in length, and varies in breadth from 43 to 24 yards. The rooms of the lower tier are only ventilated by the door by which they communicate with this open space or area; they are principally used for stores and cooking-houses. The second tier has a common passage running along the whole front; and opposite each room or archway, in which the men sleep, there is a large window. The rooms of the third tier are of a similar construction, but as their upper part rises above the level of the platforms of the works, they enjoy the additional ventilation of a small window in rear, which runs from the top of the arch obliquely upwards towards the parapet. At each end of the range there is a staircase of communication, which

also affords a circulation of air, and upon the whole, this barrack is sufficiently well ventilated and lighted. No perceptible difference of health has ever been traced between the inhabitants of the upper and centre tier of these casemates.

There is a very ample supply of water in the barrack-yard, and the drainage, after much labour and expense, is now complete.

There is another barrack in Valetta, situated on the land side of the works, in the cavalier of St. James. The native fencibles are accommodated in this barrack in fourteen casemates, in two tiers; but they are ill ventilated. As they have long been unoccupied by British troops, I shall say no more upon them at present.

The barracks at Floriana are more modern than those of Valetta, but, like them, are bomb-proof casemates. They are situated on the western side of the isthmus in that part of the works which looks towards the quarantine harbour; they are below the summit level of the esplanade, but still at about one hundred feet above the level of the sea. The rooms appropriated for the use of the soldiers consist of ten casemates, with two large ventilators in each roof, and a window over each door. Besides these casemates there are a smaller range of rooms for non-commissioned officers, and for the various purposes of stores, cooking-houses, orderly-rooms, places of confinement, &c. &c. The whole are within an enclosure, which affords sufficient space for the purpose of parading the guards, &c. There is an ample supply of tank water of good quality within this enclosure, and the barracks, though hot, are by no means uncomfortable. As they lie on the opposite side of the works from the Marsa at the head of the great harbour, and are screened from the winds that blow over it by the ridge upon which the suburb of Floriana is built, these barracks suffer nothing from the malarious exhalations of the Marsa, though not very far distant from its neighbourhood. Mr. Warren, in his report on the locality, very justly remarks, "that although the fortifications of Floriana connect the grand harbour with that of Marsa Muscet, they are not carried to the head of either, but run across the neck of land eight or nine hundred yards before the termination of either, which will in

some measure account for the soldiers in these barracks not having suffered from malaria, when people who have been living closer to the head of the harbour have." To my mind it does account for it in no small degree; it is at the upper end of inlets circumstanced as those are which form the two harbours of Malta, that the evolution of malarious exhalations principally goes on, because it is in such situations that the land waters disembogue themselves, that the exuviæ of the sea are deposited, that the drying process first commences, and consequently that the conjunct operation of vegetable putrefaction, aqueous decomposition, and atmospheric heat are carried on most powerfully. If to this, we add, that the Floriana barracks are situated on the side of the works most distant from the Marsa, and that they are protected from the exhalations by their situation on the declivity of a hill, the explanation of their exemption from malaria will appear complete; while buildings (as the Capuchin convent) on the other face of the very same works, and not screened by an intervening hill, have been subjected to its influence.

If, however, Floriana barracks are not influenced by the causes which produce remittent and intermittent fevers, they are subjected to the full force of those which produce summer fever, viz. the inevitable exposure to the direct rays of the sun, which the troops quartered in them must undergo on the extensive unsheltered esplanade where they parade, and over which they must necessarily march before they can arrive at the scene of a large number of their daily duties in Valetta. The heat, glare, and dust of this esplanade are also extremely prejudicial to the eyes, and on the whole it is so comfortless, that by many it is distinguished by the name of "the desert," and is universally admitted to be one of the hottest spots in the island.

The barracks in the Cottonera district, on the eastern side of the harbour, are very numerous. The principal are situated at Isola gate, behind the dockyard, at about sixty feet above the level of the sea. These, like the last described, are bomb-proof casemates; within the last two years several passages have been cut through the rocks in various points, so as to admit of more light and air than they formerly enjoyed. One

inconvenience, however, arose from this during the summer of 1823, for so great was the current of air thus produced in one particular apartment, where some of these passages concentred, that out of fourteen cases of ophthalmia sent to the hospital, ten were furnished from it; immediate measures were taken to protect the men from the currents of air, and the disease recurred no more.

The barracks consist of fourteen bomb-proofs, of different sizes, shapes, and aspects, with stores, canteens, cook-houses, &c. &c., sufficient to contain five hundred men, and are generally occupied as the head-quarters of the corps doing duty on the eastern side of the great harbour. They are confined within an enclosed yard, and are amply supplied with good water; the supply was formerly restricted, but the building of a new tank has effectually obviated that serious deficiency.

The barracks of St. Francesco di Paulo are of the same general character as the preceding, but about 20 feet higher above the level of the sea. Those of St. Salvador are still higher, being nearly 400 feet above that level. I feel that it would be a waste of time to enter into detail with regard to these and the other barracks of St. Helena, Vittoriosa Gate, Zeitun Gate, St. Angelo, &c. &c., because the detail would merely embrace some difference in architectural plan or extent, totally uninfluential on the health of the troops.

There is one observation common to all the barracks now enumerated, and indeed to all on the island, viz., that they are admirably adapted for the purposes for which they are intended; and are so numerous, that the health of the troops ought never to suffer from crowding, or from want of every accommodation which barracks can afford.

I have already stated that there are three detached forts around the harbours. I shall now give a short account of their barrack accommodation.

Fort Ricasoli lies at the north-east entrance of the great harbour, on a neck of land of about 1800 feet in length, which gradually lessens from 800 feet in breadth to about 300 feet at the narrowest point; its greatest height above the sea is about 65 feet, its lowest about 25, measuring within the walls of the fort. On this neck a very extensive fortification is constructed,

leaving an open space in the centre of about 2300 feet in circumference. The troops are lodged, as elsewhere, in bomb-proof casemates, the principal of which was originally a rope-walk. One end is separated for the hospital establishment hereafter to be mentioned. There are also a number of detached rooms of a great variety of sizes, which are occasionally occupied; some originally constructed in the works themselves, others thrown up at some subsequent period, and occupying the interstices of the arches which form one side of the rope-walk. This part of the work presents the appearance of a long colonnade, built on two sides of an irregular quadrangle; the angle which these sides form at their junction is very obtuse. In an architectural point of view it looks somewhat singular, but it is admirably calculated to shelter the troops from the heat, for there is not an hour of the day in which one part or another is not completely screened from the direct rays of the sun.

The supply of water is copious and excellent, the facilities for sea-bathing and exercise are great, the distance from the city and all its allurements is not inconvenient for necessary purposes, but sufficient to prevent all improper communication; the heat of the day is generally alleviated by the cooling sea-breeze, and upon the whole it may be considered as one of the most healthy spots upon the island. Whenever a regiment has been quartered in this fort, it always had a lower sick-list than any other corps, a fact which should recommend it strongly as a station for new comers. For many years, however, it has had no other permanent garrison than a few artillery-men, which, since my arrival, has been reinforced by a small detachment of troops of the line, which are rendered necessary by the establishment of the convalescent depot hereafter to be described. Recruits or detachments between England and the Ionian Islands are generally landed and accommodated in these barracks, until transport is provided for them.

Fort Tigné is built on a tongue of land at the north-west entrance of the quarantine harbour; it is of modern construction, and was not entirely finished when the French took possession of the island. It consists of a round tower and line of casemates in the shape of the letter T, with extensive ditches, mines, &c. &c. The body of the fort is raised above the level

of the sea about 50 feet. Formerly it was deficient in the supply of water; at present, however, it is amply furnished with tanks, and I have never heard of any complaint on that head. The garrison is very small, being merely a detachment, and occasionally a few convalescents from the corps that supplies the detachment.

Fort Manuel is a regular quadrangular fort of modern construction, which crowns a small island in the quarantine harbour; it lies about 60 feet above the level of the sea. The area within the fort is a square of about 200 feet, and the accommodation for the troops is in casemates. This fort was built by the Grand Master Pinto, and is of peculiar importance, as the lazaretto is situated beneath it, and it commands the quarantine harbour. The troops destined for the principal duties of the lazaretto are quartered in Fort Manuel, and have always been healthy.

There is an observation made by Mr. Warren on the health of the troops destined for the lazaretto duties, which is worthy of consideration. He says—"The head of Marsa Muscet (or the quarantine) harbour at its western extremity is shallow, and during the summer months nearly stagnant, and frequently offensive, from the decomposition of the sea-weed thrown up by a north-easterly wind; and as the guards are placed more particularly in the vicinity of this shoal part of the harbour, I have kept a watchful eye on them, and frequently endeavoured to ascertain whether any mischief has arisen from this source, but hitherto without success." This observation is consistent with my experience; and I have always accounted for it by the fact, that very little fresh-water discharges itself into the harbour, and that the shores are rocky, with only a very minute proportion of vegetable matter to be found upon them. The only part where there is a flat alluvial surface is at the "Pieta," but it is covered with houses, and the sea is fenced off by a regular stone wall, as I have already remarked, in speaking of the valley of Missida. There is also a sort of inlet at the point where the quarantine island formerly joined the land, but it is of salt-water; and I consider it almost as an ascertained fact, that the evaporation from pure salt-water is not, in general, productive of ill effects on the health; an instance of which I have

given in speaking of the salines of Corfu, and I have noticed the same among the workmen on similar establishments in this island.

Numerous detached towers surround the coast of Malta, but as they are garrisoned by the native fencibles, I do not consider them as calling for remark in the present report.

HOSPITALS.

THERE are at present three hospitals required for the troops in Malta; but such are the number and excellence of the buildings in the island, that accommodation for the ordinary sick of an army of twenty thousand men could be procured on an emergency. Under the present head I shall endeavour to give an account of the occupied hospitals, beginning with the principal one in the city of Valetta.

VALETTA HOSPITAL.

THIS hospital has acquired considerable celebrity, being the principal establishment of that description erected under the auspices of the "Knights Hospitaller Brothers of St. John the Baptist of Jerusalem," one of the rules of whose order, while in its flourishing state, was to have hospitals open for the reception of the sick of all countries and religions, whom the Knights attended in person. Indeed, before the Order became a military one, it was merely an association of charitable persons at Jerusalem, who dedicated themselves to the relief of the sick, and took up their residence in a house distinguished by the name of Hospital of St. John *.

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* This charitable institution was not confined to males alone: an order of females was formed about the same time (anno Domini, 1099), under the name of the "Hospitaller Dames of the Order of St. John of Jerusalem;" but while the Knights were transferred to Malta in 1530, the fate of their female coadjutors, after the capture of Jerusalem, is altogether unknown. They had establishments in various parts of Europe; they occupied five or six different places in England, until, in 1180, they were collected together by Henry II. at Buckland, where they remained till the time of Henry VIII.—See "Boisgelin," vol. ii. p. 216.

I am unable to ascertain the exact date of the erection of the present hospital, it being the only public building perhaps in the island that has not some inscription to mark the period of its foundation, augmentation, or repair; it is probable that its foundations were laid between the years 1566 and 1571, the former being the date of the placing the first stone of the present city, by La Valette, and the latter that of its completion, by his successor De Monte. However this may be, it is obvious, on the most cursory inspection, that the buildings which form the hospital were not completed at once, for they are of different styles of architecture, without any regular plan, and apparently augmented as circumstances required; indeed, there are at present parts of additional buildings raised, which were evidently intended to be finished at some future period; a mode of building by no means uncommon in this island, where the lower floors, or the wings of houses, are often occupied for years before the funds or the fancy of the landlords admit of their finishing the whole.

The earliest report on the state of this hospital which I can find, is that by the benevolent Howard, who visited Malta in 1786. At that day the administration appears to have been deplorable. Mr. Howard's report sufficiently refutes the exaggerated accounts of the excellence of the rules, and the richness of the furniture, &c., of this establishment.

"All the patients," he observes, "lie single. One ward is for patients dangerously sick or dying, another for patients of the middle rank of life, and the third for the lower or poorer sort of patients. In this last ward (which is the largest) there were four rows of beds, in the others only two. They were all so dirty and offensive as to create the necessity of perfuming them, and yet I observed that the physician, in going his rounds, was obliged to keep his handkerchief to his face. The use of perfumes I always reckon a proof of inattention to cleanliness and airiness, and this inattention struck me here forcibly on opening some of the private closets with which this hall is very properly furnished.

"The great hall is on the ground-floor, and under it another hall, or rather a large ward, which is nothing but a damp and dark arched cellar. Here were cutaneous patients, also fifty

old infirm servants from the city, who are maintained by the Religion. The first, and the under physician, with the surgeon and a few pupils, and one or two attendants, take the round or walk of the upper wards, but in this ward the first physician does not attend.

"The patients are twice a day, at eight and four, served with provisions—one of the Knights and the under physician constantly attending in the two halls, and seeing the distribution. From the kitchen, which is dark and more offensive than even the lower hall to which it adjoins, the broth, rice, soup, and vermicelli, are brought in dirty kettles, first to the upper hall, and there poured into three silver bowls, out of which the patients are served. They who are in the wards for the very sick, and those of the middle rank of life, are served in plates, dishes, and spoons of silver; but the other patients (who are far the most numerous) are served in pewter."

Upon the whole, Mr. Howard found the hospital crowded and dirty; the supply of water defective; and the servants few in number, and devoid of common humanity; no wonder, therefore, that he concludes his account by stating that the slow hospital fever prevailed.

Great revolutions have taken place in this hospital since the philanthropist wrote;—the sick civilians are accommodated in another situation, the noble hall is converted into a rope walk, and several parts of the buildings are let out as stores to respectable merchants. In the essential point of internal cleanliness, a complete reformation has been effected, but the outward walls are, on the sea front, defiled with a range of public necessaries, and many parts of this vast hospital are approaching to a state entirely incompatible with its original destination. For several years little in the way of repairs has been done, except what are urgently required for immediate use, insomuch that the best informed workmen estimate that a sum of at least one thousand pounds sterling would now be requisite to put it into a complete state. The French, on their arrival in 1798, moved the foundling establishment, which was formerly annexed to it, to Floriana, and converted the whole into a military hospital, and thus it has continued ever since; such as it is at present, I shall endeavour to describe in a general way.

The great or "General Hospital," as it is often called, is situated at the extremity of one of the long streets, terminating upon an open space which forms the esplanade of Fort St. Elmo. The front entrance is from this street; the rear runs along the line wall looking towards the great harbour, for an extent of six hundred and fifty feet; one end also looks towards the sea, but the other is choked up by a dense mass of buildings, and consequently very deficient in ventilation. The drainage and other means of cleanliness might, at a small expense, be rendered excellent, little more being necessary than giving a greater fall to some of the drains, a want common to almost all the sewers of the city.

On entering the hospital, we come into a neat quadrangle with a fountain in the centre, which derives a never failing supply of water from the aqueduct. The extent of this quadrangle is about ninety feet long, and eighty-eight broad; around are situated the pharmacy, laboratory, and apothecary's office, the inspector's office, the baths, quarters for one physician, two staff or regimental surgeons, three staff or regimental assistants, the apothecary, the resident dispenser, and the porter; the whole distributed on two floors, and affording good and ample accommodation.

A commodious staircase leads to the upper floor, on which, besides the quarters for one staff and one assistant-surgeon, and the inspector's office, there are five wards and a surgery, occupied as the regimental hospital of the corps, quartered in Valetta. One of these wards is situated at the top of the staircase, detached from the others; it was formerly a passage leading to the ophthalmic ward, but now is capable of containing from eighteen to twenty beds. Immediately opening on the first landing place is a noble ward, which can well accommodate thirty-six patients; and within it are three smaller rooms, one of which serves as a passage, and the two others as wards containing eight beds each.

In former times there were recesses between each bed, capable of containing a close stool; the frames for these utensils, and the doors, remained in many of the recesses until very lately, when, among other improvements, I had the whole removed: these were the "private closets" of which Mr.

Howard makes mention. Perhaps there never was a contrivance which more effectually detracts from the wholesomeness of a ward, than these fixed closets; they are invariably made depôts of filth and nuisances of all kinds, and never should be allowed in any place destined for the reception of the sick. The original necessary was at a very inconvenient distance formerly, but I have had one built on the outside of these wards, to which the patients have easy access by a private staircase. The ventilation of the great ward is conducted on the best principles, viz. openings on a level with the floor, and the same, but of a much larger size, in the upper parts of the room, far above the level of the beds.

On descending from the great staircase into the quadrangle, there is another flight of commodious stairs which leads to another floor, accommodated to the natural descent of the ground. On this floor there is an excellent dining-room for convalescents (formerly the operation room), and still, on an emergency, applicable to the purposes of a sick ward, in which case the convalescents dine in the corridor, into which the dining-room opens. Besides this room, there are a sergeant's room, a provision store, a pack store, a bedding store, a foul linen store, a straw store, a dead-house, a lumber-room, and two rooms for the orderly men, with extensive cellarage beneath. All these are attached to the regimental hospital.

Descending by another flight of steps into a lower quadrangle, hewn partly out of the rock, and considerably below the level of the line wall, we first come to the kitchen, the darkness and offensiveness of which Mr. Howard so much complained. It is a very large antique apartment with ample fireplaces, ovens, stew-holes, &c., and with a water-pipe opening into it. From its situation, far below the level of the works, it is necessarily dark and ill-ventilated, and the smoke of ages has so completely incrusted its walls, that it bids defiance to the powers of whitewash. It can never be a showy kitchen; and its distance from the wards is a great inconvenience to the servants; nevertheless, under the present discipline, we find it a useful one, and remarkably free from loungers.

On a level with the kitchen, and opening upon the sunk

quadrangle, is what Mr. Howard calls the lower hall; it is no longer used for the accommodation of the sick, but serves admirably for the apothecary's stores. These stores run under what formerly was called the great hall, now the rope walk,—a ward of about one thousand two hundred feet long, and capable of affording accommodation to a large number of patients. In consequence of the kitchen being taken off one end, and some storage being let by government from the other, the stores are much shorter than the rope walk. Beneath is an extensive range of cellars, formerly used for storing wood and straw, but now shut up. Besides these stores there are also situated in the quadrangle, a lumber room for the apothecary, a wash-house, dead-house, and cart-shed, with two very large necessaries. In the open space of the quadrangle there is a large tank, not used at present, and another in a small enclosure behind the wash-house. This quadrangle communicates by a passage with the open street at the back of the hospital, which is very convenient for the entrance and removal of stores.

Returning up stairs, on the left of the dining-room, runs a small corridor, screened off for the use of the ordnance medical department. Within this screen are contained one large ward, capable of accommodating thirty sick; one smaller ward, not occupied, capable of accommodating fifteen sick; a sergeant's room, surgery, store-rooms, and kitchen; the whole forming a regimental hospital for a small corps. One serious objection, however, lies against these wards, viz. that their ventilation is very incomplete, and at some points they are damp; for many years they have been considered the least healthy within the building, and I am inclined to think not without some reason.

From this last hospital an ample staircase formerly ran up to a set of wards, the principal of which I found nearly in ruins when I arrived in the island in 1821, having been unoccupied for years. On a representation to the general officer in command, some necessary alterations and repairs were made, the staircase was blocked up, and a new entrance opened; a communication was established with the former ophthalmic wards, and the whole being completely insulated, it was formed into an ophthalmic hospital, for the use of the entire of the troops in

the island. In this hospital are contained, on the lower floor, one ward, capable of accommodating thirty patients; and on an open terrace, which runs over the ordnance hospital, three smaller wards, capable of containing thirty beds. At the opposite extremity of this terrace, and over a part of the regimental hospital first described, is another ward, capable of containing twenty beds; and, with the addition of a surgery, sergeant's room, store-room, kitchen, and detached necessary, the whole forms an establishment in which eighty ophthalmic patients may be accommodated and classified without the possibility of intermixture with any other description of patients. A great and serious inconvenience in this hospital is, that these terrace-rooms are in summer excessively hot, as the sun lies upon them for many hours, but for the same reason they are very comfortable in winter.

The baths open on the great quadrangle, at the principal entrance of the hospital. I understand they were first planned by Mr. Green, Inspector of Hospitals. They contain two baths, one of them fitted up with a shower apparatus, and both capable of being supplied with hot or cold water, at pleasure.

The pharmacy and laboratory are in the same state as when the hospital was possessed by the Knights of the Order. They are both well adapted to their purpose, and of ample dimensions. The pharmacy has a venerable appearance, from the antiquity of the pots and jars for the medicines, many of which are said to have been brought from Rhodes by the knights. The laboratory contains the usual apparatus for distillation, making decoctions and extracts, expressing oils, preparing ointments, powders, &c. &c., and has a never-failing supply of water.

Upon the whole, although the hospital is of great dimensions, and of an imposing appearance, it is by no means entitled to class, in point of comfort or convenience, with many others of much less celebrity as public institutions. The original plan was defective, and the site decidedly inferior to many, even within the walls. The southern end of it has been prolonged much too far, so that it acts as a permanent screen against the winds, which should have been allowed to blow freely round the building in every direction. When some

future architect erects a great hospital in the island of Malta, if he consults his own fame, or the benefit of the establishment, he will erect it on the spot of ground now occupied by the Bighi palace, on the eastern side of the harbour.

FLORIANA HOSPITAL.

This is situated in a part of a building, known under the name of the "Casa della Madonna di Manresa," or "Casa Santa." It consists of a set of apartments, built after the manner of a cloister, or range of cells, around two sides of a quadrangle, of one hundred and thirty-three feet by seventy-five broad. In the centre is a very extensive tank, at one corner is a kitchen, and in two other corners a dead-house and two privies. Into this quadrangle, the windows of the principal part of the cells, occupied by the patients, look, while the doors open out into the cloister or gallery, which is about two hundred feet long by thirteen broad. The majority of the cells are light and well ventilated, and capable of accommodating four beds extremely well, or five on an emergency. Some few are less airy, being on the side of the cloister, which does not look into the quadrangle just noticed, but into a smaller one, planted with orange trees, and belonging to a part of the building still occupied for religious purposes; but even in these, two patients can be tolerably well accommodated, or three on an emergency. The cells now described occupy the longest side of the quadrangle; on the shorter side are situated a few more apartments of a similar nature, and a chapel; the latter is converted into a residence for the assistant-surgeon of the regiment, quartered in Floriana; the others are used as a surgery, sergeant's room, store-rooms, &c. The ventilation of these last is complete; the doors open into the gallery, and the windows into a very large open space outside the walls of the establishment, which forms a continuation of the public parade. The corridor is occasionally used for the accommodation of patients; being higher than the cells, it has windows opening over them into the quadrangle, so that it is well ventilated, and by the occa-

sional employment of moveable screens, it can be made into distinct wards.

Upon the whole, sixty patients may be well accommodated in the "Casa Santa," and eighty on an emergency. It has one great advantage over the hospital of Valetta, viz., that the patients, from the smallness of the wards, can be classified with much greater facility; besides which, the situation is much cooler; for though the parade of Floriana is proverbially hot, owing to the total want of shelter from the direct rays of the sun, yet the openness of the space in which the hospital is situated, affords a free circulation of air; and the comparative paucity of buildings diminishes the source of that radiating heat, which emanates in such overwhelming abundance from the immense masses of stone employed in the numerous edifices of the city.

RICASOLI HOSPITAL.

The third military hospital of Malta, destined for the troops in the Cottonera district, is situated at Fort Ricasoli, and, although not originally intended for the purpose, it answers extremely well, especially in summer. A lofty bomb-proof arcade or piazza runs along a considerable portion of the inner face of the land front of the fort, and numerous arches open from it into the central area or parade. Under the piazza are the principal quarters at present occupied by the troops. A part of one extremity is cut off by a strong wooden barricade and wall, so as completely to separate it from the part occupied by the healthy soldiers. By means of a wooden floor thrown across one end of the upper part of the arcade, an excellent ward is formed above, and the ground floor is left for convalescents, punished and itched men, or any other class of patients requiring separation, besides affording ample space for a dining room, and other necessary appendages of an hospital.

The upper floor is divided into two wards and a surgery. They are lighted and ventilated by windows constructed in the arches which form the front of the arcade and look into the

interior of the fort; these arches are ten feet deep; in front they are closed by a very thin wall, through which the windows are cut; behind they are left open, and thus they form a series of recesses each capable of containing two beds, one on each side of the window. Ventilation is further promoted by gratings cut through the floor, and covered with caps moveable at pleasure.

On the lower floor, both the front and rear of the arches are closed up by stone work on the face which opens into the parade of the fort; they are furnished with a door, so as to form a small apartment of eleven feet long by ten broad. These, as far as they are connected with that part of the piazza appropriated for hospital purposes, serve for store-rooms, offices, sergeant's room, &c. &c.

This hospital is a very good one, especially for summer; it can accommodate fifty-four patients on the upper floor, and on an emergency forty-six on the lower, which, like the upper floor, is divided into two apartments of unequal length. It must be observed, however, that there is only one of these lower divisions which is well adapted for the reception of sick, viz., that situated at the extremity of the arcade over which the wooden flooring does not extend, and consequently where the height of the ward is the full height of the arch. Besides the accommodation now described, a large bomb-proof, in the rear of the wards, has been given up for hospital purposes, and serves for a lumber room and dead house; another smaller one serves as a wood store, and in the front, two detached rooms have been converted into a kitchen and necessary.

Formerly the troops in the Cottonera district occupied an hospital within the lines (the Inquisitor's palace), that has long since been converted into an officers' barrack; the only loss by the change, is, that the sick are not so near hospital accommodation as before: no serious inconvenience, however, has been found to arise from this circumstance, as a boat is in daily attendance for their removal from the different barracks.

CONVALESCENT DEPOT.

THE convalescent establishment in the barracks of Fort Ricasoli was principally designed for invalids and discharged men from the Ionian Islands; but several chronic cases from the regimental hospitals, of troops quartered in Malta, have benefited by being sent there, where they have enjoyed exemption from severe duties, and all the advantages of a change of air; while at the same time they have been placed under the surveillance of a medical officer, and within reach of immediate hospital attendance.

The necessity of establishing a depôt for the invalids from the Ionian islands, especially for those who had suffered from the effects of marsh miasmata, was long obvious to every medical man; and it was equally obvious that the most proper situation was one where the diseases produced by miasmata were scarcely known among the troops. Such a place was Malta; but many obstacles presented themselves, and it was not until the spring of 1822, that his Excellency the late Sir Thomas Maitland, after frequently conversing with me on the subject, gave his full assent to the proposal of establishing a regular depôt, with an adjutant, &c., and was pleased to add several suggestions for rendering the plan more complete—among these he offered the island of Gozo for the purpose; but although I had a survey made of the barracks and hospitals of that island, which I afterwards verified by personal inspection, and some convalescents were sent there, it was not ultimately found eligible, not from medical reasons, but from the difficulty of procuring quarters for officers, and of conducting the commissariat arrangements, to which were added certain financial difficulties, which, on consideration, were deemed insuperable.

There had been some previous experience of the good effects of change of climate, from the Ionian islands to Malta, in individual cases, on various occasions, but a very striking proof was afforded on the removal of the 35th regiment from the islands in the year 1816. The surgeon of that corps, Mr. Edon, thus reports in June 1817: "It is rather remarkable that we have not had one case of intermittent fever, though this regi-

ment suffered a good deal from this disease in the Ionian islands;" and Inspector Warren, in his report, dated July 1817, adverts, in a very decided manner, to this circumstance: "It will not," he says, "be lost sight of, that a few months' residence in Malta has completely got the better of the disposition to intermittent fever, as shewn by the 35th regiment on their arrival from the Ionian islands, (not a single case having occurred these six months,) as it may be necessary to advert to it on a future occasion, in recommending the removal of corps to this island, that may suffer much from the disease in Ionia."

The first embarkation under the new plan took place at Corfu, in July 1822, and the transport arrived early in August; they were followed by others in October. The speculative advantages which were contemplated were fully realized by the results: of one hundred and twenty-one convalescents, principally from remittent and intermittent fever, sixty-four were returned to the islands for duty, forty-nine were waiting for a passage, and eight only remained unfit for service, in the following November. At the same time, of forty men discharged *provisionally* at Corfu, twelve were found, after some stay at Malta, to be fit for more or less service, and were accordingly sent back to their corps, and only twenty-eight were ultimately discharged the service at that period.

As the returns of sick at this depôt are now merged in those of the garrison of Malta, I shall advert no further to them in this topographical report.

NAVAL HOSPITAL.

In a report like the present, it is proper to mention the Naval Hospital, although I cannot enter into any particulars concerning it. It is an airy building, formerly a convent, situated on the opposite side of the harbour from Valetta, and is well adapted to its purpose. The establishment of its officers is one surgeon, one dispenser, one assistant-surgeon, and an agent. During war, its wards were all occupied; at present, however, the patients are very few, rarely exceeding twenty, exclusive of sick officers, three or four of whom have apart-

ments in the house. It is capable of accommodating about 120 patients, with sufficient storage and offices*.

Formerly the naval hospital was established in a very fine building in the city of Valetta, now given over to the civil government, and occupied as a silk manufactory, wine store, and public school-rooms.

MODE OF LIVING OF THE SOLDIERS IN GARRISON.

Diet.—The ration of the soldier in Malta is excellent. The bread is prepared from sound wheat, which undergoes the operation of grinding, sifting, and baking in the king's bakery, by which all adulteration is prevented; an article of good household quality is produced, and variation in price, or deficiency in quantity, is effectually obviated. It must be confessed that the bread is often gritty—a fault depending on the hardness of the grain, which triturates the mill-stones; it has often been obviated by soaking the grain in water. It is said that this hardness exists only in Sicilian wheat, and that for this cause it was rejected in England during the scarcity of 1801. The meat, especially the beef, is of a superior quality. Issues of salt meat and biscuit are occasionally made; the former procured from England, the latter prepared in the king's bakery; the issue of both these articles is to no greater extent than merely to serve as a variety, and never, as far as I have been able to discover, has been productive of any injurious effects to the health of the troops. Wine, of a good quality, is added to the soldier's ration. As the custom of issuing wine or spirits is now established in the army, many inconveniencies, and those of a most serious nature, might arise from striking them off abruptly: all, therefore, that it appears expedient to do, in the present state of things, is, to endeavour, by military discipline, to restrict the men as much as possible from exceeding their ration, or, if they will exceed, to solicit them to drink liquors of the least poisonous quality; this last is effected by establishing canteens in the different barracks under strict regulations.

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* On an emergency, room might be found on the lower floors for eighty or one hundred more.

The deleterious consequences of heat and cold are as much as possible obviated, by regulating the dress and the parades according to the different seasons of the year; and where the sentinels must necessarily be exposed to the summer sun on their posts, moveable sun-shades are erected.

Bathing.—Sea-bathing is always enforced in the summer months. Of the advantages of this practice it would be superfluous to speak,—they are universally acknowledged; but some questions have arisen, on the proper period of bathing. The natives invariably go into the water in the evening; and, did military arrangements admit of it, I am of opinion it is the best time: the reasons upon which this opinion is founded, are, that the accumulated filth and perspiration of the day are removed, and the bather goes and returns from the water without exposure to the heat of the sun; hence cleanliness is promoted, lassitude is prevented, and, from the united consequences, a sound sleep is generally procured.

Exercise.—The exercise of the troops in garrison never affects their health by its deficiency; it is the excess of it from duties of fatigue, parades, and drills that is principally to be guarded against. The state of the garrison, in point of strength and military duty, must always influence the soldier in this respect; in some instances the duties have become so severe, as to make the day of mounting guard comparatively a day of rest to the soldier. Since my arrival, however, in this garrison, though the duties have been numerous, I have not been able to trace (up to the end of 1823) any *general increase* of disease to their excess. It has been universally observed, that the detachments and artillery are more healthy than other troops in Malta; and it has been as universally attributed, and I believe with justice, to the less frequent drills and parades among them. The constrained posture in which the soldier stands on parade or drill, and the weight of his arms and military accoutrements, must render exposure to the sun more oppressive to his feelings, than exposure while on fatigue duty, or in his leisure hours, which, though it may be greater in point of time, is much less irksome, from the unreserved freedom in all his movements, which he may enjoy.

The apartments in which the troops are accommodated, are

described under the head "Barracks;" their bedding is excellent, to the airing of which great attention is paid. In summer the blankets are taken into store. Too much cannot be said in favour of the system of supplying the troops with iron bedsteads or trestles, and allowing each man a bed to himself. It would be a serious improvement, were the guard-rooms, as well as the barracks, furnished with moveable iron bedsteads, or at least iron trestles; for, in the course of years, the bugs and other vermin have established themselves in such uncontrollable possession, that sleep, in the summer months, is generally set at defiance, and hence the soldiers often lie out in the open air, which, however grateful it may be to their feelings, is often productive of ophthalmia, catarrh, and fever, especially when they rush suddenly out of the close and crowded guard-room.

PROVOST.

It now only remains for me to notice the military prisons of Malta. To errors in construction, or mistakes in the arrangement of buildings of this description, many of the diseases of soldiers can occasionally be traced. Every barrack in the island has a regular and wholesome place of confinement for petty offenders, who undergo only a temporary seclusion; but besides this, there is a general provost establishment for the whole island. This is situated in upper Fort St. Elmo, under a non-commissioned officer of good character, selected for its superintendence. It consists of a range of nine cells; they are extremely clean, and are, in all respects, well adapted to their purpose. The culprits are supplied with straw, rations, &c., under the direction of the brigade major. A sick prisoner is occasionally reported; in which case he is immediately taken to the hospital. Feigning illness is of no avail, as they must complete the period of confinement awarded them: hence I have known no attempts at this species of imposition since I have been in the island; and I have little doubt that the subjects, who are usually inmates of the provost, are there placed under circumstances more favourable to their health than they generally are elsewhere, because they are effectually prevented from indulging in liquor and other excesses. Their ration is

the same as that of other men, with the exception of wine. In some cases they are sentenced to labour, and in others they are fed for a time on bread and water, in solitary confinement, but never, as far as I have been able to ascertain, to the detriment of their health.

DISEASES OF THE TROOPS.

Before entering upon this important subject, I shall state the nature of the documents from which my observations are taken, with some explanatory remarks upon them. The principal numerical return from which I have drawn my information, will be found in the Appendix (V.) It goes as far back as the year 1816; beyond which period I can find no uniform series of documents of this description in the inspector's office, and it terminates with the year 1823, thus embracing a period of eight years. I do not offer it as accurate and perfect in every point, but it is as much so as I could procure it; the papers from which it was drawn up were often defective in arithmetical correctness and arrangement, and no access could be had to the medical officers who originally prepared them. An experienced eye will at once detect many deviations from established form in this return, but I have left them as I found them, lest, in *mending them* to the eye, I should *mar them* to the understanding, and, while I gave them such apparent authenticity as numerical correctness bestows, I deprived them of that real value which can only be derived from simple truth.

For the details in explanation of the numerical returns previous to 1821, I am indebted to the various reports of my predecessors, especially those of Inspector Warren, and I have also derived much information from a perusal of the reports of the junior officers who have been in charge of regiments and hospitals. Since the end of 1821, to the summer of 1824, I have been enabled to judge for myself; from the combined results I shall offer some remarks. To enlarge upon every disease, or even to notice them all, would be beyond my power; nor would it be the proper place to do so, were it practicable: I shall therefore confine myself to the principal, and, while treating of them, I shall dwell only on such points as seem to me to

come more peculiarly within the province of a medical topographer. One general observation I may make, viz., that with the exception of pulmonary complaints and diseases of the eyes, there are few foreign stations more exempt from unusual mortality, or even those derangements of the system which imply only a temporary suspension of health or personal comfort, than Malta.

FEVER.

The total admissions into the hospitals of Malta of diseases of every species, for eight years, have been *nineteen thousand five hundred and forty-nine*, of which number, three hundred and twelve have died, or so small a proportion as 1 in $62\frac{205}{312}$. Of the above number of admissions *three thousand four hundred and twenty* have been fevers of various descriptions, or, in other words, fevers have formed one sixth of the entire admissions. Some deductions must be made from this, for fevers of foreign origin, imported into the island, as will appear more fully hereafter; but even after making this deduction, fever will be found the prevalent disease among the troops in Malta.

The following is the classification of the various fevers as they appear on the return.

Quotidian intermittents	208
Tertian „	126
Quartan „	5
Remittents	74
Common continued	2937
„ Icteroid	1
Synochus	65
Typhus	4
Total	3420

Of the fevers of the intermittent and remittent type, enumerated in the above classification, more than one half appears on the returns for the year 1817, and occurred in soldiers of corps (principally the 14th regiment) which had suffered very severely from these diseases, in the islands of Corfu, Cephalonia, Santa Maura, and Zante, previous to their arrival in Malta. I have not now the means of ascertaining, with exactness, what propor-

tion of the remainder appeared in soldiers who were not similarly circumstanced; but, from the general information I can collect for periods preceding my arrival in 1821, strengthened by my personal observation since that time, I am induced to conclude that very few of the cases were of local origin; and I feel justified in stating, that the whole which have occurred under my own observation, were imported, most of them by old soldiers who had suffered in the Ionian islands, the Peninsula, Walcheren, and the West Indies; and some in recruits, natives of the fen counties of England, or Irish labourers who had worked in these counties, and had suffered from intermittent fever there.

Of remittents I have not seen an instance since my arrival; and only fifty cases of intermittents have been received into hospital, including relapses or re-admissions of the same individuals. Of these, forty-six have been quotidians, and four tertians.

The number of deaths of all descriptions of fevers, during eight years, was 77, or 1 in $44\frac{8}{11}$, (nearly 1 in 45). The particular species in which this mortality occurred, are as follows:

From Quotidian intermittents	. .	10, or 1 in	$20\frac{4}{5}$
Tertian „	. .	2, . 1 .	63
Remittents	. . . .	13, . 1 .	5
Common continued	. .	45, . 1 .	$65\frac{4}{13}$
Icteroid	. . . . .	1, . 1 .	1
Synochus	. . . .	2, . 1 .	$32\frac{1}{2}$
Typhus	. . . . .	4, . 1 .	1

I find, in the reports of Inspector Warren, a remark which will tend much to elucidate this table: it occurs in his report for December 1817, and is as follows: "On the first view of the return (between June and December 1817), a striking difference is manifest in the mortality, it being more than double what it was from June to December 1816, though this has arisen from causes not at all dependent on the health of the island, nearly three-fourths of it having occurred in troops no otherwise connected with it than in having touched here in their way from the Ionian islands to England, in a most wretched condition; several of them dying on board ship and in the lazaretto." Mr. Warren goes on to state, that he was led to anticipate a

more favourable result, and that the mortality among the men would have abated on their being removed from the lazaretto, to more comfortable accommodation and a healthy situation, where all their medical wants could be supplied, but in this he was disappointed: "I do not," he says, "recollect the same number of men, under equally favourable circumstances, who have not recovered in a greater degree. It appears as if the powers of life had been at once suppressed; for those who got over the first attack, in many instances lingered on for weeks, with little manifest disease upon them, but with pale lips and sunken countenance, until a relapse, or other diseases supervening, hurried them to the grave."

Among the continued fevers, which bear so conspicuous a proportion to the others, many are doubtless the ephemeral effects of excesses of various kinds, especially in drinking, and, therefore, may in some degree be considered "Symptomatic;" but the true "Idiopathic" fever of Malta is a disease which annually occurs to a greater or lesser degree, and seems to be chiefly the produce of increased temperature, and hence it is called, both here and in Sicily, the "summer fever." I say that it is *chiefly* the produce of heat, because it has been found by constant experience, that the cases commence with the hot weather, are more numerous in the hottest months of the year, and subside as the heat diminishes; but there is no question that intoxication is a frequent additional cause among the troops. A fever, however, precisely of the same general nature, occurs and subsides during the same season in persons where intemperance has no place among the causes, whether exciting or predisposing. It would be a waste of time to enter into a prolonged discussion on this point—I shall, therefore, imbody, in one return, the whole of the numerous facts which establish the position beyond doubt.

Summary View of the Admissions of Fever into the Military Hospitals at Malta, Monthly, from the year 1816 *to* 1823, *inclusive.*

Months.	YEARS.								Total.
	1816.	1817.	1818.	1819.	1820.	1821.	1822.	1823.	
January	84	19	19	17	24	17	21	16	217
February ...	69	17	43	20	5	16	16	21	207
March.....	55	13	22	12	6	13	24	13	158
April.....	37	15	38	34	11	17	20	12	184
May	20	23	45	29	15	28	16	13	189
June	38	22	39	38	18	22	56	39	272
July	63	62	49	45	31	52	143	53	498
August	100	44	45	56	41	46	105	50	487
September ..	69	162	34	29	44	59	98	45	540
October	36	96	32	16	19	32	65	26	322
November...	20	47	14	33	15	23	27	15	194
December...	12	34	17	13	17	21	21	21	156
Total	603	554	397	342	246	346	612	324	
Average Strength of the Garrison	4009	2864	2480	1628	1516	1615	1998	1842	

Fever, we perceive, began to increase with the heat during the three hottest months of the year (July, August, and September), and began to decline with the decrease of the temperature in October. The increase of January and February is to be attributed to the catarrhal fevers of those cold and boisterous months, while the milder months of December, March, April, and May, are the freest from fever of all descriptions of any in the whole year.

In perusing the accounts of this fever by different medical officers, one would be at a loss completely to reconcile them, did they not consider, that, although the fever occurs more or less every year, its symptoms are not always equally violent, or always identical, but are greatly influenced by the peculiarities of climate, season, diet, mode of living, and circumstances of individuals and corps, especially with regard to the intensity of exciting causes, all of which, I believe, have the most powerful effects in the modification of the whole of the diseases of this class. Indeed I have long since adopted the opinion of those

who consider that there is only one order of idiopathic continued fever, and that all its different species and varieties are modified in innumerable ways from varying circumstances.

After some reflection upon the subject, I have concluded, that the most important plan, and the best calculated to give a fair representation of the symptoms of the summer fever of Malta, will be, to transcribe from the report-books the symptoms as given by different medical officers in different years, to which I shall add such observations as I have myself made; and this mode will be less likely to betray into error, because, however individuals may differ in *verbal* descriptions of the symptoms they have met with, or however these symptoms may have varied in *fact*, all are united in sentiment with regard to the leading points in practice, especially the importance of blood-letting. I shall select descriptions of this fever as it has appeared in this island in the alternate years of 1816, 1818, 1820, and 1822.

In the first of these years it is described by Dr. Skey, Deputy Inspector of Hospitals, as it appeared in the 31st regiment, as follows:—

"The type of the prevailing fever was more exactly the 'synocha' of Cullen, than any other. It was ushered in by symptoms of uncommon violence, the excitement of the arterial system which followed the cold stage was great, although the latter were not of peculiar violence. It was marked by severe general head-ach, by the flushed countenance, the suffused eyes, and by the acuteness of the febrile pains. Besides the head, these were referable particularly to the scrobiculus cordis, the hypochondria, and shooting into the chest; the latter was increased by inspiration. Tension and tenderness of the abdomen, particularly at its upper part, accompanied these symptoms; they were followed by bilious vomitings, and the latter, together with the dark appearance of the feculent discharges, proved that disease and inordinate secretions were taking place in the chylopoietic viscera. The first aspect of this disease reminded me forcibly of that more formidable fever of the West Indies, but the seat of the head-ach was not in the forehead exclusively; the sense of heat was not so acute either to the patient or to

the physician, nor was its development so partial as in those horrible diseases. Its progress, and, more than all, its termination, soon corrected the first impression.

"The tongue had commonly a thick white coat over its whole surface, or it was of a dingy yellow colour in the centre; it was never dry. The intellectual functions were but slightly affected, and certainly not in any degree proportionately to what one would have expected from the apparent determination to the head. I do not believe that delirium, or coma, ever were observed in it."

After stating his opinion, that the liver and serous membranes of the thorax and abdomen were often inflamed, Dr. Skey goes on to say:—"It did not often happen that the blood removed had a buffed appearance, for I have noticed it as appearing only in one out of twenty-eight cases, the histories of which were strictly clinical.

"In young and healthy subjects, and when early as well as very active treatment was adopted, the fever was but of short duration; for I remarked that only out of these twenty-eight cases, the average period of the duration of the febrile symptoms, from the day of seizure to that in which they are termed convalescent in the reports, and when the use of all medicine was discontinued, excepting in a few, to whom a light bitter infusion was given, the febrile state lasted but six days; and if they brought sound constitutions into the disease, they were left uninjured by it."

Among the whole of Dr. Skey's patients, the fever led to fatal consequences in one only, who, when his report was written, was sinking into phthisis pulmonalis. The disease he found to increase with the increase of temperature, and he subscribes to the established opinion, that it has a direct relation to the heat of the weather.

In 1818 the disease is described, as it occurred in the 8th regiment, by Assistant-surgeon Ingham. He thus speaks of it:

"Of this disease we have had seventy-nine cases, the type of which more resembled the synocha of Cullen than any other; it in most instances was ushered in by frequent chills, in some cases amounting to rigors, severe head-ach, flushed countenance, nausea, and in some, bilious vomiting, hot skin, white

tongue, full pulse; the intellectual functions in general were not much affected. I only observed coma in one instance, and that terminated fatally; in many cases there was much pain in the hypochondria, extending to the chest, which was increased on inspiration, bowels in general torpid; the disease was very strikingly influenced by the temperature."

The description of the disease, as it appeared in the 10th regiment in 1820, is given by Assistant Staff-surgeon Dr. Kennedy as follows:—

"Of the ninety-nine cases treated, most of them were severe in their symptoms, and rapid in their course; the disease sometimes commenced with rigors, followed by increased heat, severe head-ach, flushed face and eyes, and great pain above the eyebrows, pain across the epigastrium and in the loins and calves of the legs; sometimes with constipation, but generally with loose, watery, and unfeculent stools, as if the functions of the intestines and liver had been suspended. In most instances the vomiting was considerable, with languor and great depression of strength, and with a most unquenchable thirst. The skin was, in general, of an increased temperature, and dry, but during the hot months, and after the disease had made some progress, perspiration was copious, and even profuse, without any obvious mitigation of the symptoms. At times the accession of the disease was sudden; at others, preceded by some days of lassitude, loss of strength, occasional nausea, and want of appetite. In some cases it commenced with the appearance of cholera, or a purging and vomiting of bilious-like matter. The tongue was, in general, white and moist, but in many cases dry, and covered with a black crust. The pulse varied from 90 to 120, at times being strong and full; at others, small, contracted, and oppressed. In some cases there appeared a general collapse of the system, marked by pale countenance, pulse quick and small, purging and occasional vomiting, with severe headach, great restlessness, thirst, and general uneasiness. For the most part, however, the disease was first seen in a state of high excitement; the pulse quick, full, and bounding; the head-ach and pain of loins severe; the face flushed, and pain in the brow and eyeballs, with the skin hot and dry, and the depression of strength considerable. In

short, the symptoms appeared to vary according to the state of the weather, the exciting causes of the disease, the age, constitution and habits of the patient, and the length of time that had elapsed before he was seen. During the progress of the disease the functions of the liver seemed almost always to be, more or less, affected ; often marked by pain or uneasiness, either in the right hypochondrium or epigastrium ; always by the watery, greenish, mucous or blackish, but unfeculent stools. The respiration was very seldom much affected ; the head, the stomach, and the intestines were, more or less, affected in every case, and the local congestions or determination seemed chiefly to affect these organs. Delirium was rarely present, unless towards the termination of those cases which proved fatal. There was often pain over the pubis, with scalding in passing the urine, which varied in its colour, quantity, and consistence. In three cases the yellow suffusion took place; one recovered, the others proved fatal."

Mr. Lightbody, the surgeon of the 80th regiment, speaks of the fever of 1822, as it occurred in the months of July, August, and September as follows :—

" The disease attacked in an ardent form ; in most cases the affection was sudden. In the first instance, the head was, generally, (though not invariably,) principally complained of, and most frequently the forehead, over one or both eyes; the eye frequently was suffused, and the countenance expressive of suffering, the skin generally hot, the tongue covered with a thin, white, slimy coat, or a thick white, grey, or brown fur, generally moist, but attended always with great thirst. The pulse generally increased in frequency, and tense; sometimes languid, full, and slow; in some cases even intermitting. Pain in the back and limbs, with debility and lassitude, were almost always complained of. In some cases, severe pain in the back and top of the thighs was the principal complaint, the patient having no head-ach. Nausea, and even vomiting, were not rare occurrences in the first instance; costiveness sometimes preceded the disease; at other times it was attended with frequent bilious stools ; the matter ejected from the stomach was generally of that nature; and during the course of the disease, the alvine ejections were generally what is termed bilious, the

stools being generally dark; sometimes green, and at others of a bright yellow colour. The urine was high-coloured and red. This description applies to the disease as it appeared in the months of July, August, and September."

To this description of the symptoms by Mr. Lightbody, I shall add his very accurate and judicious account of the treatment, which I select rather than that of any other officer, as I have witnessed its efficacy myself.

"On admission, a dose of calomel and jalap was given to unload the bowels, and in almost every instance blood-letting was employed on the first day, taking from thirty to forty ounces from the arm, repeating it afterwards according to circumstances, then giving calomel and pulv. antimonialis āā gr. v. three times a day, with a dose of saline purging mixture, composed of aq. ammon. acetat., and solution of salts in infusion of senna, aiding the purgative by enemas when necessary, giving diluents, cold water, rice water, or lemonade *ad libitum*, keeping the room cool and well aired, and allowing only of a sheet for covering. The skin was seldom in a state, after the treatment commenced, to admit of the cold affusion."

After stating that particular symptoms called for some variation in the treatment according to circumstances, Mr. Lightbody goes on to say—

"Blood-letting was the only remedy which seemed to have the power of cutting short the disease; to effect which, however, it required to be practised with great liberality. In some cases fifty-two ounces were taken at once, without inducing syncope; but with the effect of putting a period to the disease. Vomiting frequently accompanied the use of the lancet, preventing so much blood being extracted as was desirable, and the peristaltic motion of the intestines, when they had been previously torpid, was also powerfully excited by the same means; more especially when purgatives had been previously administered. The blood drawn, in general, was not cupped or buffed; one copious bleeding, in a majority of cases, was sufficient, and the greatest number of those admitted previous to the 20th of August, were discharged convalescents, in from five to eight days. In most cases the biliary organs seemed to

have been in fault. Calomel, as a remedy, was of the utmost value, whether it exerted its powers on the biliary system, by allaying irritation, or as a purgative by forcing the bile downwards, or as a stimulent inducing a new action in the system; when the gums were speedily affected, the febrile action generally subsided. Yellowness of the cutis took place in only one instance previous to September, but more than one case terminated in hepatitis."

I saw this fever, described by Mr. Lightbody, in 1822, and have also seen it since that period, although in a milder form. The following are some of the principal observations I have made with regard to its symptoms and treatment. I do not enlarge, because a document of this kind is not the proper place for prolonged discussion of medical treatment, which belongs more legitimately to the ordinary annual reports of disease.

The summer fever of Malta, as it appears among the troops, is always attended with congestions in the head, chest, or abdominal viscera, sometimes singly, sometimes in combination. Towards the autumn, the hepatic system appears to be more generally the seat of disease than the head; and, as the affection of this latter organ varies from a circumscribed pain over the eyebrows and forehead, to symptoms almost approaching to phrenitis; so the hepatic affections vary from nausea, bitter taste in the mouth, and biliary stools, up to a yellow tinge of the skin and other symptoms, rivalling, as I am told, the "endemic causus" of the West Indies. The tongue, in almost all the instances that I have seen, and they have been very numerous, was moist and white, as if coated with a paste of chalk and water; the eyes suffused, and even bloodshot in many instances; the pulse various, sometimes full and strong, sometimes weak and thready: there was always present much restlessness throughout the disease.

The yellow tinge of the skin I found to be by no means an uncommon symptom in the fevers of Malta, but there are circumstances connected with it which are not easily explained. It does not appear with equal frequency and intensity in every season, nor does it affect corps which, to all external appearance, are similarly circumstanced, with similar violence. I have

been particular in my inquiries among the better informed civil practitioners, especially among those who have served in our navy and army, and they assure me that during 1822, when yellowness of the skin was so frequent among the fever patients of the 80th regiment, it was by no means so among theirs, whether natives, English residents, travellers passing through, or merchant seamen. From my own personal observation, I am enabled to assert, that the same was the case among the other troops in the garrison, while in the 80th regiment, neither the old nor the young, the recruits, or the veterans who had served in the Indies, the abstemious, or the intemperate, were exempt from it, and it continued in many persons of these descriptions for an indefinite period; it was often protracted long after the period of convalescence had taken place, and was apparently uninfluenced by the medical treatment.

In some seasons yellowness of the skin is a very striking and frequent occurrence among the patients of the civil practitioners. Mr. Stillon, late surgeon of the dockyard, assured me, that in 1812 this symptom was a very general one, and it was more especially remarked among such persons as were not copiously evacuated at the commencement. I am not able to state whether, during that year, the symptom was observed among the troops to follow a similar law; but assuredly in 1822, the omission of evacuation, both by blood-letting and otherwise, could have had no share in producing the cutaneous tinge.

The active treatment employed in military hospitals, leaves us few opportunities of ascertaining the natural crisis of fevers; but, generally speaking, convalescence rarely commenced before the fifth, or was protracted much longer than the fourteenth day. In the summer fever of 1822, previous to the month of August, the patients were generally convalescent in from five to eight days. The state of convalescence was frequently attended with bowel affections, or abscesses in various parts of the body, which ran rapidly into suppuration.

Blood-letting is the general remedy in this disease under whatever form it attacks; and by the judicious employment of this evacuation, accompanied by purging and mercurials, there are few, if any, forms of medicable disease which may not be managed with a fair prospect of success. It is a general ob-

servation, that the blood drawn does not uniformly exhibit a buffy coat; in 1822 it was by no means a general occurrence in any part of the season; but Mr. Lightbody was of opinion, that it was proportionally more frequent towards its close. The quantity drawn was regulated entirely by the effects produced; and, as we might naturally conclude, these effects were more strongly marked in the commencement of the disease than at its close. The copious bleeding at the commencement has saved much after trouble and repetition of the operation. It was also remarked, that in the early part of the season venesection seemed to have more power over the disease than at a more advanced period. Emetics were rarely found useful.

Dissection in the fatal cases of summer fever fully justifies the assertion I made on the subject of congestions in the head, thorax, and abdomen. Besides general congestion, some of the viscera were found in a state either of high inflammation, or approach to inflammation, and the liver has frequently been found in a state of suppuration. It was not, however, the cases where the yellow suffusion of the skin was most apparent, that the liver was found most diseased. In the case of a soldier of the 80th regiment for instance, the skin was of an intense yellow colour, but on dissection the liver was found not in a state of active disease, but whiter and softer than usual; it was of a larger size than ordinary, and the gall-bladder was larger and nearly full of bile; the stomach was distended, its inferior surface near the pylorus was covered with muco-purulent matter; the other viscera, generally speaking, were sound and natural, no inflammatory marks discernible on them; the peritoneum was tinged yellow, and the serous exudation found in the abdominal cavity was yellow, thick, and soapy.

In another case, with yellowness of the skin, there was a copious effusion of yellow serum into the cavity of the ventricles of the brain; the dura mater was covered with a thick crust of yellow lymph as if artificially painted; the pericardium was besmeared with a yellow soapy matter; the heart was yellow and flabby; the pleura was besmeared like the pericardium; the peritoneum was similarly circumstanced; the colon, and other parts of the alimentary canal, exhibited marks of

antecedent inflammation, but the liver was no otherwise unnatural than being much enlarged.

In another case in this regiment, a large abscess was found in the liver, communicating with an abscess in the lungs, but no yellow tinge of the skin existed. In a fourth case, in which no yellowness of the skin was present, the liver was larger than usual; it adhered to the diaphragm by a layer of coagulable lymph; and a large abscess, containing more than half a pint of purulent matter mixed with a small proportion of bile, was found on the upper and convex part of the right lobe.

In some cases the colon was found highly inflamed, and at particular parts running into gangrene. In several cases the appearances, on dissection, were by no means such as to account for the violence of the symptoms during life, or for the fatal result.

With regard to the solitary case marked "icteroid," it occurred in the year 1818. I cannot procure any satisfactory accounts of it from the written documents in my office, neither can I obtain correct information with regard to the history of the four cases of typhus; but from what I can gather from conversation, combined with what I know from my own experience of similar cases, I have no doubt that the fatal case was one of aggravated summer fever, with intense yellowness of the skin, and the others, cases of extreme debility after fever of a similar description.

I have not met with an instance of what I could call genuine typhus since I came to the island; but I have seen not a few cases of fever, which if were not for the difference of the period of continuance, the difference in point of mortality, and the absence of black vomit, I should not hesitate to call genuine yellow fever, as described by authors who have treated that disease in tropical climates.

PULMONARY AFFECTIONS.

The pulmonary diseases of Malta form a subject deserving of very grave and serious consideration; and I shall endeavour, in this memoir, to give such an account of them, as may convey

correct ideas to those who have not had a long experience of their character and treatment. For this purpose I must make some preliminary observations, and recapitulate some of the remarks I have already made, while treating of the Ionian Islands *.

I take the pulmonary diseases precisely as I find them marked in the returns; but it is quite obvious that nosological distinctions have not been accurately attended to in all these documents.

The disease denominated acute catarrh, for instance, often runs with great rapidity into the catarrhal phthisis of the venerable Professor Duncan; occasionally the apostematous phthisis of the same author is treated under the name "acute catarrh," and is even more fatal than the former.

Chronic catarrh is a term frequently given to the cough which occurs in old drunkards, from an irritable state of the stomach and liver; but frequently it is combined with low inflammation and even abscess of the lungs, and in such cases is fully entitled to rank among pulmonary affections.

The vague and indefinite term "pulmonic," when it was in use, included a variety of affections of the chest, anomalous in nature and considerable in number; it is now with great propriety struck out of our nomenclature, but it stands in the older annual returns, with many instances of mortality annexed to it.

Our present form of returns provides for many of these anomalies, for it gives a column for tubercular phthisis, and another for that which is preceded by inflammatory affections of the chest. My opinion of the first need scarcely be enlarged on here; I look upon genuine tubercular phthisis, in which the purulent matter is yielded by a tubercle, in a scrophulous habit, as an incurable disease, or rather as a complicated combination of symptoms, which infallibly announce the approach of death. Not so the other kinds, in which, to use the words of Dr. Duncan, the puriform matter is secreted from "an inflamed surface, in a manner similar to the separation of pus from a blistered issue, or furnished from an abscess formed in the

* See, report on Corfu under the head "Phthisis Pulmonalis."

cellular texture of the lungs." Under favourable circumstances life is often protracted in these two cases.

Under the head "Hæmoptysis," mistake can scarcely creep in, except where the disorder may be merely the temporary effect of a blow or a bruise. The same may be said of pneumonia; and these two forms of pulmonary affections are, especially the latter, the most frequent in this island, and I believe throughout the whole army.

The true spasmodic asthma is a disease of great rarity in military practice, and I am induced strongly to suspect, that the cases marked "asthma" and "dyspnœa," have, in the great majority of instances, belonged to the anomalous pulmonary and hepatic affections of habitual drunkards and worn-out invalids.

Having premised thus much, as to the nature of the pulmonary affections, I now proceed to certain positions which I laid down in my report on Corfu and the other Ionian Islands. From the experience of our hospitals in those islands, from the earliest periods of which I could procure records, down to the end of the year 1821, compared with those of Malta for the same period, I considered the position, not as actually proved, but as strikingly illustrated, that situations most remarkable for malarious exhalations, and consequently for fever of the remittent and intermittent types, afford the smallest number of hectic fevers and affections of the pulmonary class *in general.*

This inference, which has been adopted and ably supported by Mr. Mansford and other British practitioners, was deduced from a comparison of the sick returns from the different islands from 1815 to 1821. I need not here recapitulate the results, as stated under the head "Phthisis Pulmonalis," when treating of Corfu, but shall now proceed further to illustrate these opinions, availing myself of the additional information acquired, since my report on Corfu was offered to the Director-General.

Before entering into the subject more particularly, I should observe, that I draw my deductions from the return in Appendix V., which embraces the period of eight years between 1816 and 1823, both inclusive; for it is for that period, and from that document that I have made all the other calculations

of diseases treated of in the present report. I might, indeed, have gone back, under the head "Pulmonary Diseases," to 1814, but the accuracy and sufficiency of the documents could not, on all occasions, be relied on for the periods prior to 1816; and it would effectually destroy the uniformity of my report, and its authenticity also, to take one class of the diseases of a particular station from one series of documents, and another class from another.

The following table exhibits the admissions and deaths by the various diseases of the lungs in the hospitals of Malta, for a complete period of eight years.

Table exhibiting the Admissions and Deaths by the various Diseases of the Lungs in the Hospitals of Malta, for a complete period of Eight Years, from 1816 *to* 1823.

Diseases.	Admitted.	Died.	Proportional Mortality.
Pneumonia	707	15	1 in 47 $\frac{7}{15}$
Phthisis Pulmonalis	137	68	1 in 2
„ prægressa Inflam. Thoracis	6	5	1 in 1 $\frac{1}{5}$
Hæmoptysis	53	5	1 in 10 $\frac{3}{5}$
Catarrhus Acutus	531	7	1 in 75 $\frac{6}{7}$
„ Chronicus	142	3	1 in 47 $\frac{1}{3}$
Asthma	13	3	1 in 4 $\frac{1}{3}$
Dyspnœa	38	1	1 in 38
Pleuritis	10	„	„
Total	1637	107	1 in 15 $\frac{32}{107}$

By this table, compared with the Appendix, it appears that pulmonary affections, in general, have formed, during the last eight years, very nearly 1 in 12 of the whole admissions (11 $\frac{4}{5}$) into the regimental hospitals of this island. In my report on Corfu I stated them as being 1 in 14. For the two years since that period, they have, as will be seen on an attentive reference to the Appendix, increased considerably, insomuch that they have formed upwards of 1 in 9 of the admissions. A proportion of these of the chronic class has, doubtless, proceeded from the reception into the hospitals of Malta of convalescents, and discharged men from the Ionian islands during the last two years; a portion has also been occasioned by an unusual repetition of attacks in the same individuals, depending upon

the well-known law, that the more frequent the occurrence of pulmonary disease in any individual, the greater is his liability to subsequent attacks; still, however, admitting both these causes of increase to the fullest extent, there remain sufficient to authorize the assertion, that Malta is a station particularly subjected to affections of the lungs; and this is rendered the more striking, from the circumstance that the increase is principally in the acute class of pneumonia and catarrh, and not in old chronic cases, which might, perhaps, have accumulated in he command. The following table illustrates this point.

Table illustrative of the Increase of Pulmonary Affections in the Garrison of Malta for the years 1822 *and* 1823.

Diseases.	Admitted.	Remarks.
Pneumonia	267	The admissions of all the diseases for the two years was 4879; so that the proportion has been as 1 to $9\frac{183}{326}$.
Pleuritis	1	
Hæmoptysis	11	
Phthisis Pulmon. Tuber.	23	
Catarrhus Acutus	139	
,, Chronicus	41	
Asthma	2	
Dyspnœa	36	
Total	520	

I feel confident that I am fully borne out by the annual reports of the medical officers in charge of hospitals, when I state, that the treatment of these diseases has been conducted on sound principles, and that it has been promptly and humanely administered; nevertheless, we find that mortality has been considerable. With regard to mortality by confirmed tubercular phthisis, I shall say but little. I am so satisfied of the utter hopelessness of such cases, that I consider the idea of *prevention* of the fatal event as out of the question; *retardation*, however, is within our power, and it assuredly is a solemn duty to contribute to the prolongation of the life of our patients as far as we possibly can. This can only be done by a removal from the climate before the summer heats have set in. Where we can command the means of transport, all men of exquisitely phthisical habits, and all who are in danger of the disease being developed, should be moved, so as to be

clear of Malta by the early part of May at farthest. It is astonishing how rapidly these cases deteriorate after that period; a succession of hemorrhagic efforts, of exacerbation of cough, of purulent expectoration, of hectic symptoms, and of night sweats, wear the patient down, and evidently keep pace with the increasing heat.

In my report on Corfu, I gave a comparative table of mortality by phthisis pulmonalis, and by other diseases, as observed in each of the islands, and in Malta, drawn from the earliest records in my office down to 1821. The total mortality throughout the Mediterranean, Malta included, was as 1 to $6\frac{71}{128}$. Of this proportion the islands of the Septinsular union gave 1 to $11\frac{1}{4}$; while Malta alone gave its mortality by phthisis, as compared with mortality by all other diseases, in the proportion of 1 to $3\frac{13}{38}$, a difference which could scarcely be overlooked even by the most inattentive observer.

By referring to the Appendix, it will be seen that, for the eight years terminating in December, 1823, the proportion of mortality, in cases marked "tubercular phthisis," though somewhat smaller than 1 to $3\frac{13}{38}$, is still very high; it is as 1 to $4\frac{10}{17}$, including cases of phthisis not supposed to be tubercular; and taking into account the cases marked acute catarrh, (which, in truth, have ultimately turned out phthisical cases,) it will be found as 1 in $3\frac{9}{10}$. Great as this proportion is, I have no doubt that it would have been still greater, if the system of removing men with pulmonary affections to England, every possible opportunity, had not been steadily pursued. It has been a subject of great and general regret, that those opportunities have not been as frequent and as regular as could have been wished; and that invalids have often been detained in Malta for a passage, long after the period at which they ought to have been removed, and, consequently, have arrived in England, either prematurely or too late. It is evident that, by despatching invalids from Malta, about the end of April, they avoid the excessive heats of the island, and arrive at home in that season of the year in which they are least likely to suffer by a sudden alteration of temperature. On the same principle, troops from England should be embarked, so as to

reach Malta between September and March, after the heats moderate, or before they commence.

A very strict medical examination of all corps, recruits or recovered invalids should be made, before they are embarked from their quarters or depots at home, to proceed to this command; individuals who have suffered from affections of the lungs should never be sent out; for, so far from deriving benefit from the climate, it may be safely assumed, as a general rule, that they are injured by it.

A very striking illustration of the propriety of this measure is afforded by the medical history of the 18th regiment. That corps disembarked at Malta from Cork at not the best period of the year, viz. in April, 1821. The 85th regiment disembarked from England in the ensuing July. On my arrival at Malta, in the autumn of the same year, I found both corps doing duty in the garrison; the last was comparatively free from pulmonary affections, while the heaviest part of the sick list of the former consisted of cases of that description. The 85th regiment was composed of younger, and, generally speaking, more robust men than the 18th, consequently, inflammatory affections were to be expected to occur in them, in a greater proportion; being a light infantry corps, their movements were more likely to expose them to profuse perspiration, and, consequently, to more frequent alternations of heat and cold; so far the odds were against them. In other points the two regiments were more on an equality. They were fed alike, their barrack discipline was similar, and they occupied alternately the same quarters, and performed the same routine of military duties. But while one corps returned two hundred and eighty-two cases of affections of the lungs, the other returned no more than eighty-six. It is true that the deaths were nearly equal, they were nine in one corps, and eight in the other; but, in the 18th regiment, seven out of the nine were from old chronic affections; while, in the 85th regiment, six out of the eight were from acute diseases, contracted on the spot, and aggravated by the intemperance of the individuals who suffered. I have constructed the following table to elucidate this, in which, in order to ensure accuracy, the broken

period of the quarter, ending September, 1821, is not taken into calculation, as the 85th regiment only arrived in July of that quarter.

Comparative Table of Pulmonary Affections in the 18th and 85th Regiments.

18th Regiment.			85th Regiment.		
Quarter ending	Pulmonary Cases.	Died.	Quarter ending	Pulmonary Cases.	Died.
20th Dec., 1821..	20	5	20th Dec., 1821..	3	..
20th March, 1822.	27	..	20th March, 1822.	5	1
20th June.....	23	1	20th June.....	5	1
20th Sept.....	35	1	20th Sept.....	9	1
20th Dec.....	26	..	20th Dec.....	17	2
20th March, 1823.	27	..	20th March, 1823.	12	2
20th June.....	27	1	20th June.....	8	..
20th Sept.....	37	..	20th Sept.....	11	..
20th Dec.....	60	1	20th Dec.....	16	1
Total....	282	9		86	8

This striking contrast, I conceive, is, in a great measure, attributable to the circumstance, that, from unforeseen causes, no minute inspection of the 18th regiment took place previous to their sailing; and that, consequently, at least two hundred men, who had long laboured under affections of the chest, were brought out with them,—men who assuredly ought never to have left the British islands.

It is impossible to prevent the questions arising in our minds, whence proceeds the frequency of pulmonic complaints in Malta, both among the natives and troops, and whence those striking ill consequences to pulmonic patients from a residence in the island? I do not attempt to offer a complete solution, or to touch upon every concurrent circumstance, but I shall venture to submit a few observations in illustration of these points.

I would first observe, that heat, such as is experienced at Malta, produces a great "plethora ad volumen," and determination of blood to particular internal parts, especially those weakened by previous disease; I would also observe, that frequent alternations, such as occur at Malta, must greatly affect the regularity of pulmonary exhalation; but I conceive

that there is another powerful effect of the atmosphere to be considered.

Saussure, Humboldt, and others, who have ascended high mountains, have constantly found that, as the air has become rarefied, their respiration has become impeded, pains in the chest have occurred, and, in several instances, hemorrhages from the lungs and nose have taken place, so as to oblige them to descend. Now, in Malta, we have a rarefaction of the air, not, indeed, from the same cause, nor to the same extent that is observed on the tops of mountains, but sufficient to affect the sensations very strongly in breathing, especially when that function is constantly performed under its influence. But it may be said, why does not the rarefaction of the air equally affect the lungs in the Ionian islands, where the heat is nearly as great, and where it is admitted to be more disagreeable to the feelings? The answer, I conceive, is very satisfactorily furnished; the moisture of the air in the islands obstructs its great rarefaction; while, in Malta, it is exiccated to the highest degree from the general aridity of the soil.

Whether a dry air or a moist air be preferable in consumptive cases has been questioned, although the general sentiment is in favour of a low humid situation. In my own opinion, the latter, in combination with a warm temperature, is, generally speaking, decidedly superior. I deduce the opinion from many facts and observations, but from none more satisfactorily than from the comparisons between Malta and the Ionian islands, given under the present head. If this opinion be correct, Malta, which is surrounded by an atmosphere as dry as perhaps any other habitable spot on the surface of the globe, must necessarily be inimical to pulmonary complaints *. It is a striking fact in illustration of this, that the village of Zurrico, the highest and driest in Malta, is the

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* See Clarke's "Medical Notes," 8vo. London, 1820, p. 61, in which he quotes Professor Fodere's opinion. He found that, even in the cold and moist climate of Strasburg, phthisis was more chronic than at Nice. See also Wells, in the "Transactions of the Medico-Chirurgical Society," vol. iii., and Mansford's "Inquiry into the Influence of Situation in Pulmonary Consumption."

most unfavourable for pulmonary complaints of any spot in the island.

Ramazzini, and others who have attended to the diseases of tradesmen, have established it as a fact, that needle grinders, stone cutters, feather pickers, and other artificers who carry on their business in substances which are divisible into very minute particles, capable of being suspended in the surrounding atmosphere, are peculiarly subjected to affections of the lungs. Now, a consideration of the fact mentioned in the preceding part of this memoir, with regard to the frequent clouds of impalpable dust which float in the atmosphere of Malta, and are of such a subtle nature as to penetrate into the houses and the clothing, and even occasionally into our watches, will at once shew us that those inhabitants of Malta, whose lungs are inclined to disease, are placed in this respect somewhat in the situation of the artificers just mentioned. I shall not insist on the calcareous nature of this dust; but I would just mention that most of those who deal in plaster of Paris or lime, die of phthisis, especially those who sift the former article, to make the finer models and casts *. I would also mention, that Dr. Fordyce states, that since the introduction of paving and watering the streets of London, and thus diminishing the floating dust of the atmosphere, consumption has diminished in frequency in that city.

Some of the well known effects of heat on the body of those not natives of the climate, are, to diminish its vigour, to increase the flow of the natural perspiration, to increase the quantity of fluids secreted from morbid surfaces, (purulent matter particularly,) and to render the system throughout more irritable.

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* There is also an illustration worthy of being remembered, (though I do not altogether coincide with the theory,) which I offer on the authority of Diemerbroeck, as quoted by Ramazzini, "that in cutting stones there rises such a subtle dust, as is able to penetrate through ox bladders hung in the shops; insomuch, that, in the space of one year, a master stonecutter found a handful of that dust in the cavity of the bladder, and this very dust he took to be the cause of the death of many unwary workmen." See Ramazzini, chap. xi. and xxiv., and Fordyce in "Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge," vol. i.

Now, the truth cannot be too generally known and promulgated, that phthisically inclined persons, of whatever rank or situation, encounter fearful odds in these points, when they leave their native homes for a residence in this island, or indeed in most parts of the Mediterranean, in quest of renovated health. In other particulars also their hopes are but too often frustrated. Instead of the comforts of an English house and fire-side, they reside in buildings, noble indeed in external appearance, but in which the great majority of those domestic comforts, so necessary for an invalid, are unknown, and the irritability consequent upon disease, is increased to the highest degree by essential differences in manners, customs, food, furniture, and a lengthened train of minor evils, inconsiderable to a person in health, but of vital importance to an emaciated and hectic invalid.

Strong as the evidence I have now given, appears against the propriety of sending persons with diseased lungs to this country, I am far from thinking the practice equally injurious to those in whom disease is only suspected, or apprehended. I conceive, that, under very favourable circumstances, a change of climate from England to the south of Europe may be beneficially tried in young delicate persons, before disease is actually developed; the voyage, the change of air, of scene, and of food, may tend to strengthen their constitutions; but where disease is actually present, I look upon the climate of this part of the Mediterranean, and especially the island of Malta, as most injurious. My observations, it is true, should have been legitimately confined to military persons alone; but, on a subject of such importance, I could not withhold an opinion, which may possibly assist in rectifying a mistake of fatal consequence to other classes of my fellow creatures.

HEPATIC AFFECTIONS.

Hepatic affections are common in Malta, as they are in all other hot countries. Hepatitis, indeed, is not an endemic disease, as in India, but derangements of the hepatic system are so frequent, that the physician cannot go wrong if he holds

them attentively in view, in his practice among all classes of his patients.

The practice of the military hospitals in Malta presents nothing of novelty. Where active inflammation does not exist, small doses of calomel or the blue pill, with occasional doses of the neutral salts, are the remedies upon which we principally rely; while the warm bath, blisters, leeches, or general blood-letting, are employed as occasion may require. In robust young soldiers, recently arrived from England, general blood-letting is always found useful; but in the older subjects, who are emaciated by heat and hard drinking, it is, in many instances, an ambiguous remedy. Of the neutral salts, none that I have ever employed are at all to be compared to the compound form, known under the name of Seidlitz powders; they are quick, easy, and effectual in their operation, and sit well on the most irritable stomach, as they combine all the benefits of an effervescent draught, with a purgative.

RHEUMATIC AFFECTIONS.

These are also a very common form of disease in Malta, especially in the winter and spring months, when we are subject to very high winds and heavy rains, which sometimes make the climate (to our sensations, at least) as chilly and as variable as that of England. There is no peculiarity in the treatment deserving of notice here.

VARIOLA, VARICELLA, AND RUBEOLA.

Variola has been unknown in this island for several years *.

Varicella is, I understand, a very common occurrence among the native children. From the information collected from the native practitioners, I learn that varicella makes its appearance every summer. The greater part of those who suffer from it, are children from thirty months to six years old; it attacks indiscriminately the vaccinated and unvaccinated, but has never

* The last fatal cases I can hear of, are mentioned in Mr. Warren's report for December 1817: they occurred in three children at Gozo.

proved fatal to either class. The summer of 1824 was remarkable for the occurrence of the disease.

I myself saw several cases of varicella in the end of the year 1823 and commencement of 1824, in the vaccinated children of civilians, officers, &c., but it was very mild, so as scarcely to be called a disease. One of the cases occurred in the child of an English clergyman, who was vaccinated by myself about two months before, when four months old. The eruption was vesicular in its origin, progress, and termination; it was preceded and accompanied by a very slight degree of febrile uneasiness; the vesicles burst on the third and fourth day, a slight desquamation took place, and the child was perfectly well by the end of the week. No medicine was required, except an occasional purgative of calomel, and some rhubarb and magnesia. I attended no other child; but those whom I casually saw in the streets, or at their parents' houses, appeared to me to have been similarly affected, and on asking the parents I found that no serious illness had occurred to them during the course of the disease.

Rubeola was, previous to the year 1824, almost as uncommon as variola; only one case of it appearing on our returns for the preceding eight years. In April 1824, however, measles were imported into Malta by the 95th regiment; much to the terror and distress of the inhabitants, and with the loss of many lives among their children and those of the troops in garrison. On the arrival of the first detachment in the end of April, the medical officer in charge of one of the transports, reported, that on the passage from England, two men and one child had been attacked by a very mild form of disease, of which it was very difficult to say whether it was simple scarlet fever or measles; these persons recovered before the termination of the voyage. The medical officer in charge kept no journal, so that I had no clew to guide me to the real nature of the disease, but from his statement I was led to the conclusion that it had been scarlatina simplex. A few days undeceived me; three cases of measles were admitted from the 95th into the hospital of the 80th regiment (where the sick of the detachment were accommodated); in a few days a soldier of the 80th regiment was attacked, and in the course of some days more, a

man of the 95th. The newly arrived corps had been lodged in the barracks with the 80th regiment, so that there could not exist a doubt that the disease on board the transport had been genuine measles, and that it had been imported by this corps, and communicated to the 80th regiment. The alarm excited was very great, both among families of the garrison and those of the natives. No less than sixty-one children of the 80th regiment were affected, out of whom thirteen died. Of the children of natives, I have not ascertained with accuracy how many were affected, nor the number who were carried off, but they are stated to me as having been numerous.

BOWEL AFFECTIONS.

These affections are very common in Malta, but have nothing peculiar either in their symptoms or treatment.

New comers, if they arrive when the fruit is abundant, suffer from diarrhœa, in consequence of excesses in that article; some of them also suffer from a change of water, which produces slight disorders of the intestinal canal. The principal season, however, for bowel affections is the summer months. The diarrhœa which then prevails is the mucous diarrhœa of all hot countries, with occasional attacks produced from checked perspiration, and swallowing large quantities of fluid not always as free from admixture of bad wine and spirits as might be wished. Generally speaking, proper attention to diet and clothing, with a few mild aperients or emetics, as the case may be, will remove these complaints. Nevertheless we find, that in the course of a period of eight years, a proportion of 1 in 108 cases has proved fatal; these, however, were very aggravated states of disease, and complicated with organic derangement of the chylopoietic viscera.

Cholera is neither so general nor so fatal as might be expected in this climate. Occasional attacks from excess, or errors in diet, occur at all seasons of the year, but the idiopathic cholera occurs only in the hot months, and principally in July and September.

Dysentery is not by any means so frequent a disease in Malta as in other countries, where, though the heat is not greater, nor

perhaps so great, there is a larger quantity of moisture subjected to its action. Except where the liver is seriously affected, or the bowels in a state of excoriation or ulceration, it is a disorder, the removal of which is not very difficult; venesection, followed up by steady purging, is generally sufficient to produce a remission of the symptoms in twenty-four hours. If by this time they do not begin to yield, no time should be lost in affecting the mouth with mercury. The usual form is calomel combined with antimonial powder and opium. Many medical men commence with this plan, and, when the mouth can be affected, recovery may be predicted without much chance of disappointment. Of chronic dysentery I do not think it necessary to speak much; a removal from the climate of Malta to England is the principal remedy in these unfortunate cases.

In order that all the facts, with regard to affections of the bowels, as far as they are influenced by season, may appear in one view, I have constructed the following table:—

Table shewing the Comparative Prevalence of Acute Dysentery, Cholera Morbus, and Diarrhœa for each Month of the Year during a period of Eight Years, from 1816 *to* 1823.

Diseases.	Number of Admissions Monthly.												Total Admissions.	Total Died.	Proportional Mortality.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.			
Acute Dysentery	35	19	21	18	18	37	52	50	67	75	111	61	564	27	1 in $20\frac{8}{9}$
Cholera Morbus	3	1	2	5	8	10	26	13	17	13	6	2	106	2	1 in 53
Diarrhœa	45	31	32	28	45	84	128	158	174	167	129	65	1086	10	1 in $108\frac{3}{5}$
Total....	83	51	55	51	71	131	206	221	258	255	246	128	1756	39	1 in $45\frac{1}{39}$

SYPHILIS.

The disease, contracted by sexual intercourse, cannot be said to be very prevalent among the troops in Malta. The police generally perform their duty with great correctness, which very

essentially diminishes the sources of contagion. The soldiers themselves also are become well aware of the powerful preventive effects of cleanliness.

Neither the symptoms, nor the treatment of the cases that do occur, have presented anything out of the ordinary routine of practice since my arrival in Malta. Perhaps I am justified in saying, that our buboes have, in many instances, been more obstinate than I have ever met with them in England, but why I know not.

This is not the place for entering into details on the history or treatment of diseases which do not come under the class of endemic or epidemic, or which have not something peculiar in them as they stand connected with the Medical Topography of the island. I shall, therefore, only say here, that the non-mercurial plan of treating syphilis is in full activity in Malta, and that nothing has occurred in the prosecution of that plan, which has in the smallest degree shaken our faith in its general efficacy and eligibility.

DISEASES OF THE EYES.

The last class of diseases which I shall mention in this memoir is diseases of the eye.

I have already dropped some general remarks upon ophthalmia in my account of endemic diseases. It appears among the troops in all months of the year, insomuch that, during a period of eight years, there is only one solitary instance in which there has not been an admission; this happened in the month of June, 1819, and I should suppose that the occurrence was entirely fortuitous. The ophthalmia of the spring and winter months has, as far as I have observed, been principally of the simple inflammatory form on admission, while the admissions in the end of summer and beginning of autumn have borne more of the purulent character. I by no means, however, would be supposed to say that this has been exclusively the case, and that many conjunctival, catarrhal, and purulent cases have not appeared at all seasons indiscriminately. If, however, a distinction could easily be traced in the general character of the cases *admitted* at different periods of the year,

the *subsequent* changes have been multiform. Differences in the treatment, the health, and conduct of the patients themselves, or circumstances beyond the control of either the individuals or their attendants, have superinduced changes of type in original disease, some of which have been the most severe and complicated that could be imagined.

On a reference to the accompanying table, it will be seen that the months of September and October have been the most remarkable, upon the whole, for the number of admissions. These are the months in which the disease is most prevalent among the people. I have already mentioned their opinion of its being occasioned by the flowering of the pomegranates. This popular idea is not without a parallel. In India, the flowering of the tamarind tree is supposed to be productive of a similar effect. Some conceive that this proceeds from certain sharp spiculæ which, flying off from the new leaves, fill the air, and are conveyed to the eyes, and there occasion inflammation,—this is the idea of the Maltese with regard to the pomegranate; others again conceive that the effect is produced by insects called the "eye fly," which appear about the period that the tamarind tree flourishes, and which naturally buz about the eye and are extremely troublesome *.

I possess no information which would authorize me to give credence to the popular opinions, either of the Maltese or the Indians, on the subject of extraneous bodies; but with regard to the tendency of the atmosphere of Malta, in its natural state, to induce a weak and irritable condition of the eye, there can be no rational doubt,—a week's residence is sufficient to prove it to the most sceptical. In the summer months, indeed, moisture can have little or perhaps no share in producing this effect; at that period I conceive irregularities in the cuticular discharge about the head and neck are much more likely to be the immediate exciting causes. In the autumn, however, moisture, small though it is in quantity when compared with that of other countries, obviously exerts a very powerful influence.

These opinions may be illustrated by familiar examples. It is in soldiers coming off guard that ophthalmia is principally observed. Upon inquiry we frequently find that they have

* See Vetch on Ophthalmia, 8vo. 1820, p. 165.

thrown off their caps and stocks, when relieved from their posts, in order to cool their heads, or have lain down in a draught of air, or they have run suddenly out of the guard-room, while in a state of profuse perspiration, or their hair has been recently clipped and they have caught catarrhal symptoms.

But there are other causes, besides those which occur while soldiers are on guard. In their barrack-rooms they often expose themselves to currents of air while heated, and they are often exposed involuntarily: thus of fifteen men, of one of the regiments in garrison, who were admitted into the ophthalmic hospital in April, 1824, seven were from the same barrack-room. When the circumstance was reported to me by Mr. Lightbody, surgeon of the 80th regiment, I immediately proceeded to an inspection of the room, and on examination I found, that in consequence of the opening of a new gallery in the rock, this room had become a focus, to which three different currents of air converged; it was forthwith evacuated, and the disease ceased.

These facts, I conceive, are abundantly sufficient to shew the effects of suppressed perspiration, in the hotter and drier months of the year. I shall now state a circumstance which I view as equally explanatory of the effects of the hot and moist atmosphere of the autumnal months. Towards the end of August or beginning of September, the clouds begin to collect, first, from the north-west quarter, and soon afterwards from all the others; so that the sun which had previously shone with unmitigated brightness, and generally sunk in a blaze of light and heat, is now screened in some degree by vapours during the day, and frequently sets under a cloud. Its heat does not appear to be sensibly diminished whenever it shines out, but the open air is much more tolerable than during the preceding months, when not a trace of permanent cloud interposed to screen its direct rays. By this preparation, the earth, the houses, and the streets, have time to cool down; and when the first rains actually fall, they sink in some degree into the soil, and are not at once evaporated from the surface, as they would be had they fallen before the temperature of the atmosphere had been in some degree reduced. The natural and highly beneficial consequence of this preparatory cooling, is, that

vegetation is revived by the continued presence of a portion of moisture which of course evaporates more slowly than it would from an arid and baked surface; but while the vegetable kingdom is thus benefited, the inconveniences arising from a moist atmosphere, to certain classes of disordered animal functions, begin to be felt, as in this very case before us. About this time also, the moist south-easterly winds are very prevalent, not unfrequently continuing for several days together; and among the various unpleasant consequences which they produce, our bedding and clothing, whether linen, cotton, or woollen, are continually in a damp state; and even slips of linen, spread over with adhesive plaster, become soft and clammy, and lose their adhesive properties. A constant clammy perspiration oozes out on the skin, attended with a sensation which cannot be better described than in the words of a West Indian lady, who was for some time resident in this island: "the feel," she observed, "was as if she had been bathing in a boiler of syrup;" the hair is peculiarly affected; in some persons it looks dank and greasy, while the scalp is covered with furfuraceous scales, and exudes an unpleasant acid odour. Reasoning *à priori*, we should suppose that, under these circumstances, there existed the greatest reason for dreading the consequences of a sudden check of perspiration, and the apprehension is justified by experience; for the body becomes, at these periods, extremely sensible to atmospheric changes; but on no organ is the effect more remarkable than on the diseased eye; however promising appearances may have previously been, the general result of a dark day, with a moist wind, is, that numerous relapses take place in the hospitals, and numerous readmissions from the barracks.

While I am preparing this part of my report, a striking illustration of the fact, now stated, has presented itself, and I shall give it in nearly the same words I employed when reporting upon the subject to his Excellency the Marquis of Hastings.

"Whenever ophthalmia appears extensively among bodies of men, contagion is carefully to be guarded against, and the possibility of deception is never to be lost sight of; but it frequently happens, as in the case now before us, (the 95th, a new raised corps, recently from England,) that with our utmost

watchfulness we can detect neither. We have, therefore, to look to other causes for the increase of disease. By a minute examination of the returns of the hospitals of this island, from the earliest period I could procure them, down to the current year, (October, 1824,) it is established as a certain fact, that the months of September and October have been, in a very striking proportion, the most unfavourable for diseases of the eye. In my last month's report, I alluded to the damp sirocco winds as one of the causes of the frequency of the attacks of these diseases, but they possess a still further and more troublesome influence, for they operate most powerfully in the production of relapses, after the original disease has been, in a considerable measure, subdued. We have had repeated instances, within the last few weeks, where a very general deterioration of the patients has taken place during the course of a single night, when a damp south-easterly wind has come on. At the moment of my preparing this report, every patient in the ophthalmic hospital (many of whom were, a few days before, in a most promising state) has fallen back in consequence of the heavy sirocco, which continued with unusual steadiness for eight days. It has also been observed, that the two or three days after a heavy sirocco are equally, if not more, deleterious; depending, I presume, upon the circumstance of the damp vapour which it conveys, being rolled back upon us.

"The following comparative statement illustrates the effects of this wind. For eight days, ending 28th September, 1824, the admissions from barracks were eight, all of whom were fresh cases. For eight days, ending the 6th of October, the admissions from barracks were twenty, of which seven were relapses. During the first period the winds were almost always westerly,—during the second, it blew invariably from the south-east; one of the most severe siroccos that has been experienced in this island for many years."

This striking effect of damp does not appear to be confined solely to Malta, but is very generally observed in other places. Oculists in different situations have experienced similar results, especially Dr. Vetch, who has ably stated and commented upon the subject, in his last work on ophthalmia.

Of factitious ophthalmia, as a source of our numerical in-

crease of diseases of the eyes, I have treated at large elsewhere; and I shall not here speak, because it is not peculiar to Malta, and will ever exist where there is a want of proper principle among the soldiers, independent of topographical causes.

As it will serve to illustrate this interesting subject, I annex a table, constructed from the official documents in my office.

Summary View of the Admissions of Diseases of the Eyes into the Ophthalmic Hospital of Malta, Monthly, from the Year 1816 *to the Year* 1823 *inclusive.*

Months.	YEARS.								Total.
	1816.	1817.	1818.	1819.	1820.	1821.	1822.	1823.	
January	25	14	5	9	3	8	48	11	123
February....	17	5	15	11	3	6	21	8	86
March.....	41	13	17	3	4	2	29	5	114
April	28	18	34	3	5	10	35	12	145
May.....	34	5	15	6	2	30	26	11	129
June.....	19	1	14	..	5	11	20	17	87
July.....	19	3	6	4	2	8	18	23	83
August.....	19	8	3	3	12	26	28	10	109
September..	21	10	8	1	34	31	28	51	184
October....	17	21	20	2	16	28	27	31	162
November..	21	7	9	2	7	31	30	28	135
December..	7	9	12	4	9	25	17	21	104
Total	268	114	158	48	102	216	327	228	1461
Average strength of the Garrison	4009	2864	2480	1628	1516	1615	1998	1842	

On consulting this table, it will be observed, that the strength of the garrison was greatest in the year 1816, when the largest number of cases of diseases of the eyes occurred previous to the year 1822 and 1823. The greater proportion of these diseases for these two years is to be attributed to the circumstance, that the garrison was then composed of the 18th and 85th regiments, corps (the latter especially) long remarkable for the existence of ophthalmia in them. The year 1819 was remarkable for few cases; the garrison that year was very low, and it was composed of two corps, which never were peculiarly remarkable for diseases of the eyes, viz. the 10th and 36th regiments; the first, especially, was seasoned to the climate by a residence of eighteen or nineteen years.

September and October appear, as I have already said, to afford the most numerous cases; and next to them, the cold variable months of winter and spring. The corps which was decidedly most free from them, was that which was least exposed to atmospheric influence on night duties, viz. the Royal Artillery.

In this island almost all the other diseases of the eyes are merged in that most troublesome form, distinguished peculiarly by the term ophthalmia. Cases of hemeralopia or nyctalopia, which were so common among the French troops, are now scarcely known; indeed I do not recollect seeing a single well authenticated instance of these diseases since my residence in the island. Amaurosis, in the few cases which I have seen, was of that species, proceeding from a disordered state of the digestive organs, with one exception, in which it was occasioned by pressure on the basis of the brain. Of idiopathic "iritis," I have not met a case. Lippitudo is the form of disease, which appears to have been the most frequent after ophthalmia.

I must now conclude this voluminous report; I trust that a consideration of the multiplicity of objects noticed in it, together with the various professional duties which have pressed upon me while putting it together, will procure for it an indulgent reception. The following are the Appendices referred to in this memoir.

Appendix I.—No. 1. contains an Account of the Climate of Malta.—No. 2. the Physical Geography; and No. 3. the principal Fossils of Malta and Gozo. These papers were originally drawn up by Dolomieu.

Appendix II.—A Return of the Population, drawn up by the Clergy of the different Districts.

Appendix III.—No. 1. contains the Regulations of the late Sir Thomas Maitland, for the Organization of the City of Valetta, in the event of the occurrence of Plague; and No. 2. the Regulations of the Lazaretto and Ships in Quarantine, approved by the same distinguished person.

Appendix IV.—No. 1. is a Register of the Deaths occasioned by Plague in the year 1813, in every Town and Village

throughout the Island: for this valuable document I am indebted to Count Rivarola, late Inspector-General of Police.—No. 2. exhibits the State of the Thermometer, during the Prevalence of Plague at Malta, from April to December, 1813.

Appendix V.—A Return of the Admissions, Discharges, and Deaths in the Military Hospitals at Malta, for Eight Years, viz. from the year 1816 to the year 1823.

APPENDIX TO MALTA.

I.

No. 1.—*Climate.*

The following is an extract from a paper originally drawn up by Dolomieu, and inserted as an Appendix to his "Voyage aux Isles de Lipari," 8vo. Paris, 1783.

The translation by Boisgelin is sufficiently correct; I therefore copy it from his book.

Reaumur's thermometer in Malta during the summer is generally below 25°, and scarcely ever above 28°. In winter it is very seldom lower than 8° below the freezing point.

Heat and cold are most felt when the thermometer is at either of the two extreme points of our temperature, for there is an almost constant contrast between our sensations and the instrument which measures the true temperature of the air, between sensible and real heat.

The different directions of the wind produce an instantaneous change from cold to heat, and from heat to cold. North or north-west winds always occasion cold, and a south wind constantly brings heat. The violence with which they blow modifies the sensations they cause, and those produced by these winds become still stronger, because the atmosphere they put in motion is analogous to what we feel from real heat and extreme cold.

A north-west wind purifies the air in the greatest degree; a north-east wind is not quite so pure, and it becomes infinitely less so when it changes to the south-east, or the south, but it grows rather better when it veres to the south-west, particularly if the sea be much agitated.

The north-west wind is purified by the vast expanse of sea which it passes over; but the north wind would suffer some degree of alteration from Italy and Sicily, if the great vegetation in those fine countries did not tend to purify the atmosphere. When the

wind changes to the south it becomes dangerous, owing to its having passed over the barren burning continent of Africa, where there is scarcely any vegetation, and where the heat is so intense, that every thing susceptible of rarefaction in the earth produces exhalations which enter into the atmosphere. It is not purified by passing over the sea, because the channel is narrow, and being sheltered by the land, the water is not sufficiently agitated to absorb by its motion the mephitic miasmata with which the air is impregnated.

The extreme cold during winter is produced by the pure air which blows from the north. The winds act upon us by their great violence, which continually renews the volume of air that surrounds us.

The cold thus produced is easily avoided by not exposing ourselves to the constant currents of air and violence of the wind.

In summer, when the wind blows from the south-east, the usual purity of the air is so greatly altered, that were it to change a few degrees more, it would be impossible to breathe, and the insensible perspiration of the body would form so thick an atmosphere, that suffocation must infallibly ensue.

The south winds never blow long at a time, seldom lasting more than three or four days. They are frequently succeeded by a calm, during which the heat is also very great, but much less oppressive and suffocating, though the thermometer frequently shews a much higher degree of real heat; the air is then infinitely more pure, and the sea breezes during the night, and indeed some part of the day, greatly refresh the atmosphere. This air is purified by passing over the water, which it gently agitates. There is also a morning land breeze, which, though less pure, cools the air in some degree. When the wind changes suddenly from the south to the north, we feel an astonishing lightness, our sensations are inexpressibly pleasant, and we breathe with the greatest freedom.

Nothing is more salutary during the sirocco than iced beverages; they revive the spirits, strengthen the body, and assist digestion. Snow is therefore considered, at Malta, as one of the first necessaries of life. It is brought from Sicily and administered to the sick. Whenever there is a scarcity of this article, all that remains in the ice-houses is entirely reserved for the use of the hospitals.

There is another method much in vogue among the young Maltese, who, in order to guard against the ill effects of the

sirocco, plunge into water, and come out by degrees without drying themselves, that the humidity in the skin may evaporate, by which means the vapour carries off not only some part of the heat of the body, but at the same time the miasmata of our insensible perspiration.

No. 2.

Physical Geography.

THIS Appendix contains the remarks of the commander Dolomieu, on the physical formation of the islands of Malta, Comino, and Gozo. They were originally inserted in the work of St. Priest already alluded to, and were translated by Boisgelin, from whose work I copy them.

These three islands are calcareous rocks, which furnish very few objects worthy the attention of a naturalist. Indeed, some petrifactions and calcareous concretions are the only fossil productions which deserve a place in a cabinet of natural history. But as there is no single spot on the whole surface of the globe which does not afford some curious observations in cosmogony, nor even a heap of stones which has not some reference to the ancient history of our world, and which may not serve to give an idea of the theory of its original formation, the island of Malta, considered in that light, offers some interesting subjects deserving our attention.

Malta, Comino, and Gozo, are evidently only the remains of a large tract of land which extended towards the south-south-west, and which, owing in all probability to the solidity of the soil, have resisted the violence that caused the destruction of the country, of which they originally made a part. Innumerable observations made on the spot, confirm this opinion, but at present it will be sufficient to prove the fact by some account of the physical formation of these islands.

Malta becomes much narrower at the same time that it lengthens; from east-south-east to west-north-west; the islands of Comino and Gozo are placed successively in the same direction, and are separated by narrow straits.

To have a just idea of Malta, we must figure to ourselves an inclined plane running from south-south-west to north-north-east, in such a manner that the calcareous strata (nearly parallel), of which it is almost entirely composed, rise towards the south and south-east nearly two hundred fathoms above the sea, which dashes against the bottom of these declivities. At the same time on the opposite side, they are of a considerable length, and decline insensibly, till they become level with the sea. The direction of these strata, together with their exact correspondence with the opposite parts, consisting of defiles and valleys, evidently show what was the real shape of the island, when the strata deposited by the sea ceased to accumulate; even since that time it has undergone great vicissitudes. The regularity of this work has been changed, a great part of the upper stratum destroyed, and that vast body of regularly parallel strata so worn, hollowed and ploughed by the violence of the currents, that it is scarcely possible to trace—such is the disorder which reigns throughout the mountains, defiles, hills, and vales—the system which joins them together, and points out the origin of their formation.

The broadest part of the island, the least wasted and the flattest, though sufficiently elevated, is that to the east of the city of Valetta; it is consequently more peopled and easier cultivated, though here, as in all other places, the rock is entirely naked, except where the industry of the inhabitants has placed a layer of earth to encourage vegetation.

The principal defiles and valleys run constantly from south-south-west to north-east, which is their natural direction, for they have all been formed out of the rock by the violent currents of water washing from the heights. These valleys extend to that part of the sea where the coast is most level, and there form those fine ports which make this island so very important for trade and navigation. Smaller valleys have, in process of time, been formed, taking a contrary direction to the principal ones, and the united waters of these form the different ports which communicate with that of the city, which, with a gentle curve, extends into the valley of Marsa, of which it is a continuation.

This valley, now the broadest, the most extensive, and fertile in the whole island, was formerly almost entirely sea; indeed, it is not very long since the tide came up as far as casal Fornaro, but the accretion of vegetable earth from the higher lands, the fragments of the surrounding rocks, the hand of the labourer, and above all, the influx of sand, &c., occasioned by the force of the

sea when the wind is at north-east, have by degrees entirely filled it up. In a short time the bottom of the port will be equally filled, and might be so still sooner, by making basins, into which the sea could be conveyed by dykes, and where, from its calm state, it would deposit that matter which is kept back when the water is greatly agitated. The basin in the midst of a small plain, called little Marsa, is already nearly choked up, and that without any means having been employed for the purpose.

The valleys are longer and deeper in proportion as they extend from east to west. One, very wide, extends itself under the casals of Musta, and Nasciaro, and Gargur, and terminates at the port of the salt works. It is bounded to the right by a chain of craggy rocks which runs across the whole breadth of the island, and divides it into two parts. This boundary, formed by the hand of nature, has been made the means of defence to Malta, by intrenchments formed in the rocks, and seems to be regarded as such by the inhabitants; for beyond it, towards the west, there are no villages, and scarcely any cultivated land. The port or creek of Melleha penetrates so far into the inland country, that it almost divides the island, which is very narrow in that part, and there is every reason to believe that the straits which occasion Comino to be insular, are only the extension of two valleys, the upper of which has been destroyed; and such would be the state of the ports which flank the city Valetta, if any circumstance should destroy the part of the island beyond Pieta and Casal Nuovo.

Gozo stands much higher than Malta, and is entirely surrounded by perpendicular rocks; the highest are to the west and south, where they are tremendously steep. The opposite cliffs of Malta and Gozo are correspondent; but though there are some valleys in the same direction as those of Malta, they do not afford any ports, on account of the height of the land and its breadth.

The country is not so uneven as at Malta, consequently more easily cultivated, and it appears that the surface was originally nearly horizontal. The rock, however, is decidedly of the same nature in both islands, which are equally mountainous, some single, some forming chains, the summits of which are, for the most part, flat. It is very evident that these summits made part of the original surface, when the whole was incrusted by a stratum of a harder and heavier kind of stone of a closer grain, which is now never met with but in that elevated land which corresponds with the inclination of the strata. Some strata are also formed

of a black ferruginous calcareous sand, slightly stuck together by a kind of calcareous lime.

At the back of these rocks in Malta, and in the clefts of the mountains in Gozo, are heaps composed of grey clay, evidently no native of the soil, and which must have accumulated since the excavation of those mountains. It is found in hollows, which no doubt were formerly entirely empty. The above-mentioned heaps but feebly resisting the force of water rushing impetuously down their sides, the constant cataracts have made deep furrows in them, and modelled them into their present form.

On summing up the preceding facts, the question may be fairly asked, from whence came the clay of Malta and Gozo? How could it possibly have got over the craggy rocks of the latter island unless they had both been formerly joined to a higher land, from whence this clay descended, or unless, by an imperceptible declivity, it had been driven by the sea into its present situation? Whence likewise came the red clay, a kind of virgin earth, which fills up the vertical clefts in the rocks? The water which formed these valleys must have been in great abundance, since it had sufficient force to wear away a rock, which, though not very hard, must still have offered some degree of resistance.

This island, such as it is at present, could never have produced such considerable torrents, for, after the heaviest rains in winter, there are scarcely more than some small temporary rivulets, and those in the lowest part of the valleys. The perpendicular rocks could not naturally have existed in a mass formed by the successive accumulation of sand from the sea. The same strata which we perceive in these rocks must have extended till they had met with a declivity, or a curve to reconduct them to a level with the bottom of the sea. There cannot be a doubt but that the island of Malta made formerly part of a mountain, which had the same declivities and valleys on the other side. The rocks, its boundaries to the south, east, and west, could have been formed only by the falling in and destruction of what made their sides, particularly as the sea is extremely deep at the basis of them. In the whole circumference of the three islands, evident marks of corrosion may be perceived. The rocks at some distance from the coast are the mere remains of that part which has been destroyed. In fine, the shape of these islands, all the local circumstances, and a variety of phenomena, decidedly prove that there must have been a great extent of land towards the south and west, and that it must have been destroyed by some very violent cause

out of the common course of nature. It appears that this destructive shock came from the west, and that it acted with the greatest force against every thing adjoining to the island of Gozo. According to our knowledge of natural history, and the causes which produce such extraordinary effects, we can only attribute the present state of things to an immense body of water, which, being agitated by an earthquake, carried away the first land which it met with in its passage, by which means Gozo is become of a circular form, and clefts are excavated at the foot of the rocks which offered most resistance, such as those which form Cape San Demetri. It also destroyed that part of the mountain which united the three islands, and this inundation has stripped them of all vegetable earth, of which only some small patches remain in the clefts of rocks, where it was sheltered from the fury of the waves. The island of Gozo was so situated as to defend Malta, and by that means the northern coast has not undergone such changes as the southern. A variety of observations made in Sicily and Italy prove, that an extraordinary motion in that mass of water had taken place, and the most terrible effects were produced; but to enter into more minute particulars would interfere with the plan of this work.

The facts we have now pointed out may be known and verified by all who will attend to the circumstances; but what must still remain matter of conjecture, is the original extent of this land, its relation with the continent of Africa, and the time when the convulsion took place.

I believe, that since Malta was first inhabited, the island has in some degree diminished. This seems proved by the marks of wheels, which may be traced close to the above mentioned cliffs. Rocks likewise frequently fall in, owing either to the sea working its way under them, or to the incidental destruction of the lower strata.

The soft kind of stone in Malta and Gozo is always more or less inclined to waste and dissolve when exposed to the air; it also undergoes a kind of saline efflorescence, which reduces it to powder, and this effect is hastened by different accidents and particular situations. The stones exposed to the air towards the south are much sooner dissolved than in any other aspect, but nothing wastes them in so short a time as the sea-water, one single drop of which suffices to rot them presently; and, though only one stone should be touched, it frequently communicates itself to the next, and by this means speedily destroys, not only

a whole rock, but a whole building, if a stone thus affected should happen to be employed in its construction. A sort of saline crust, composed of nitre with alkali at bottom and sea salt, is formed over the stone, part of which is no sooner crumbled to powder, than the crust drops off, and others continue forming till the whole of the stone is entirely destroyed. This effect, I believe, is principally produced by the humidity which the sea-water, with earthy particles at the bottom contained in sea-water, always attracts; and this humidity is the principal vehicle for the production of nitre, if at the same time other circumstances concur for that purpose. I have already observed that the stones most liable to this spontaneous destruction are those which contain the most magnesia, from which this soft kind is never entirely free.

In the craggy rocks round Malta and Gozo are many spacious caves or grottoes, some of which being on a level with the sea, the waves dash in when in an agitated state, and resound tremendously. The mouths of others are at different heights, and the access is more or less difficult and dangerous, according to their situation; there are some, indeed, in order to enter which, it is necessary to be suspended by ropes. One of the most considerable of those usually visited, is situated towards the point of land called Benkisa, near the Marsa Sirocco creek. This, from its length and breadth, is distinguished by the name of the *Great*, and it extends more than two hundred paces underground.

All these grottoes are full of stalactites and stalagmites, produced by the water filtering through the calcareous rock. The falling in of one of these caverns must have caused the singular excavation called Makluba, near Casal Zurrico, which certainly deserves to be seen. At the distance of one hundred paces to the south of the shore, and not far from the rocks on the coast, there is a circular, or rather an oval cavity, more than a hundred feet in depth, and formed like an imperfect cone. The larger diameter of the lower plain is about ninety-five paces, and that of the smaller one eighty, but the opening is less than twenty paces. This excavation is in those shelving cliffs which incline a little from south to north, and have hitherto suffered no change, but have remained exactly as if this, in part, circular space had been the work of art.

On examining the state of the lower ranges of rock, I remarked, that they were corroded in the same manner as the others exposed to the fury of the waves. The surface of them is unequal and hollow but they have, notwithstanding, a sort of polish and a

harder coat than the rest of the stone, whereas the upper ledges have suffered the same degree of corrosion which affects all the Maltese rocks when exposed to the air, and which is very different from the basis. There is a great depth of vegetable earth in the lower plain; but though they have frequently dug very low, they have never been able to find a bottom. All these circumstances infallibly prove, that the great hollow was occasioned by the falling in of a vast cavern which communicated with the sea, and the time when this happened cannot have been very remote. Above the space which has sunk in, there appears to have been some habitation, for there is a well fifty feet deep in the part of the rock, into which stairs have been made to descend. It was formerly deeper, but has been since filled up by earth from the neighbouring hills, the mouth of this excavation being situated in a kind of small valley. The word Makluba signifies *overturned.*

There are blocks and detached pieces of a blackish and reddish calcareous stone to be found in different places in Malta, particularly in the part of Benkisa, near Marsa Sirocco. These have a false appearance of *lava,* or of burnt stone with small pores, and when rubbed, exhale a very strong and disagreeable smell. On being dissolved by means of acids, there remains swimming on the top a black oily scum, which occasions the disagreeable smell. This *lapis suillus* has certainly been impregnated with the oil of some cetaceous fish. I am ignorant whether there are any particular strata composed of it.

No. 3.

The principal Fossils of Malta and Gozo, originally drawn up by M. Dolomieu, *and corrected in the little work of* St. Priest, *translated by* Boisgelin.

1. *Pyrites Martiales* and *Conchæ pyritosæ martiales*, found in different clayey hills, particularly in one near the town of Gozo. When these fossils were first discovered, it was imagined they made part of a gold mine, and some speculators threw away their money in making experiments; but the hopes they had cherished of great riches, presently vanished into air.

2. *Gypsum* in those forms which are commonly called *cuneiform*

and *spicular* gypsum: this is formed in separate spots in the same clay; the pieces are sometimes very large, but seldom regularly crystallized.

3. Calcareous alabaster. Those of Gozo are yellow, slightly veined, and sometimes semi-transparent, like the antique alabaster. They are also hard and compact, and there are lumps and blocks sufficiently large to make pillars and urns of a great size, if they were worked for that purpose, but hitherto nothing has been made but tables. Alabaster is found in Gozo on the top of mountains, and it is observable that it forms itself by accretion in those cavities which accident has wrought in the common calcareous mass. The Maltese alabaster exists in large blocks, separated from each other on the sea-coast; the top and middle of the calcareous stone are brown, with circular veins. This is not so hard and compact as the yellow kind, and is liable to a variety of incidental imperfections, such as being full of cavities and earthy, stony parts, which prevent its being employed for works of any magnitude, &c. It derives its dusky colour from a thick and oily sort of matter.

4. A variety of calcareous stalactites formed in grottoes. These are real alabaster in concentric beds.

5. Remains of the back and jaw-bones of various cetaceous animals. These have been found in the calcareous mass in many parts of the two islands, and in a bed of calcareous, ferruginous and black sand, which has given them a tinge of the same colour. These, however, are scarce; they are partly petrified, that is to say, a calcareous lapidifical moisture has penetrated into the bony texture.

6. *Glossopetra*, or more properly, *odontopetra*, or fish-teeth of different shapes and sizes, the greater part of which belonged to the phoca or sea-cow, the shark, different sorts of sea-dogs, and to some particular species of skate. Part of these teeth are indented at the edge, and part entirely smooth; the largest are seven inches long, of a flat triangular form, with a bifurcated or two-fanged root; there are others only one inch in length, pointed, almost conical, with roots also bifurcated, and shaped like birds' and serpents' tongues. Most of these teeth have preserved their grey and shining enamel in such a manner, that the filtration could not penetrate through them; they are therefore not petrified in the inside, and have not lost their bony texture. Those roots which have not been guarded from the filtration are become stony.

Odontopetra are common in Malta, and particularly in Gozo, where they are found enclosed and scattered about in the soft stone of these islands. I never heard whether a jaw-bone was ever discovered with this kind of teeth.

7. *Crapaudina bufonitæ*, or serpents' eyes. These are likewise odontopetra or fish-teeth of a hemispherical, conical, or oval form. They belonged to the gilt-head and other fish of the same kind; they are whitish, grey, yellow, black, or with concentric circles of different colours. These teeth are of different sizes, from one line to four in diameter; they are concave within, and are in a half state of petrifaction. There are great numbers in Malta, but those only with concentric zones are in any estimation, and the large ones of that kind are very scarce.

8. *Odontopetra* which belonged to the *hippopotamus* or river-horse. These were the grinders of those animals, and are almost all square with obtuse conical eminences; there are some eight inches on the surface, but they are seldom found entire. The part which has no enamel is petrified. This kind of *odontopetra* is far from common.

9. *Asteria*, *entrochitæ*, and other detached parts of the vertebræ of the encrinus.

10. Echinides of different shapes and sizes. The most remarkable are the hemispherical, some of which are seven inches in diameter; others, equally large, are pentagonal, pyramidal, or shaped like an imperfect pyramid. Some are almost round, others are compressed and almost flat, and all are distinguished by names analogous to their shape. These large *echinides* are changed into calcareous spar of a yellow or white colour; the inside is either empty or filled with a white or yellow earth, according to the colour of the outside of the spar. The *echinides* are found in pretty large quantities in the craggy parts of Malta, in the soft stone, or in those beds of black sand which are but weakly agglutinated.

There is a great variety of *echinides* of a smaller size, such as the *gobulares*, the *spatagoidæi*, or shaped like a heart, the clunicunares, natiformes, &c. The exterior part is changed into white spar, and the inside filled with the same calcareous white and tender stone, in which they are found in such great quantities. Some among them are much squeezed, but the greatest number have preserved the same shape and position, as in the sea.

Fragments of echinides are also found in Malta; these are

shaped like shields, and are called *assulæ*, *quinquangulares*, *hexangulares*, *mammillares*, *orbiculares*, *&c.*; likewise pieces of small bones of the same fish, but no Judea stones.

11. Numbers of fossil shells of different families, some of which have the upper part half petrified, whilst the impression of others only remains. The only remarkable ones among the former are the *dentalites*, or sea tubes, two inches thick, and frequently many feet in length. When they are in a circular form they resemble petrified serpents. *Ostracites* shaped like cocks' combs, and some very large *pectinites* with and without ears.

The impressions of shells are either black or white, according to the colour of the earth. The most remarkable are the *dactilites* and *pholadites*. The impression of the inside of a small *terebratula*, which is exactly of the shape, size, and colour of hemp-seed; there are great quantities in the rocks near Casal Gargur.

Many of these fossils are found in the hills and mountains near the old city, where there are banks almost entirely composed of them. All the rocks in the island likewise contain some of the same kind.

12. And lastly, quantities of *lithophytæ* and *madriporites* of different sorts and sizes, among which there is nothing very remarkable; they are found in the steep part of the rocks towards the south, and particularly near a place called Bahria; some large rocks are entirely composed of them, and near them other rocks full of *ostracites*.

II.

Population.

No regular and formal census has been recently taken by Government, but the following document, given to me by the Deputy Inspector of Police, will afford a very close approximation to the truth. It was drawn up by the clergy of the different districts.

Population of Malta, March, 1824.

La Valetta and Floriana	25,546
The three cities on the other side of the harbour	18,649
Notabile and Dingli	5,166
Zebug	4,776
Siggieni	3,373
Crendi	1,052
Micabiba	814
Zurrico	3,618
Safi	227
Chircop	315
Asciach	1,136
Gudia	1,040
Zeitun	5,440
Zabbar	3,537
Tarxien	1,011
Luca	1,268
Curmi	4,130
Birchircara	5,253
Balzan	633
Lia	1,039
Attard	907
Musta	3,369
Nasciaro	2,965
Gargur	1,139
Total	96,404

The estimate of the population of Valetta, Floriana, and the three cities on the other side of the harbour, is only to the end of the year 1823. The villages are to the month of March, 1824.

III.

PLAGUE POLICE.

In this Appendix will be found two most valuable documents. No. 1. is a proclamation by the late governor, Sir Thomas Maitland, with his regulations for the organization of the city of Valetta into districts, which offers, perhaps, the most perfect specimen of plague police ever reduced to practice. In No. 2. is the proclamation enforcing the regulations annexed for the management of the lazaretto and ships in quarantine, approved by the same distinguished personage.

No. 1.

Proclamation.

The Right Honourable Thomas Maitland, Governor, &c.—A case of suspicion having yesterday occurred within the town of Valetta, his Excellency the Governor deemed it prudent to take every precaution upon the occasion; and although he is happy in stating that the concurrent opinion of all the medical advisers of government is strongly in favour of its being no case of plague, or of pestilential contagion, he still deems it advisable, as a further precaution, to direct the opening of the communication generally between Valetta and Floriana, as ordered in the proclamation of the 4th instant, to be postponed until Tuesday next. And his Excellency is further pleased to direct that, should no new case of suspicion occur, the free communication shall be opened between the whole of the towns on either side of the port, in respect to each other, and the shipping in the harbour, from the first of the new year.

Although his Excellency is strongly prepossessed with the idea that no occurrence will lead him to withhold the granting of general pratique at the end of the ensuing twenty days, and although he trusts, that, under the favour of Divine Providence, no new case will occur after pratique is granted, still, looking at

the experience acquired from the history of plague in other countries, he would be grossly deceiving the people of these islands, and no less negligent of his own duty, were he not to state, that, for many months to come, a considerable risk of the occurrence of the late fatal calamity is to be apprehended and provided against, with the most anxious and unremitting solicitude on the part of government.

In this view of the subject, it has been his Excellency's duty to make such arrangements as to him seem necessary upon the occasion; and he flatters himself, although no human prudence can totally avert the chance of individual cases occurring, that they are of a nature and character to arrest the evil on its first appearance, so as to obviate the danger of any contagion spreading.

It is only by promptness, decision, and celerity of action that this great object can be obtained; and as nothing is more calculated to enable the government to act with celerity, than that the governed should be aware of what is expected of them, and fully apprized of the general line of proceeding upon all such occasions, his Excellency deems it expedient to publish the following, as the rules which will be adopted, until the fall of next year, in Valetta, and as nearly as may be in every other part of the island, whenever any case of contagion or reported suspicion may take place.

Upon any such occurrence, proclamation thereof will be made by the police officers, attended by a trumpeter or bugler, in the various streets, in order that all persons may retire immediately within their respective houses, and patroles will be made by the military for the duly enforcing such proclamation.

On the case being thoroughly investigated and traced to the utmost extent, the district in which it may have occurred being shut in, and the parties, if necessary, conveyed to the lazaretto, free communication in all the other districts (or such as the nature of the case may admit) will be allowed.

Proper officers are named to superintend the various districts, now formed into twenty-six. A regular establishment will be maintained, and the detailed regulations specifying all the officers, with their respective duties, as connected with the health of the town, will be forthwith published for general information.

By command of his Excellency,

F. LAING,

Chief Secretary to Government.

Palace, Valetta, 24th December, 1813.

REGULATIONS

Referred to in the proclamation, under date of the 24th December, for the organization of the city of Valetta and Floriana for the ensuing year, with a view to prevent a return of the late unhappy malady; and, in the event of its breaking out in any solitary instance, to arrest its progress the moment it appears; which regulations are also to be carried into effect in the strictest manner by all the other towns, casals, and places in these islands, as far as circumstances may admit.

Division of the Cities.

1. The city of Valetta shall be divided into twenty-four districts, leaving the streets Reale, St. Cristoforo, Levante, and the whole of the Line-wall free for the communication and passage of carts, for the purpose of provisioning the town, moving the sick into the lazaretto, removing infected goods, &c.

2. The Marina shall be divided into two districts, and the town of Floriana into seven.

Organization of the Districts.

1. Each district in Valetta shall have one deputy, one clerk, one sick-searcher, and one sergeant of police; all of whom are to be exclusively attached to such district, and to reside therein. In Floriana there shall be one deputy, and one clerk in each district, and generally such a number of sick-searchers and sergeants of police as may be required.

2. Independently of these officers, appointed generally to the superintendence of the district, there shall be, in each street, an officer styled *Capo di Strada,* under the deputy superintending the district.

3. A due proportion of shops from the public market are already selected, and will be moved into any district the moment it is shut up for the supply of the necessary articles.

4. The most reverend the Archbishop has arranged, that on any district being shut up, a chaplain shall be appointed to administer the sacrament within such district.

5. The proto-medico will order into any district shut up, the necessary medical attendants to remain therein, with such medicines as may be requisite.

Duty of the General and District Officers.

1. The inspector-general of police, who will receive his orders direct from his Excellency the Governor, shall be head of the whole police in the island, and shall give such orders and instructions, upon all points connected with the police, as the nature of the case may require.

2. Under the inspector-general there shall be two deputies, whose orders, as coming from him, are strictly to be attended to; and in Valetta there shall be, in addition, three adjutants; the one to be considered as adjutant for the Marina and that part of the town to the southward of Strada Reale; the second, of Strada Reale and the districts to the northward; and the third, of Floriana, whose orders, as coming from the inspector-general, are equally to be attended to.

3. The deputy of each district has, under the inspector-general, the charge of the police in his own district. He shall forthwith, with the aid of his clerk, make out an accurate return of the whole of the population within his district; and he will take care that at the door of each house there be affixed a list of all persons residing therein, which list is to be corrected weekly, and a copy thereof regularly transmitted to the inspector-general.

It shall be the duty of the deputy frequently to call forth the inhabitants of such houses, to see that they are in perfect health; and he will take care that the sick-searchers under him be constantly and unremittingly employed in inquiring into the health of the district, and that regular reports thereof be sent to the inspector-general's office every three days, when no case of sickness occurs; but when such does occur, a report must instantly be made to the inspector-general, who will communicate the same to the proto-medico, that the necessary measures may be forthwith adopted to ascertain the nature of the complaint, and the latter will, with this view, appoint regular medical practitioners to superintend the health of the various districts.

The said deputy will equally take care that the *Capi delle Strade* under him, do, in their respective streets, make similar visits, and regularly report to him the occurrences therein.

Forms of the different reports to be made, will be transmitted to the deputies by the inspector-general.

4. As nothing is more materially conducive to the preservation of health, and the prevention of contagious infection, than the utmost attention to cleanliness, the deputy of the district is par-

ticularly charged with this essential object, and the sergeant of police under him will consider this as a most important part of his duty.

No dirt is permitted to be thrown into the streets, but must be carried to such places as shall be pointed out by the superintendent of the streets, and sanctioned by the inspector-general.

The deputy, the sick searcher, and the sergeant of police will make frequent visits into all the lodging-houses, magazines, stores, cellars, and all low buildings, and report whenever they find any such building not perfectly clean, sweet, and in proper order, to the inspector-general, who is charged with enforcing due attention to this most important object.

Mode of Proceeding in the event of Suspicion of Actual Plague.

On any case of suspicion occurring, the whole population of the town will, on proclamation thereof being made, repair to their respective houses, the gates of the city will be shut, all public business of every kind is to cease, and no person is to move out of his house, except especially employed by government on the occasion, until the necessary measures for general security can be adopted, when notice will be given thereof.

A small establishment of white-washers, expurgators, and *becamorti* will be maintained in the lazaretto, for the purpose of moving the sick, and expurgating the houses; and it is to be clearly understood, that the moment any case of strong suspicion of plague happens, the parties infected, and all persons suspected, are equally to be sent to the lazaretto, taking with them such articles of household furniture or valuables as they may wish to save, for which carriage will be provided; and that, the moment they are removed, the said white-washers and expurgators do proceed to purify, expurgate, and to white-wash the said house or houses.

The district in which the case may have occurred will be forthwith shut up, and regular carriers established. The deputy will put the street in strict quarantine from the rest of the district, and provision will be made for furnishing the necessary supplies.

Duty of the Medical Department under the Proto-Medico.

In every other disease, where it only affects the individual who may labour under it, it is equitable that he should choose his own

medical practitioner, who, of course, will follow his judgment, both with regard to the nature of the malady, and the remedy to be applied; but, as unfortunately in the instance of plague, the effect of the disease attaches to the whole of the community at large, it is impossible to trust so serious a charge to the knowledge of any single individual, however learned in his profession, either in relation to the character of the disease, or to the measures to be adopted. Regular consultations must invariably be held, which shall be composed of a smaller or greater number of members, as the nature of the case may require, but in no instance can the decision of any serious disorder be left to the opinion of one individual. It hence follows, that all medical practitioners within these islands shall, in every case of grave disorder, occurring within the period above alluded to, report the same forthwith to the proto-medico, to the end that a consultation be immediately held to ascertain the character of the disorder; and any omission on the part of any medical practitioner, of whatever nation, of this most important part of his duty, will be held as incapacitating him from hereafter performing any of the functions of the medical department within these islands.

On the same principle, it becomes indispensably necessary that a medical examination of all dead bodies, previously to interment, shall take place, which will be directed by the proto-medico; and no person, upon any account, is to be interred without such antecedent examination.

The other towns and casals are to be forthwith organized on a similar principle by the different officers under government; and a report of the exact organization to be sent, without delay, to the Inspector-General of Police, for approbation.

By command of his Excellency,

F. Laing,

Chief Secretary to Government.

Palace, Valetta, 3d January, 1824.

No. 2.

Proclamation.

Major-General Sir Manley Power, Lieutenant-Governor, &c. —His Honour the Lieutenant-Governor, with the previous ap-

probation of his Excellency the Governor, is pleased (with reference to the proclamation under date the 18th of April, 1814) to publish, for general information, the following rules and regulations for the performance of quarantine in this island, which will be considered in force from the date of the publication hereof, until further orders.

1. All ships and vessels of every description, which may be judged liable to perform quarantine by his Majesty's government, shall proceed into the harbour of Marsa Muscet, which port is solely appropriated for that purpose.

2. All merchant-vessels liable to quarantine, entering the great harbour when it is possible to comply with the foregoing regulation, will be subject to the penalty of two hundred dollars.

3. All ships and vessels, after entering the quarantine harbour, shall be visited by the captain of the port, who will point out the proper place of anchorage, according to the nature of the quarantine they may have to perform, putting the usual queries to each commander, as stated in the printed quarantine regulations under this date; the answers to be taken down in writing by the captain of the port, and sworn to, if required, by the commander, and subsequently entered in the register, kept in the quarantine office for that purpose.

4. All vessels arriving with foul bills of health, that is, from countries or places where the plague or any infectious disease doth actually exist, shall be subject to a quarantine of thirty days; the quarantine to commence from the period the whole of the susceptible articles (which are enumerated in the lazaretto regulations) shall be landed in the lazaretto. The said goods to be exposed in the lazaretto to thirty-five days' expurgation, in the strictest manner, and ten days subsequently for repackage.

5. All vessels arriving with cargoes of an unsusceptible nature, viz. of such articles as are not enumerated in the quarantine regulations, and with foul bills of health, shall be subjected to a quarantine of thirty days; the unsusceptible articles to be landed with as little delay as possible, according to the quarantine regulations; and if no susceptible articles be discovered on board such vessel when unloaded, the term of her unloading will be included in the quarantine.

6. Vessels arriving with touched bills of health, that is, from ports or places having communication with countries where the plague or any infectious disease doth exist, and making use of no precautionary measures against the introduction of such disease,

as in the case of the Mahomedan countries and islands, shall be liable to a quarantine of twenty days, without susceptible articles are on board, and with susceptible articles on board, twenty-five days; the period of quarantine to commence as with a foul bill of health.

7. All articles of a susceptible nature to be landed in the lazaretto as early as possible.

8. The quarantine of persons arriving from countries where the plague, or any infectious disease doth exist, (provided such persons, after landing in the lazaretto, will submit to separate themselves *in toto* from their baggage and clothes, and undergo an ablution with soap and warm water,) may be reduced to twenty days as a *maximum*, from the date of such separation and ablution: the baggage and clothes to undergo the same process of airing, as susceptible articles, under the same circumstances.

9. The quarantine of persons, arriving in vessels with touched bills of health, may be reduced to ten days as a *maximum*, if they choose to undergo the same process as is directed in cases of foul bills of health.

10. All communication on the high sea, or otherwise, with ships, persons, or goods, will render those communicating liable to the same quarantine as those communicated with would have been liable to on their arrival in this island.

Independent of the above regulations, government will establish, from time to time, a quarantine of observation on vessels and persons, as may be deemed necessary for the security of the public health, in consequence of the state of the countries from which they arrive.

Under this regulation, all vessels arriving from the Ionian islands will, until further orders, be subject to a quarantine of fifteen days, if with susceptible goods on board, and to twelve if with unsusceptible goods.

By command of his Honour,

RICHARD PLASKETT,

Chief Secretary to Government.

Palace of Valetta, 12th October, 1820.

Regulations for the Performance of Quarantine at Malta.

All ships and vessels, as well as his Majesty's ships of war, coming from, or having touched at, any place from whence it shall, by government, have been adjudged and declared probable, that the plague, or any other infectious disease, or distemper, may be brought, shall enter the harbour of Marsa Muscet, and be obliged to perform quarantine in such place or places, for such time and in such manner, as shall, from time to time, be directed by his Excellency the Governor, through the medium of the superintendent of quarantine.

And all ships, vessels, and boats receiving any person, goods, wares, and merchandise, packets, baggage, books, letters, or any article whatever, from or out of any ship or vessel, so coming from, or having touched at, such suspected place as aforesaid, are liable to the same quarantine; whether such persons, goods, or other articles shall have come, or articles been put on board the same, either before or after the arrival of such ship or vessels in the island of Malta.

And that until such ships, vessels, and boats, persons, goods, and other articles as aforesaid, shall have respectively performed, and shall be duly discharged from, such quarantine, no such person, goods, or other articles as aforesaid, or any of them, shall come or be brought on shore, unless in such manner and in such cases as they shall be directed and authorized by the superintendent of quarantine, and under the immediate inspection of the captain of the port, or the captain of the lazaretto.

And all commanders, masters, and other persons on board any such ship, vessel, or boat, so liable to quarantine, and all persons who shall have any intercourse or communication with them, or any of them, shall perform quarantine accordingly, under and subject to all the pains, penalties, fines, forfeitures, and punishments, as well pains of death as others to which they are by law subject, for any escape, or attempt to escape, or any other breach of quarantine regulations.

Upon the arrival of any ship or vessel liable to quarantine, the captain of the port, together with the medical attendant, when it shall be thought necessary, shall go off to each ship or vessel, and at a convenient distance, keeping to windward, and in the presence of the officers, crew, and passengers, mustered on the gangway, demand of the commander, or person having charge of such ship or vessel, answers to the following questions:—

1. What is the name of the vessel, and the name of the commander?

2. Are you the commander? What number of officers, mariners, passengers, or other persons have you on board?

3. To what port or place does the ship or vessel belong?

4. Where did you take in your present cargo; and at what place did you touch before you arrived at the port or place where you took in your present cargo?

5. From what port or place does she now come? When did you sail from such port or place, and at what place or places have you touched in the course of your voyage?

6. Have you any bills of health, and from what place? Are the same clean, unclean, or suspected? Produce them.

7. Of what articles does your cargo consist? At what place or places was the cargo, or any part thereof, taken on board, and in what day did you sail from such place or places, and what part of your cargo was taken in at such place, and when?

8. Have any persons died on board during the voyage,—(if any) when and in what part of the voyage, and of what disease?

9. In the course of the voyage have any persons on board suffered from sickness of any kind,—(if any) what was the nature of such sickness? When did it prevail? How many persons were affected by it? Are all persons on board at present in good health?

10. Were any of those who died, or who have been sick in the course of the voyage, suspected to have been affected by any infectious disease? Were the bedding and clothes of the deceased, or sick persons, destroyed? Were any persons, employed about the sick, afterwards taken ill,—(if so) of what disease, and in how many days after having been so employed?

11. At what precise time, after leaving port, did such deaths happen? In how many days, after being indisposed, did the sick die? What were the most obvious appearances of the disease?

12. Do you know whether any person whatever employed in loading your vessel, or in bringing articles into it, or having any communication on board thereof, was taken ill during such employment or communication, or whether any suspicion was entertained of their having been taken ill,—(if so) of what disease?

And when thought necessary, the answers to the aforesaid questions shall be taken down in writing, and the commander or other person, having charge of such ship or vessel, shall solemnly make oath to the truth thereof, before the captain of the port, and shall

conform to all such directions as he shall receive, touching quarantine, from the officers of health.

It having been ascertained that certain sorts of goods and merchandise are more especially liable to retain infection, and may be brought from places infected into this island, such goods and merchandise are here enumerated in two classes, viz.

Class the First—consisting of those articles which are considered as most liable to infection.

Apparel of all kinds.
Artificial Flowers.
Bast, or any article made thereof.
Beads, bracelets, or necklaces in strings.
Beds.
Bed-ticks.
Brooms of all sorts.
Books.
Brushes of all sorts.
Burdets.
Camlets.
Carmenia wool.
Carpets.
Canvass.
Cordage not tarred.
Cotton wool.
Cotton yarn.
Cotton thread.
All articles wholly made of or mixed with cotton, silk, wool, thread, or yarn.
Down.
Feathers.
Flax.
Furriers' waste.
Goats' Hair.
Gold or silver on thread, cotton, wool, or silk, or any other substance hereinbefore enumerated.
Grogram.
Hats, caps, or bonnets of straw, chip, cane, or any other material.
Hemp.
Hoops.
Horn and horn tips.
Hair of all sorts.
Leather.
Linen.
Lutestrings, catlings, or harpstrings.
Maps.
Mattresses.
Mats and matting.
Mohair yarn.
Nets new or old.
Packthread.
Paper.
Parchment.
Pelts.
Platting of bast, chip, cane, straw, or horse-hair.
Quills.
Rags.
Sails and sail-cloth.
Silk, viz. crapes and tiffanies.
Husks and knubs, raw silk, thrown and organzine silk, waste silk, wrought silk.
Skins, hides, and furs, and parts or pieces of skins, hides, and furs, whether undressed, or in part or wholly tanned or dressed.
Sponges.
Straw, or any article made or mixed with straw.
Stockings of all sorts.
Thread.
Tow.
Vellum.
Whisks.
Wool, whether raw or any wise wrought.
Yarn of all sorts.

And all other goods whatever, if they shall have arrived in, or with packages, consisting wholly, or in part, of any of the articles above enumerated in this class, unless such goods shall be removed from such package, as hereinafter mentioned.

Class the Second—consisting of those articles which are considered as liable to infection, but in a less degree.

Senna.	Sal nitre.
Jalap.	Sal ammoniac.
Gum Arabic, tragacanth.	Madder.
Opium, scammony.	Shumac.
Antimony.	Galls.
Cantharides.	Tobacco.
Alum.	Coffee.
Juniper berries.	Wood in raspings.
Pomegranates, flower and seeds.	Cork.

And all such goods, wares, and merchandise, here specified, which shall be brought or imported into Malta, from suspected places, together with the ships or vessels in which the same shall be brought, shall be subject and liable to such quarantine regulations as may be made, from time to time, by his Excellency the Governor of these islands.

In the event of any person being afflicted with any infectious disease, either on board ship, or in the lazaret, a sufficient number of guards shall be regularly kept by day and night for the purpose of preventing all clandestine communication between persons in the lazaret and those occupying that part of it appropriated for a pest-house; and a sufficient number of guard boats, having guards with loaded muskets, shall be regularly kept for the purpose of preventing communication between persons in the lazaret and those in ships and vessels under quarantine, and between those and any other persons in any other ship, vessel, or boat, or on shore.

And all boats belonging to vessels under quarantine (with foul bills of health) shall be taken from them, and no use made of such boats, except for the purpose of conveying goods to the lazaret, or upon occasions of necessity, to be determined by the superintendent of quarantine, and such boats shall not be delivered up to the commanders of such ships, until the expiration of the quarantine respectively to be performed by them.

And all ships or vessels in quarantine with clean bills of health will be allowed the use of one boat, carrying the yellow flag, and having a health guardian on board, subject to such orders and instructions as they may receive from the health officers; such boats to be regularly hoisted in or secured by a chain and padlock one hour before sunset, and not be used before seven o'clock in the morning in summer, and eight in winter.

A proper person appointed by the superintendent of quarantine shall, as often as required, afford assistance, and provide necessaries for the persons in the lazaret, and also for those on board ships and vessels under quarantine in Marsa Muscet harbour, which person shall not charge more than the market price for such necessaries furnished by him, and shall deliver them (his boat being placed to windward) by means of buckets, taking care to prevent any improper communication.

The quarantine guardians placed on board ships and vessels shall be instructed to take special care that nothing whatever be delivered from on board such ships or vessels when under quarantine, without an order in writing from the superintendent; and nothing, however little susceptible it may be thought to be of infection, shall be conveyed from one ship or vessel under quarantine to another, nor any personal intercourse be permitted from one ship or vessel to another; and one of the quarantine guardians, when thereto required by the superintendent of quarantine or captain of the lazaret, shall accompany the lighters and boats employed in passing to and from the vessels, in order to prevent any communication in the transit of the cargo from the ships to the lazaret, and shall take care, after every removal of goods, that no remnants of cotton or of any other article enumerated in either of the two before-mentioned classes, remain in the lighter, or in the boats, but shall, before leaving off work, collect and deliver such remnants into the lazaret with the last package, which they shall then carry from the said ship or vessel, and the health-guardian shall take care, that, after the discharge of the cargoes into the lazaret, the holds and between-decks of the ships shall be completely swept, and the sweepings burnt.

The said guardians shall diligently search the lockers, shelves, and other repositories of the officers, passengers, and crew, and every part of the ships and vessels, so that no article so enumerated in either of the two before-mentioned classes, nor any matter or thing considered as susceptible of infection, remain undelivered to the lazaret, unless what shall be declared by the medical attendant or captain of the lazaret to be requisite for daily use, and shall see that all the said chests, lockers, and other repositories, and all the clothes and bedding in the ship or vessel be daily opened and aired, in such manner as shall be directed by the superintendent of quarantine; and the guardians shall also make the like diligent search in ships and vessels laden with other goods

not enumerated in either of the said classes, so as to be able the better to ascertain that nothing enumerated or considered susceptible has been left on board.

If any person on board shall fall sick, and any medical person shall be on board the ship or vessel, such medical person shall confer with the medical attendant alongside the vessel (the medical attendant keeping to windward), at a proper distance; and in case there shall be no medical person on board, and that it shall be necessary for the medical attendant to visit the sick, the visit shall be made at the ship's boat, by the medical attendant in another boat; and if any patients after having been so examined, shall be found to require such medical or surgical aid as cannot properly be administered on board ship, he shall be accordingly removed to the lazaret hospital, or to apartments in the lazaret. And should there be any patients under circumstances which shall induce suspicion that they may be infected with the plague or any other infectious disorder, whether such persons shall be in the lazaret or in any ship or vessel performing quarantine, they shall be sent to the pest-house or other place provided for the reception of persons afflicted with any infectious disease; and when it shall be proved that the disease is not the plague, nor infectious, the patients shall be removed to a more commodious apartment in the lazaret, there to complete the remainder of his quarantine.

And in case that any pestilential disorder actually discovers itself on board any ship or vessel, or among any of the persons under quarantine on board of any ship or vessel, or in the lazaret, the person or persons affected with such disorder shall be removed, with all possible care and despatch, under the direction of the captain of the lazaret and medical attendant at the pest-house, or place in the lazaret provided for the reception of persons affected with any infectious disorder; and a proper attendant shall be assigned to such patient or patients; and such patient or patients shall be visited at a due distance by the medical attendant; and in case nearer approach shall be required, some persons shall be specially appointed by the medical attendant for that purpose.

The passengers or crew of any ship or vessel under quarantine may have the assistance of any medical person they may desire, from the shore; subject to the official visits of the medical attendant, and to such regulations and restrictions as the superintendent of quarantine (with the advice of the medical attendant) may judge necessary. But all such medical persons, as well as all

others, if they communicate by contact with the sick, shall perform the same quarantine as the sick persons themselves.

After the quarantine guardians shall have been placed on board any ship or vessel, (not furnished with a clean bill of health,) the pilot and passengers may quit such ship or vessel, and be removed, under the care of a health guard, to apartments in the lazaret, provided they come from a ship or vessel having no suspicious sickness on board; but if otherwise, such pilot and passengers shall be sent to the pest-house, or other detached place, which may be provided for the reception of persons afflicted with any infectious disease, at the direction of the superintendent of quarantine, with the advice of the medical attendant, and there continue in quarantine for the period fixed by government; and at the expiration of which time, if such pilot and passengers continue free from infection, they shall be discharged; provided, that during the performance of such quarantine, the pilot and passengers shall not have had communication with any other person, except under similar restrictions to those herein directed, with regard to other persons under quarantine.

And in case any pestilential disorder shall occur among the ship's crew or passengers, before the expiration of the said period of quarantine, at whatever stage of the quarantine such accident may happen, the quarantine of the officers, passengers, crew, and pilot, as well as of the goods, wares, and merchandise, shall recommence; and the sick persons shall be sent to the pest-house, or place appropriated for the reception of persons afflicted with any infectious disease; the guards shall be immediately doubled, and such orders given by the superintendent of quarantine, as may appear necessary.

All baggage, wearing-apparel, books, and every other article, belonging to any person on board any ship or vessel, arriving as before mentioned, and not furnished with a clean bill of health, for which they shall have no immediate occasion, shall be sent to the lazaret, for the purpose of being aired; in like manner as other goods of the same description.

And that the expurgation of goods, wares, and merchandise, enumerated in class the first, as before mentioned, after they have been removed to the lazaret, shall proceed in the following manner, that is to say—

The following articles, viz. cotton, rags, raw wool, goats' wool, Carmenia wool, and hair, shall be taken out of the bags,

and shall be ranged in low heaps, not above four feet high, and successively handled and rummaged.

All goods packed in or with straw, cotton, or any other article enumerated in the said first class, or considered as susceptible, shall be entirely taken out of, or separated from the same, and carefully aired.

All goods enumerated in the said first class, concerning the expurgation of which no particular directions have been given, shall be unpacked, opened, aired, and handled, in like manner, so far as may be, as is hereinbefore directed, with regard to goods of a similar description.

After the delivery of all the goods, wares, and merchandise, enumerated in the first and second classes before mentioned, into the lazaret, the ship or vessel, with the rest of the cargo, shall then commence on her quarantine, during which the packages, wares, and merchandise, (not enumerated in either of the classes mentioned,) remaining on board, shall be frequently swept and shifted, from time to time, as much as possible, according to the nature thereof, so as to admit of free ventilation; and at the expiration of the period fixed by government, if all persons on board, and also all those on shore, employed in the expurgation of that part of the ship's cargo in the lazaret, continue free from every appearance of infection, the ship or vessel, and such part of the crew, passengers, and cargo, as remained on board, shall be finally fumigated and discharged.

The following non-enumerated goods, viz. dried fruit, oil, money, and grain, pulse and other seed, in bulk or in sacks, provided that all the persons on board remain in health, and the articles separated from all matters of susceptible quality, shall be delivered with as much despatch as possible.

The quarantine of all goods, wares, and merchandise, (as well such as are directed to be left in, as such as are to be removed from, the ship or vessel,) in cases where the cargo shall consist partly of articles enumerated in the said first and second classes, and partly of non-enumerated articles, shall commence and be computed from the day on which the whole of the articles enumerated in the said two classes, shall have been removed from the ship or vessel importing the same, to be opened and aired in the manner before directed.

And the captain of the port is directed, upon any unforeseen emergency, or in any case with respect to any particular ship or vessel, having any infectious disease on board, or arriving under

any other alarming or suspicious circumstances, as to infection, to put such ship or vessel in quarantine, in the place appointed for such vessels, and immediately report the same to the superintendent of quarantine, that the necessary measures may be adopted.

Tne masters of the guard-boats, and the chief guard on shore, will report every morning, at day light, to the captain of the port, the number and description of the different ships and vessels which have entered the harbour in the course of the night, which ships and vessels must be immediately visited by the captain of the port.

All ships or vessels in quarantine must constantly keep a yellow flag flying at the fore-top-gallant-mast head, or other conspicuous part of the rigging; and if the ship is not provided with a clean bill of health, the yellow flag must have a black ball (not less than six inches in diameter) painted in the centre.

The captain of the port must constantly carry in his boat a proportion of yellow flags, for the purpose of supplying ships or vessels not furnished with the same. He must also have in his boat, a bucket with vinegar, a pair of iron tongs, and a fumigating box, for the reception of bills of health, Mediterranean passes, &c. These he will deliver to the officer of the health department, not to be returned until the expiration of the quarantine; and it is to be understood, that the said ship's papers are not to be received by the captain of the port, except where such ship or vessel is provided with a clean bill of health.

And all masters of ships or vessels, whether provided with foul or clean bills of health, shall, when required, deliver up to the officers of the health department the manifest and other ship's papers, (the necessary precaution, of dipping them in vinegar and fumigating, having been first observed,) and shall, before the captain of the port, make a solemn declaration, upon oath, to the contents of the same, to the best of their recollection and belief; which declaration shall be taken down in writing, and registered in the health office.

The captain of the lazaret will, in person, superintend the discharge of cargoes in the lazaret, and he will be particularly careful that the cargoes, subject to the different terms of quarantine, be deposited in different stores, and that no communication be held by the persons employed in landing such cargoes, or by the person having charge of them, after they are landed: and when a cargo has undergone quarantine, and is to be re-embarked, he will order

the boats and lighters to receive it at one of the wharfs separate from those where goods are unloading.

And when a cargo from a ship or vessel with a foul bill of health is to be landed, he will assign a separate and distant part of the wharfs, for the landing of such cargo, as well as a separate store for its reception, with an additional guard to prevent communication.

The captain of the lazaret must keep a register of all goods landed, and, if required by the master of the ship, will give a receipt for any parcel received, specifying its mark and number, and the number of the store in which it is deposited; he is responsible for all goods landed, and is directed to send to the consignees a notification three days previous to the termination of quarantine of any parcel of goods.

Persons wishing to examine goods at the lazaret must carry with them a permission from the consignees of such goods, which permission must be countersigned by the superintendent of quarantine, or the captain of the lazaret; and, during the examination of such goods, must be attended by an additional health-guard.

The captain of the lazaret is directed to prevent all persons in pratique entering into any of the apartments occupied by persons in quarantine in the lazaret; when such visits are necessary, they must be made at the *Parlatorio*, by a written permission from the superintendent of quarantine, and in the presence of a health-guard.

The captain of the lazaret will frequently, in the course of the day, visit the different apartments and stores in the lazaret; and once in the day he will visit every ship and vessel with foul bills of health, muster their crews, and ascertain from the health-guardian, whether the regulations have been properly complied with; and if any impediment shall occur in the execution of the duties required by the said guardians, the captain of the lazaret shall take care to use effectual measures for the removal of the same, and immediately report it to the superintendent of quarantine; he will also see all boats belonging to the lazaret (excepting the guard-boat) chained to the shore every evening at sunset; their sails and oars taken from them, and locked up in an apartment within the walls of the lazaret.

The captain of the lazaret will keep a register of all persons performing quarantine in the lazaret; he will take into his custody their arms of every description; he will take care that regularity and good order are preserved among the passengers, guardians,

and porters; and if it should be found necessary to confine any person for impropriety of conduct, all those in the same quarantine are required to assist him in the execution of his duty.

Passengers performing quarantine in the lazaret must strictly conform to all regulations pointed out to them by the captain of the lazaret; they are not permitted to have dogs, cats, or other domestic animals going loose; they must not communicate with persons in different periods of quarantine; they must frequently expose their bedding and wearing-apparel to the open air; their mattresses must be slit open, and the contents pulled out and aired.

All officers of health, and other persons, must carefully avoid touching either goods or passengers in quarantine; if, by accident, they are contaminated by touch, they must perform the same quarantine as that from whence the suspicion was derived; and if they are touched by malicious design, the person offending is liable to such punishment as may be decreed by law.

All communication by letter with persons in quarantine in the lazaret, and on board ship, is prohibited, excepting through the medium of the health officers. All letters from persons in quarantine must be received by the health officers, and forwarded to the post-office, the precaution of fumigating them being always observed; care being also taken when several letters or papers are enclosed together that the covers be slit open, and when parcels or letters are very bulky, or when they are suspected to contain patterns of cloth, &c. &c., they must be opened for the purpose of being fumigated, and sealed again with the health officer's seal.

All persons appointed health guardians shall make oath before the captain of the port, that they will faithfully and diligently perform their different duties, and strictly obey all orders delivered to them by the officers of the quarantine department, and that they will expose themselves in taking charge of passengers, ships, and merchandise, arriving with foul bills of health. All boatmen and porters employed shall also make oath before the captain of the port, that they will punctually obey, and conform to all orders delivered to them by the officers of the quarantine department. The oath to be signed by them, and lodged in the quarantine office.

If any officer or person whatsoever, whose duty it is to execute any order concerning quarantine, shall, knowingly and willingly, embezzle any goods or articles performing quarantine; or if any

officer or person shall, knowingly or willingly, permit any person, goods, or merchandise to depart from, or be conveyed out of the lazaret, or out of any ship performing quarantine, before the expiration of the regular term of quarantine, or without being duly authorized so to do; or if any person, authorized to give a certificate of a ship or merchandise, having performed quarantine, shall, knowingly or willingly, give a false certificate thereof, every such officer or person so offending shall be considered guilty of the highest breach of quarantine, and shall suffer death according to law.

All officers in the health department are required to use their utmost diligence and care, that all regulations, herein-mentioned for the performance of quarantine, be duly observed.

Instructions given to Commanders of Vessels under Quarantine.

The commanders of vessels unloading at the lazaretto are to be careful to land every species of goods, clothing, and merchandise susceptible of infection, in order that they may be purified; and any person, concealing even the smallest quantity of susceptible effects on board or on shore, is liable to the punishment of death, according to law; and all accomplices and receivers of such goods, more particularly the health guardian, are rendered liable to the same punishment.

The commanders and all persons on board vessels performing quarantine are to pay strict obedience to the orders they receive from the health officers; and any person going out of the prescribed limits, or going on board any vessel, without permission from the health officer, or committing any act that may endanger the public safety, shall, on conviction, suffer death according to law. All irregularities and disorders committed on board any vessel under quarantine, or disobedience of any part of these instructions, will be punished by the quarantine laws of the island.

Commanders of vessels are to answer faithfully to such questions as shall be put to them by the physician of the health-office, relative to the health of any person on board; and all commanders of vessels are to make a report to the health-office, on the appearance of any sickness or disease on board, during the time they are performing quarantine.

Should the commander or any person on board vessels performing quarantine be desirous of medical aid, he is first to apply to the physician of the health-office, who will report his case; and permission must be obtained from the health-office before any other than the physician of that office be permitted to go alongside that ship.

By Command of his Excellency the Governor,

RICHARD PLASKETT,
Chief Secretary to Government.

Palace, Valetta, 12th October, 1820.

IV.

No. 1.—MORTALITY BY PLAGUE.

In this Appendix I give a correct register of the deaths occasioned by plague, in 1813, in every town and village throughout the island. A simple inspection of this valuable and authentic document will shew the graduation of pestilence during its whole progress, from its rise to its extermination.

In this return are included the deaths in the pest hospitals situated in the ditches of Floriana and elsewhere. I am indebted for it to Colonel Count Rivarola, the late Inspector-General of Police.

Return of Deaths in Malta occasioned by Plague during the Month of May, 1813.

Date.	TOWNS AND VILLAGES.																	Total.
	Valetta.	Hiema.	Fort Manuel.	Gudia.	Curmi.	Micabiba.	Rabbato.	Attard.	Cospicua.	Luca.	Zebug.	Zeitun.	Floriana.	Vittoriosa.	Cale. Salva.	Lazaretto.	Zabbar.	
May																		
4	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
6	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
7	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
13	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
16	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
18	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	2
19	6	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8
20	5	..	2	..	1	2	..	..	..	..	..	..	..	..	..	..	..	10
21	1	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6
22	1	..	4	..	..	..	1	..	..	..	..	..	..	..	..	..	..	6
23	1	..	2	..	..	..	..	1	..	..	..	..	..	..	..	..	..	4
24	1	..	4	..	1	..	..	..	1	..	..	..	..	..	..	..	..	7
25	3	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	4
26	3	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	5
27	3	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	5
28	3	..	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	7
29	8	..	5	..	..	..	..	..	..	..	..	..	1	1	1	..	..	16
30	3	..	4	..	1	..	..	..	..	..	..	..	..	..	..	1	1	10
31	3	..	5	1	..	..	..	..	..	..	..	..	1	1	..	1	..	12
Total...	48	1	38	3	3	2	1	1	1	1	2	1	2	2	1	2	1	110

Return of Deaths in Malta, occasioned by Plague during the Month of June, 1813.

Date.	TOWNS AND VILLAGES.																								Total.
	Valetta.	Fort Manuel.	Floriana.	Birchircara.	Vittoriosa.	Cospicua.	Luca.	Curmi.	Zeitun.	Gudia.	Lia.	Sopra Bast.	Rabbato.	Lazaretto.	Micabiba.	Zebug.	Calc. Salva.	Nasciaro.	Musta.	Zabbar.	Coradino.	Zurrico.	Hiema.	Messida.	Marina.	
June																									
1	8	7	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	18
2	3	4	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8
3	3	5	1	..	1	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13
4	6	10	1	..	..	..	2	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	19
5	6	7	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	16
6	6	10	..	..	..	2	1	2	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	24
7	4	9	1	..	..	..	1	1	..	..	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	19
8	9	9	..	..	2	1	1	3	..	..	..	..	..	1	2	..	..	..	..	..	..	..	..	..	..	28
9	10	8	..	1	..	..	1	2	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	24
10	10	17	..	1	..	..	2	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	32
11	5	17	2	1	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	27
12	5	12	8	..	1	..	..	2	..	..	1	..	..	1	..	..	..	..	1	2	..	..	..	..	..	33
13	8	15	5	..	..	..	1	2	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	33
14	4	16	7	..	1	1	2	1	..	..	1	..	..	1	1	..	..	..	..	1	..	..	..	..	..	36
15	3	6	3	2	..	1	..	1	..	..	1	..	..	..	..	2	..	..	..	..	..	..	..	..	..	19
16	1	11	4	..	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	19
17	3	9	3	..	1	..	..	5	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	23
18	9	6	5	..	1	1	..	4	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	28
19	7	7	1	2	1	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	21
20	8	4	1	..	..	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	18
21	9	6	3	1	..	..	2	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	24
22	16	7	4	..	..	..	3	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	32
23	10	10	3	2	1	1	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	29
24	7	6	11	1	..	..	1	4	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	1	33
25	3	4	7	2	..	..	..	2	..	1	..	..	..	..	..	3	..	1	..	..	..	..	..	..	..	23
26	11	2	13	..	..	..	..	1	1	..	..	..	..	..	..	5	..	..	..	..	..	1	..	..	..	34
27	15	4	8	3	..	..	..	2	..	..	..	..	..	1	..	4	..	1	..	1	..	..	..	..	..	39
28	15	5	12	1	..	..	..	..	..	..	..	..	..	..	..	2	..	1	..	..	..	1	..	..	..	37
29	15	1	18	..	..	..	1	5	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	1	1	44
30	16	1	18	2	..	..	..	6	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	47
Total.	235	235	142	20	10	9	22	56	4	2	4	2	2	5	4	25	1	5	1	6	2	3	1	1	3	800

Return of Deaths in Malta, occasioned by Plague during the Month of July, 1813.

Date.	TOWNS AND VILLAGES.																									Total.
	Valetta.	Fort Manuel.	Lazaretto.	Sopra Bast.	Floriana.	Curmi.	Zabbar.	Zebug.	Luca.	Birchircara.	Zurrico.	Gudia.	Cospicua.	Rabbato.	Hiema.	Marina.	Vittoriosa.	Bighi.	Attard.	Zeitun.	Nasciaro.	Musta.	Messida.	Tarxien.	Paolo.	Micabiba.	
July																										
1	25	2	1	1	11	7	1	4	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	53
2	24	..	..	..	11	2	..	1	1	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	42
3	22	4	..	..	6	3	..	3	..	3	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	44
4	22	4	..	..	10	5	..	2	2	1	1	..	..	..	..	1	1	1	1	2	..	..	..	..	..	..	58
5	14	1	..	1	14	4	..	5	2	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	43
6	15	..	..	..	16	6	1	6	1	1	..	..	..	2	..	..	..	..	..	1	..	..	..	..	..	..	49
7	18	2	1	..	22	7	2	2	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	56
8	19	4	..	..	24	3	1	3	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	55
9	21	2	..	..	16	4	2	2	2	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	51
10	18	7	..	..	21	..	2	3	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	52
11	20	1	..	..	21	4	..	5	..	4	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	56
12	19	6	..	1	16	4	5	8	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	63
13	18	2	1	..	21	4	1	7	..	1	..	..	..	..	..	..	1	..	..	1	..	2	..	..	..	..	59
14	19	1	2	..	21	..	..	9	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	55
15	28	1	..	1	20	3	..	8	1	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	65
16	29	1	..	..	13	5	1	6	4	5	..	..	..	1	..	..	1	..	..	..	..	1	..	..	..	..	67
17	14	1	..	..	12	4	..	4	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	36
18	20	1	..	..	14	4	1	4	..	3	..	..	1	..	..	..	2	..	..	..	..	..	..	..	..	..	50
19	19	3	..	..	14	2	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	41
20	21	3	..	..	14	1	..	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	43
21	20	4	..	..	5	2	..	3	..	3	1	..	..	..	..	..	1	..	..	..	..	..	1	1	..	..	41
22	27	2	..	..	16	1	..	6	..	2	..	..	..	1	..	..	..	..	..	.	..	..	..	..	..	..	55
23	14	4	..	..	13	5	..	6	..	5	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	48
24	19	2	1	..	17	1	..	1	1	2	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	45
25	20	1	..	..	11	3	3	3	1	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	44
26	21	2	..	..	7	3	1	12	..	4	..	..	..	..	..	..	..	..	..	..	..	2	..	..	1	..	53
27	16	2	..	..	15	2	..	6	1	2	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	47
28	19	1	..	..	22	6	3	7	..	1	..	..	..	2	..	..	2	..	..	..	..	1	..	..	..	..	64
29	16	2	..	..	17	4	..	6	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	49
30	18	3	..	..	12	7	1	7	..	4	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	53
31	21	2	..	..	20	9	3	3	..	3	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	63
Total.	616	71	6	4	472	115	28	145	18	65	3	1	2	9	1	1	13	1	1	6	3	8	3	1	1	1	1595

Return of Deaths in Malta, occasioned by Plague during the Month of August, 1813.

Date.	TOWNS AND VILLAGES.																	Total.
	Valetta.	Fort Manuel.	Floriana.	Bighi.	Zebug.	Curmi.	Birchircara.	Zabbar.	Rabbato.	Pieta.	Vittoriosa.	Paolo.	Messida.	Lazaretto.	Musta.	Marsa.	Luca.	
August																		
1	10	3	20	1	14	3	4	3	..	..	..	..	..	..	..	..	..	58
2	17	2	15	..	6	3	6	1	..	..	..	..	..	..	..	..	..	50
3	17	..	13	1	7	6	3	1	..	..	..	..	..	..	..	..	..	48
4	10	1	7	..	4	3	1	..	1	..	..	..	..	..	..	..	..	27
5	18	3	17	..	2	2	1	..	..	1	1	..	..	..	2	..	..	47
6	18	1	11	..	7	2	1	..	1	..	..	1	..	..	1	..	..	43
7	14	3	4	..	8	3	1	..	..	..	..	..	1	..	1	..	..	35
8	8	..	2	..	13	7	4	..	..	..	..	..	..	..	3	..	..	37
9	6	..	4	..	8	4	1	..	..	..	..	..	..	..	1	..	..	24
10	5	..	4	..	9	2	5	..	1	..	..	..	..	..	..	..	..	26
11	11	1	1	..	5	5	5	..	..	..	..	..	..	..	..	..	..	28
12	12	1	3	..	7	1	..	..	1	..	..	..	..	..	1	..	..	26
13	8	1	1	..	9	6	4	..	..	..	1	..	..	..	1	..	..	31
14	7	3	6	..	5	7	1	1	..	..	1	..	..	..	..	..	..	31
15	13	..	4	1	5	2	2	1	..	..	..	..	..	1	..	..	..	29
16	9	..	10	..	6	1	7	..	..	..	..	..	..	1	..	..	..	34
17	7	..	4	..	9	5	3	..	..	..	..	..	..	..	..	..	..	28
18	12	..	5	..	4	5	2	..	..	..	1	..	..	2	1	..	..	32
19	12	..	3	..	13	9	..	..	..	..	..	..	..	..	1	..	..	38
20	7	..	5	..	6	4	1	..	1	..	1	..	..	2	..	..	..	27
21	2	1	7	..	9	6	2	..	..	..	2	..	..	2	1	..	..	32
22	6	1	4	..	10	5	5	..	..	..	..	..	..	..	..	1	..	32
23	4	..	4	1	17	4	3	..	..	..	..	..	..	1	..	..	..	34
24	10	..	1	1	13	2	3	1	..	..	..	..	..	1	..	..	1	33
25	3	..	1	2	13	9	4	..	..	..	..	..	..	2	..	..	..	34
26	4	..	6	..	8	6	1	..	..	..	..	..	..	4	2	..	..	31
27	11	..	4	..	13	2	5	..	..	..	..	..	..	3	..	..	..	38
28	2	..	4	..	7	7	5	1	..	..	..	..	..	1	..	..	..	27
29	4	..	1	..	11	5	2	..	..	..	1	..	..	1	..	..	..	25
30	4	..	..	..	11	8	5	..	..	..	..	..	..	1	..	..	..	29
31	4	..	1	..	12	8	2	..	1	..	..	..	..	..	..	..	..	28
Total..	275	21	172	7	271	142	89	9	6	1	8	1	1	22	15	1	1	1042

Return of Deaths in Malta occasioned by Plague during the Month of September, 1813.

Date.	TOWNS AND VILLAGES.												Total.
	Valetta.	Lazaretto.	Floriana.	Zebug.	Birchircara.	Curmi.	Musta.	Rabbato.	Paolo.	Bighi.	Siggieni.	Campo Santo.	
September													
1	5	..	5	4	2	10	..	..	..	..	..	..	26
2	3	1	5	17	1	10	..	..	..	..	..	..	37
3	..	1	6	9	4	12	1	..	..	..	..	..	33
4	3	..	4	9	4	12	..	..	..	..	..	..	32
5	1	..	2	13	3	8	..	1	..	..	..	..	28
6	3	3	1	15	3	7	1	..	1	..	..	..	34
7	3	3	4	17	..	6	1	..	..	..	..	..	34
8	2	..	4	19	8	3	1	..	..	1	..	..	38
9	2	1	..	15	6	5	..	..	..	..	..	..	29
10	2	1	5	9	7	5	1	..	..	..	..	..	30
11	5	1	..	7	2	8	..	1	..	..	..	..	24
12	2	2	3	4	1	4	3	..	..	..	1	..	20
13	3	..	2	7	4	4	..	..	..	3	..	..	23
14	2	1	..	7	2	4	..	..	..	1	..	..	17
15	1	1	..	9	1	5	..	..	..	..	..	..	17
16	1	3	7	7	3	6	..	1	..	1	1	..	30
17	..	1	..	16	1	5	..	..	..	..	..	.	23
18	2	..	1	2	1	3	..	2	..	..	1	..	12
19	1	..	4	6	3	5	..	1	..	..	..	..	20
20	..	..	2	12	1	7	..	1	..	..	1	..	24
21	1	..	1	7	1	9	..	..	..	1	1	..	21
22	..	2	4	1	..	3	..	2	..	..	..	..	12
23	1	1	3	1	1	4	..	..	..	..	1	..	12
24	..	..	3	5	2	5	..	..	..	..	..	1	16
25	..	..	1	1	1	8	..	.	..	..	..	..	11
26	..	1	2	2	1	3	..	..	..	..	2	..	11
27	1	..	6	3	3	6	..	..	..	..	..	..	19
28	..	1	2	2	1	4	..	1	..	1	..	..	12
29	..	..	3	3	4	5	..	..	..	..	..	..	15
30	..	..	3	3	3	5	..	..	..	..	..	..	14
Total...	44	24	83	232	74	181	8	10	1	8	8	1	674

Return of Deaths in Malta occasioned by Plague during the Month of October, 1813.

Date.	TOWNS AND VILLAGES.												Total.
	Floriana.	Birchircara.	Zebug.	Curmi.	Campo Santo.	Lazaretto.	Valetta.	Rabbato.	Siggieni.	Isolotto.	Dinglì.	Bighi.	
October													
1	5	2	1	7	1	..	..	..	..	..	..	..	16
2	2	2	2	4	..	2	..	..	..	..	..	..	12
3	3	2	2	5	1	1	1	1	..	..	..	..	16
4	3	..	2	6	..	3	..	1	..	..	..	..	15
5	..	..	2	3	..	1	..	..	1	..	..	..	7
6	2	1	..	2	..	1	..	..	..	..	..	..	6
7	4	1	2	5	..	..	..	1	..	1	..	..	14
8	1	3	..	7	..	..	..	1	..	..	1	..	13
9	1	1	..	7	..	..	..	..	..	..	..	..	9
10	1	2	1	3	..	..	..	..	..	..	..	1	8
11	..	..	..	4	..	1	..	..	..	..	..	..	5
12	..	..	..	3	..	..	..	..	..	..	..	..	3
13	1	1	..	3	..	..	..	..	..	..	..	..	5
14	..	..	..	2	..	..	1	1	..	..	..	..	4
15	..	..	..	..	..	3	..	..	..	..	..	..	3
16	..	..	1	4	..	..	..	..	..	..	..	..	5
17	..	..	1	3	..	1	..	..	..	..	..	..	5
18	..	..	..	3	..	2	..	..	..	..	..	..	5
19	..	1	..	1	..	2	..	..	..	..	..	..	4
20	..	2	..	1	..	2	..	2	..	..	..	..	7
21	..	4	..	6	..	..	..	..	..	..	..	..	10
22	..	..	..	1	..	1	..	..	..	..	..	..	2
23	1	..	..	2	..	1	..	..	..	..	..	..	4
24	1	2	..	3	..	1	..	..	..	..	..	..	7
25	..	..	1	3	..	1	..	1	..	..	..	..	6
26	..	..	1	..	..	1	..	..	..	..	..	..	2
27	..	2	..	1	..	..	..	..	..	..	..	..	3
28	..	1	..	4	..	..	..	..	..	..	..	..	5
29	1	..	..	..	..	..	..	..	..	..	..	..	1
30	..	..	..	3	..	2	..	..	..	..	..	..	5
31	..	1	..	2	..	..	..	..	..	..	..	..	3
Total..	26	28	16	98	2	26	2	8	1	1	1	1	211

Return of Deaths in Malta, occasioned by Plague during the Month of November, 1815.

Date.	TOWNS AND VILLAGES.				Total.
	Lazaretto.	Curmi.	Birchireara.	Rabbato.	
November					
1	1	..	..	..	1
2	..	1	..	..	1
3	..	2	1	..	3
4	..	2	..	..	2
5	..	..	2	1	3
6	..	1	..	2	3
7	..	..	..	1	1
8	1	1	..	1	3
9	..	..	..	..	..
10	..	..	1	1	2
11	..	..	..	..	..
12	..	2	..	..	2
13	..	1	..	1	2
14	..	2	..	..	2
15	..	1	..	..	1
16	..	1	..	..	1
17	3	..	..	..	3
18	3	..	..	1	4
19	..	2	..	..	2
20	4	..	..	..	4
21	1	..	..	..	1
22	2	..	..	..	2
23	..	1	..	..	1
24	1	1	..	..	2
25	1	..	..	..	1
26	4	..	..	..	4
27	..	1	..	..	1
28	1	..	..	..	1
Total..	22	19	4	8	53

No. 2.—*Table exhibiting the State of the Thermometer during the Prevalence of Plague at Malta, from April to December*, 1813.

	Highest.	Lowest.	Remarks.
April.....	71°	50°	The highest was at 2 o'clock, P.M., on the 24th. The lowest was at 7 o'clock, A.M., on the 20th.
May	82	60	The highest was at 4 o'clock, P.M., on the 31st. The lowest was at 8 o'clock, A.M., on the 2nd.
June	84	69	The highest was at 1 o'clock, P.M., on the 27th. The lowest was at 6 o'clock, A.M., on the 22nd.
July	88	71	The highest was at 2 o'clock, P.M., on the 3rd. The lowest was at 6 o'clock, A.M., on the 6th.
August	86	71	The highest was at 1 o'clock, P.M., on the 22nd. The lowest was at 5 o'clock, A.M., on the 12th.
September ..	83	65	The highest was at 1 o'clock, P.M., on the 30th. The lowest was at 6 o'clock, A.M., on the 16th.
October	83	61	The highest was at 1 o'clock, P.M., on the 1st. The lowest was at 3 o'clock, A.M., on the 31st.
November...	79	60	The highest was at 1 o'clock, P.M., on the 7th. The lowest was at 8 o'clock, A.M., on the 13th.
December...	70	52	The highest was at 1 o'clock, P.M., on the 7th. The lowest was at 7 o'clock, A.M., on the 29th.

Maximum during the period, 88°.

Medium „ 69

Minimum „ 50

V.

DISEASES OF THE TROOPS.

Return shewing the Number of Admissions, Discharges, and Deaths, in the Military Hospitals at Malta for Eight Years, viz. from the year 1816 *to the year* 1823, *both inclusive.*

DISEASES.	YEARS.																					Total.		
	1816. Average Strength. 4007			1817. Average Strength. 2912			1818. Average Strength. 2480			1819. Average Strength. 1648			1820. Average Strength. 1559			1821. Average Strength. 1787			1822. Average Strength. 2490			1823. Average Strength. 2234					
	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.
Feb. Quotid. Intermit..	22	24	..	102	88	7	27	30	3	9	10	..	2	2	..	7	7	..	30	30	..	9	9	..	208	200	10
,, Tertiana.....	..	..	..	47	43	1	19	21	1	47	46	..	9	9	..	..	..	..	1	1	..	3	3	..	126	123	2
,, Quartana	..	..	..	4	4	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	5	..
,, Remittens.....	12	11	1	58	40	12	1	7	..	..	..	..	2	1	..	1	2	..	..	..	..	..	..	..	74	61	13
,, Cont. com.....	538	545	2	322	311	4	347	339	12	281	287	5	232	222	5	337	336	2	580	570	12	300	294	3	2937	2904	45
,, Icterodes.....	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
,, Synochus.....	..	..	..	21	21	..	..	..	..	5	5	..	1	1	..	1	1	..	23	21	2	14	14	..	65	63	2
,, Typhus.....	3	..	3	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	4
Phlegmon et Abscess..	39	41	1	29	29	..	68	67	1	43	37	1	63	67	..	124	124	..	190	191	..	125	127	..	681	683	3
Paronychia	..	..	..	..	..	..	3	3	..	1	1	..	..	..	..	..	..	..	4	3	..	3	4	..	11	11	..
Phrenitis	3	3	..	..	..	..	1	1	..	..	..	..	2	1	1	..	..	..	2	2	..	..	..	..	8	7	1
Cynanche Tonsillaris..	14	15	..	13	13	..	15	14	1	12	11	..	19	20	..	30	28	1	20	20	..	29	30	..	152	151	2
Cynanche Parotidea .	..	..	..	..	..	..	2	2	..	1	1	..	3	3	..	..	..	..	..	..	..	3	3	..	9	9	..

DISEASES.	YEARS. 1816. Average Strength. 4007			1817. Average Strength. 2912			1818. Average Strength. 2480			1819. Average Strength. 1648			1820. Average Strength. 1558			1821. Average Strength. 1787			1822. Average Strength. 2480			1823. Average Strength. 2234			Total.		
	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.
Pneumonia	87	85	2	75	72	..	79	79	3	43	43	2	55	52	2	101	97	1	135	136	3	132	128	2	707	692	15
Carditis	..	..	..	1	1	1	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	2	1	1
Peritonitis	..	..	..	..	..	..	3	3	..	1	..	..	..	..	..	1	1	..	4	4	..	2	2	..	11	10	1
Gastritis	..	..	..	..	..	..	..	..	..	..	..	..	4	3	1	1	1	..	..	..	..	..	..	..	5	4	1
Enteritis	6	4	1	14	14	1	4	4	..	2	2	.	13	13	..	9	7	2	2	2	..	2	2	..	52	48	4
Hepatitis Acuta	60	50	2	31	33	..	24	19	3	30	28	1	21	21	2	11	12	..	16	16	..	26	25	..	219	204	8
„ Chronica	30	18	6	21	20	1	12	7	2	11	9	4	11	7	3	6	7	1	15	15	..	25	23	1	131	106	18
Splenitis	..	..	..	2	1	1	..	..	..	..	..	..	2	2	..	3	2	..	3	3	1	3	2	..	13	10	2
Nephritis	1	1	..	..	..	..	2	2	..	..	..	..	1	1	..	1	1	..	..	..	..	2	2	..	7	7	..
Otitis	..	..	..	4	4	..	3	3	..	1	1	..	1	1	..	2	2	..	2	2	..	11	11	..	24	24	..
Rheumatismus Acutus	122	125	..	46	46	..	26	26	..	9	10	..	11	11	..	30	27	..	30	33	..	44	41	..	317	319	..
„ Chronicus	43	41	..	51	56	..	71	69	..	26	27	..	17	17	..	33	31	..	19	20	..	20	21	..	280	282	..
Odontalgia	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	1	1	..	..	..	..	2	2	..	4	4	..
Rubeola	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	1	1	..
Erysipelas	7	6	1	4	4	..	6	6	..	..	..	..	1	1	..	1	1	..	1	1	..	6	6	..	26	25	1
Urticaria	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Epistaxis	.	..	..	..	..	..	1	1	..	1	1	..	1	1	..	1	1	..	..	..	..	..	..	..	4	4	..
Hæmoptysis	14	12	2	2	4	..	6	6	1	4	2	1	11	11	1	5	5	..	5	5	..	6	5	..	53	50	5
Hæmatemesis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	1	..

Phthisis Pul. Tub. ..	53	45	6	17	8	13	12	1	11	10	3	7	15	4	9	7	2	8	10	3	5	13	6	9	137	72	68
„ Prægres. Inflam. Thora.	..	..	..	3	1	2	3	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	1	5
Hæmorrhois	3	4	..	12	12	..	22	22	..	15	15	..	7	7	..	22	22	..	15	15	..	7	7	..	103	104	..
Catarrhus Acutus ...	21	16	..	61	57	..	170	171	1	68	68	2	34	32	..	38	49	..	48	44	3	91	82	1	531	519	7
„ Chronicus.	6	4	..	..	2	..	34	30	..	13	16	1	22	19	..	26	28	1	23	20	..	18	19	1	142	138	3
Dysenteria Acuta...	..	..	..	145	127	7	55	61	6	49	41	5	68	61	4	61	66	1	70	70	1	32	32	1	480	458	25
„ Chronica.	84	80	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	84	80	6
				9	7	..	9	9	1	7	6	2	8	6	..	4	5	1	31	27	2	5	3	3	73	63	9
Apoplexia	1	1	..	..	..	..	..	..	..	2	..	2	3	1	2	1	..	1	1	..	1	..	..	..	8	2	6
Paralysis	1	1	..	2	1	1	..	..	..	1	1	..	2	1	..	..	1	..	3	2	..	2	2	1	11	9	2
Dyspepsia	..	..	..	8	8	..	1	1	..	..	..	..	6	6	..	1	1	..	1	1	..	8	8	..	25	25	..
Tetanus.....	..	..	..	..	..	..	2	1	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3	..
Epilepsia	21	22	..	5	5	..	3	3	..	9	8	..	7	8	..	7	7	..	2	2	..	2	2	..	56	57	..
Asthma Period. Convulsivum	6	4	2	3	3	..	..	..	..	..	..	..	..	..	..	2	1	..	..	1	..	2	1	1	13	10	3
Dyspnœa Cont.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	9	9	1	27	27	..	38	37	1
Pyrosis	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Colica	..	..	.	12	16	..	7	7	..	7	7	..	2	2	..	6	6	..	13	13	..	26	26	..	73	77	..
Cholera Morbus	9	9	..	6	6	..	10	10	..	6	6	..	23	21	1	22	23	..	23	22	1	8	8	..	107	105	2
Diarrhœa.....	167	161	..	107	109	1	201	194	1	68	74	1	38	39	..	248	239	5	146	144	3	109	110	..	1084	1070	11
Amentia	..	..	..	2	2	..	2	2	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	4	4	..
Mania	..	..	..	..	..	..	2	1	..	3	3	..	..	1	..	3	3	..	..	..	..	..	..	..	8	8	..
Atrophia.....	..	..	..	..	..	..	1	..	1	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	2	1	1
Anasarca	..	..	..	..	..	..	4	3	1	1	..	1	3	2	1	2	2	..	2	1	1	1	..	..	13	8	4
Hydrothorax	1	..	1	..	..	..	1	1	..	1	1	..	..	..	..	1	1	..	..	..	..	..	..	..	4	3	1
Ascites.....	2	2	..	3	3	..	2	2	..	2	2	..	2	2	..	..	..	..	3	2	..	1	1	1	15	4	1
Hydrocele	2	2	..	..	..	..	2	2	..	2	2	..	1	1	..	2	2	..	..	..	..	..	..	..	9	9	..
Vermes	..	..	..	1	1	..	3	3	..	2	2	..	1	1	..	6	6	..	3	3	..	13	13	..	29	29	..
Scrofula	13	14	..	7	6	..	3	2	..	..	2	..	..	..	..	3	2	1	2	2	..	10	10	..	38	38	1
Hydarthrus.....	..	..	..	1	..	..	1	1	..	..	..	..	..	..	1	..	..	..	..	..	..	2	2	..	4	3	1
Apostema Lumb.....	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1

DISEASES.	YEARS.																					Total.		
	1816. Average Strength. 4007			1817. Average Strength. 2912			1818. Average Strength. 2480			1819. Average Strength. 1648			1820. Average Strength. 1558			1821. Average Strength. 1767			1822. Average Strength. 2480			1823. Average Strength. 2234					
	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.
Syphilis prim.	..	..	.	144	133	..	190	205	..	84	66	..	36	58	..	13	5	..	20	24	..	22	20	..	509	511	..
„ consec. ..	213	264	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	213	264	..
				..	..	..	5	5	..	5	3	..	1	3	..	9	9	..	9	9	..	13	9	..	42	38	..
Ulcera Penis, N. S. ..	..	..	..	3	2	..	19	19	..	34	35	..	53	46	..	220	204	..	111	124	..	91	83	..	531	513	..
Bubo simplex	..	..	..	8	3	..	33	36	..	5	7	..	25	21	..	34	34	..	64	64	..	31	27	..	200	192	..
Cachexia Syphil.	..	..	..	..	..	..	..	..	..	2	1	..	2	3	..	..	..	..	..	..	..	..	..	..	4	4	..
Erythema pedis	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	1	1	..
Icterus.....	6	8	..	11	12	..	26	27	..	8	7	1	1	1	..	3	2	..	19	18	1	10	11	..	84	86	2
Contractura	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2	2	..
Enuresis	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	2	..	..	1	3	..	3	3	..	7	7	..
Gonorrhœa	107	107	..	120	122	..	140	141	..	215	205	..	150	157	..	100	102	..	123	122	..	80	83	..	1035	1039	..
Hernia humoralis....	18	18	..	17	17	..	25	24	..	30	27	..	26	30	..	43	42	..	51	52	..	44	43	..	254	253	..
Strictura urethræ....	5	7	..	2	2	..	4	3	..	6	7	..	3	3	..	3	3	..	..	..	..	3	3	..	26	28	..
Sarcocele	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Obstipatio	..	..	..	..	..	..	14	14	..	20	19	..	21	22	..	19	18	..	12	13	..	57	56	..	143	142	..
Ischuria	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Dysuria	..	..	..	2	2	..	..	..	..	6	6	..	7	7	..	..	..	..	..	..	..	..	..	..	15	15	..
Aneurisma	..	..	..	1	..	1	1	..	..	..	1	..	1	1	..	..	..	..	..	..	..	..	..	..	3	2	1
Calculus Urethræ ...	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	1	1	..

| | | |

DISEASES.	YEARS. 1816. Average Strength. 4007			1817. Average Strength. 2912			1818. Average Strength. 2480			1819. Average Strength. 1648			1820. Average Strength. 1558			1821. Average Strength. 1787			1822. Average Strength. 2480			1823. Average Strength. 2234			Total.		
	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.
Dysecœa	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	1	..
Deafness	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	1	..
Phymosis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	1	1	..
Paraphymosis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	1	..
Melancholia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	1	1	..	2	2	..
Furunculus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	1	1	..
Palpitatio	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	1	1	..
Cephalalgia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	1	1	..
Morbi Oculor.	272	257	..	117	125	..	158	167	..	50	51	..	103	102	..	226	221	..	327	339	..	210	214	..	1463	1476	..
„ Cutis	2	2	..	3	4	..	..	..	..	1	1	..	..	..	..	19	17	..	18	21	..	19	19	..	62	64	..
Ambustio	..	..	..	5	5	..	7	7	..	5	4	..	2	3	..	2	2	..	4	4	..	6	6	..	31	31	..
Total	3405	3457	39	2485	2414	55	2897	2878	56	1809	1767	37	1706	1685	36	2368	2319	25	2698	2763	39	2181	2137	25	19549	19360	312

Note.—During this period it appears that 202 men were invalided and sent home; but at this distance of time, their diseases cannot be accurately ascertained.

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