

Reports of the pestilential disorder of Andalusia, which appeared at Cadiz in the years 1800, 1804, 1810, and 1813; with a detailed account of that fatal epidemic as it prevailed at Gibraltar, during the autumnal months of 1804; also observations on the remitting and intermitting fever, made in the military hospitals at Colchester after the return of the troops from the expedition to Zealand in 1809 / [Sir James Fellowes].

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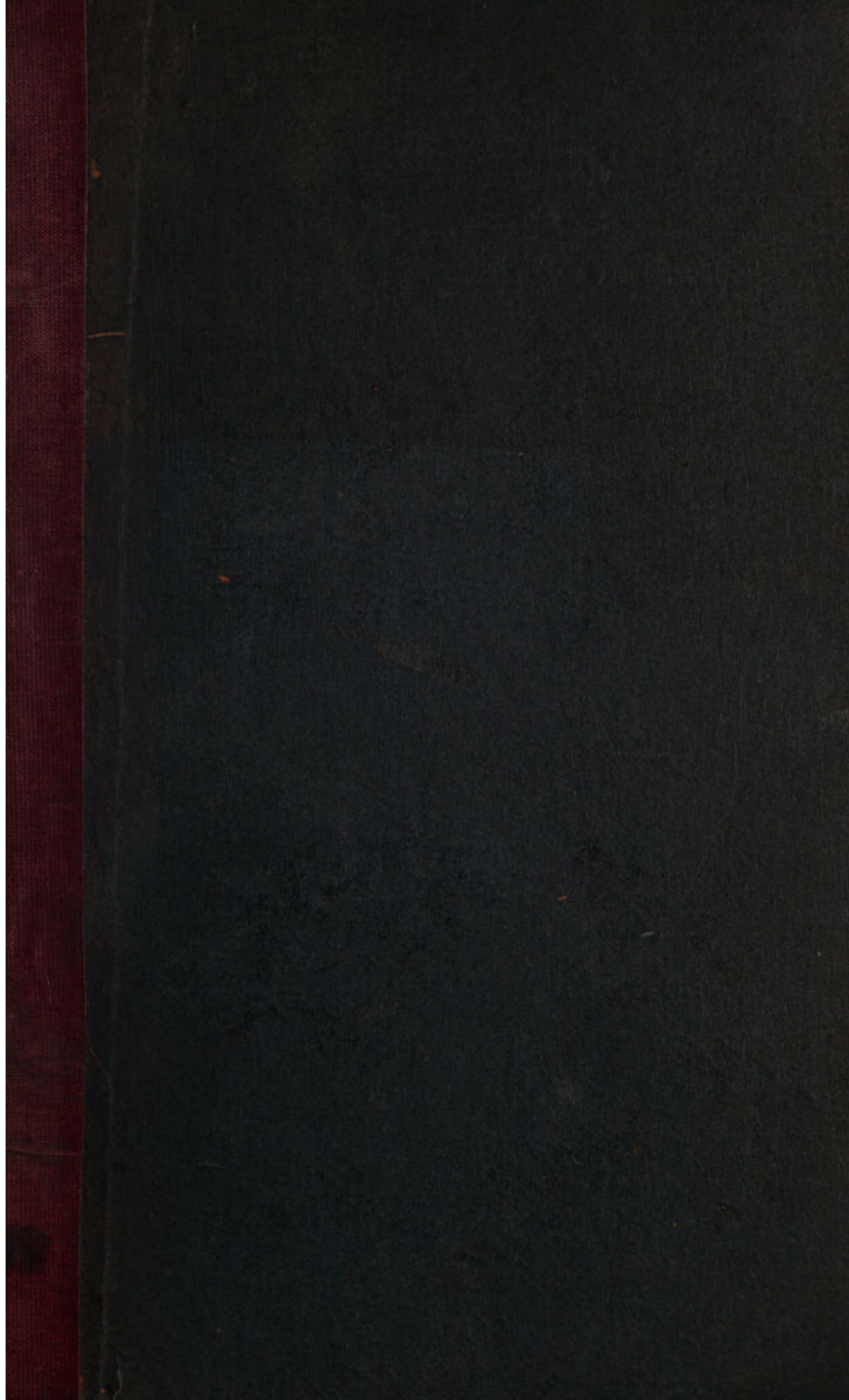
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any suggestion tending to promote the wel-
fare of the British Soldier, sprung my first
hope and best encouragement to solicit
the honor of that permission, which now

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I have the honor to be,
With profound respect,

SIR,

Your Royal Highness's most obedient,

And most devoted, humble Servant,

JAMES FELLOWES.

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INTRODUCTION.

THE pestilential disorder which has of late years made such dreadful ravages in the southern provinces of Spain, has occasioned in this country much discussion as to its origin and nature. Owing to the want of correct information, a contrariety of erroneous opinions has prevailed respecting it, tending to a conclusion equally erroneous, that precautions to prevent its spreading were unnecessary.

Having been appointed to superintend the medical department of a division of the British army stationed in the south of Spain, it became my duty to watch the progress and effects of this malady, and to ascertain the most efficacious means for its prevention. In the exercise of this duty, I collected a variety of interesting facts, the result of my own observation and experience, as well as of the native Practitioners, whose exertions were devoted to the same object, and whose opinions on the subject deserve to be generally known.

Since my return from Spain, it has been expected that I should lay these facts before the public, and thus contribute towards the solution of a question of some importance to the army and to the country. In endeavouring to fulfil this expectation, it appeared to me, that a simple detail, divested of all display of theoretical opinions, which serve more to bewilder than to convince, would be most satisfactory to the Medical Profession, and to the public in general; and this plain and inartificial form was in consequence adopted. It may be permitted me in this place to state, by what previous experience I had been prepared to undertake, without apprehension of personal danger, the checking of a pestilential disorder, to the ravages of which, so many practitioners had fallen victims.

On my return from the campaign of Flanders in 1795, having been appointed to the Medical Staff of the army which embarked in the ill-fated expedition under Admiral Christian to the West Indies, I accompanied a division of that army to the Island of St. Domingo.

The fatal disorder that broke out soon after our arrival at Cape St. Nicholas Mole, afforded me too many opportunities of witnessing the various forms and phænomena of the fever which prevailed there; but the melancholy

events which followed in rapid succession, made it impossible to give any accurate description of them.

The difficulties that so constantly occur in the exercise of a laborious duty, and in such a climate, rendered it no easy task for the Physician to unite to other requisite qualifications, those of assiduity and careful observation, with a proper application of them, in the midst of the painful, but instructive scenes which presented themselves.

The early deaths not only of my colleagues, Dr. Masters and Dr. Cleghorn, Physicians to the army, but of the greatest part of the Staff, added to the precarious state of my own health, from a very severe attack of fever, precluded any expectation of a detailed medical record of that eventful period.

An interval of eight years elapsed, (during which, I was employed in the camps and hospitals at home, or on service in Portugal and Holland) before an opportunity was again afforded to me of seeing a disorder, appearing under a similar form of malignity, and shewing many of the strongly marked characters of the St. Domingo fever.

In the autumn of 1804, the town of Gibraltar was visited by the dreadful pestilence, which

Soon after my return to Gibraltar, I was ordered to another service, and it was my intention, on my return to England, to have given an account of the fever, with the result of all the observations that had been made on the subject in Spain ; but I do not regret having been interrupted in that design, as the interesting events which have occurred since that period, now enable me to communicate them with more satisfaction to myself, and, I hope, in a manner deserving the attention of the public.

In the year 1810, having been appointed Chief of the Medical Staff of the army under the immediate command of Lieutenant-General Graham (now Lord Lynedoch) at Cadiz, I had another opportunity of seeing the pestilential disorder which had not appeared there since the epidemic of 1804.

This fatal malady broke out again in Cadiz, during the month of September 1813; and although upon this, as on the former occasion, the British troops were exposed to the same danger as the native Spaniards, we had the good fortune to preserve them from its destructive effects, as will be fully explained in the Third and Fourth Reports.

I was thus enabled to add to my own stock of information, the experience of the principal Spa-

nish Practitioners, who had marked the progress of the disorder from its commencement in Spain, in the year 1800.

Besides the frequent personal communications which I had with several learned men, whose friendship I cultivated during a residence of five years in that country, an opportunity was afforded me of consulting the best authorities, on the subject of its prevailing diseases; and I found in the *Epidemiologia Española*, a chronological history of the Plagues and Epidemics that had desolated the fertile provinces of Spain, from the time when the Carthaginian republic sent its fleets and armies to the Peninsula, down to the year 1801.

This work*, which is perhaps but little known in this country, presents a collection of curious

* “*Epidemiologia Española ó Historia cronologica de las Pestes, Contagios, Epidemias, y Epizootias que han acaecido en España desde la Venida de los Cartagineses hasta el año 1801.*” (Madrid 1803.)

The author of this history, Don Joaquin de Villalba has copied the most valuable parts of the celebrated Capmani's account of the plagues and different epidemic disorders which prevailed in Barcelona from the middle of the 14th century to the year 1706; it is to be found in the 5th volume of the Historical Memoirs of that city, and is entitled,

“*Compendio Historico y Cronológico de las Pestes, Contagios, y Epidemias que han acaecido en la Ciudad de Barcelona, desde mediado del siglo xiv. hasta el año 1706*”

occasioned such unexampled mortality, as to spread universal alarm throughout Europe.

Having been directed to proceed to that station, with a proportionate medical Staff, I was informed on my arrival in the garrison on the 23d of November 1804, that *five thousand persons* had already fallen victims to the fever, that the hospitals were then filled with sick, and that all strangers who had landed upon the Rock were invariably attacked with the prevailing disorder.

In addition to this intelligence, the death of my colleague, Dr. Bowles, Physician to the army, was made known to me. He sailed from Portsmouth at the same time as myself, but in another ship, and he died during the passage, off the coast of Spain.

The reader will readily imagine the impression which these untoward circumstances were calculated to produce even on the firmest mind; but it is not possible for those who have never witnessed the effects of pestilence, to form an adequate idea of the confusion and dismay that prevailed at Gibraltar.

There were very few of the survivors of that dreadful calamity, who were capable of affording me any satisfactory information at this time; and it was long after the cessation of the epidemic, that those facts which are detailed in the following Reports, could be collected with accuracy.

On the termination of the fever, towards the latter end of December 1804, I expressed an anxious wish to the Lieutenant-Governor, General Fox, to be permitted to visit those towns in Andalusia, where it had prevailed so generally, and from some of which, the disorder was believed to have been introduced into the garrison.

But my official duties would not allow of my absence until the year following, when happily, by the unwearied exertions of the Board of Health, which had been established in Gibraltar, the recurrence of the disorder was effectually prevented.*

At length, through the obliging attention of the Spanish General Castaños, who then commanded at Algeziras, I was enabled to satisfy my curiosity, and his Excellency furnished me with the necessary passports to proceed to Malaga and Cadiz, and to other parts of Andalusia.

Although we were then at war with Spain, I every where met with the most hospitable and kind reception from the natives ; and the Marquis of Solano, the Captain General of the province, with the different Governors under his authority, afforded me every facility in the prosecution of my enquiries.

* There was no appearance of the fever in Gibraltar from that period until the year 1810.

facts which had been recorded on the authority of the best Spanish historians, and of more than two hundred medical authors, Arabians, Jews, and Christians, who practised physic in Spain; and of whom, with very few exceptions, no account has hitherto been given.

In wading through some of the writings of the earlier Spanish physicians, I was often amused with the simplicity of their style, and the extravagance of their theories; and where it was asserted that an epidemic disorder ceased through the interposition of a particular saint or virgin, or that such a remedy was a specific in the cure of certain plagues, I could only lament the credulity of those times of ignorance and superstition.

And yet in many works of this more enlightened age, we may sometimes discover absurdities equally great, for there is every where so strong a proneness to credulity, and such an inclination to indulge in wonderful narrations, that we do right to pause, before we admit them to be true, or reject them as false.

But facts, positively affirmed and recorded on the testimony of respectable persons, should be

impreso en el tomo 5 de las memorias historicas de dicha Ciudad, y dispuesto por Don Antonio de Capmani, Secretario perpetuo de la Real Academia de la Historia."

received with candour and listened to with patience.

In the following Reports, I have endeavoured to record with fidelity the most remarkable events which occurred during a long and interesting period, and no pains have been spared to collect together such a mass of evidence, as might tend to elucidate the truth, and to facilitate an investigation of some importance to mankind.

It will be observed, that I have studiously avoided entering into any speculative opinions; the controversies which have sprung up of late on the question of infection and contagion, appear to have been conducted, in some instances, with an asperity of language, alike disreputable to science, and injurious to philosophical enquiry.

After all that has been written upon this topic, we are still involved in obscurity; nor have the discoveries in chemistry satisfactorily developed the mysteries of miasmata. Future experiments may advance our knowledge of their nature; but until they shall have been repeated with more accuracy, we are not likely to reap any advantage from discussions, which display rather the pride of science, and a disposition to singularity, than a spirit of useful research.

It cannot however be doubted, that many of these writers were actuated by worthier motives, and that some, for whose abilities and acquire-

ments I have a high respect, most firmly believe the facts they have related to confirm their own opinions, and to direct the judgment of the public in a matter on which it was so difficult to decide.

But I feel myself in some measure particularly called upon to advert to *one* of the latest works on the subject, entitled, An Essay on the Disease called Yellow Fever*, in which the ingenious author has displayed much industry and learning in endeavouring to prove that the pestilential disorder of Spain possessed no contagious quality whatever; that *its appearance at Cadiz and Gibraltar was occasioned by the morbid effects of marsh miasmata in both these places*, and that consequently any precaution founded on a belief of the importation and contagion of the disorder was objectionable, &c.

I have occasionally noticed some of the observations of this writer, simply with a view to point out the error under which they must appear to have been made. Although I am persuaded that Dr. Bancroft would not have published them on such authorities as he has quoted in their support, had he not believed them to be true; I can-

* An Essay on the disease called Yellow fever, with observations concerning Febrile Contagion, by Edward Nathaniel Bancroft, M. D. Fellow of the Royal College of Physicians, Physician to the Army, &c. &c. &c. London, 1811.

not but regret, that he had not been with me in Spain, during the prevalence of the disorder in that country, where he might have seen enough to induce him to draw very different conclusions, both from personal and local knowledge of the subject.

As so much stress had been laid on the effect of heat, and of various atmospheric changes in the production of the fever, I have thrown together in the Appendix several meteorological tables for different periods antecedent and subsequent to the epidemic of 1800, by which some idea may be formed of the usual temperature of the climate of Spain, and of the prevailing winds. These are, however, introduced more out of compliance with custom than from any conviction in my own mind of the utility of meteorological observations, in affording us instruction with regard to the cause of pestilential fevers.

In the beginning of the two first Reports, on the origin and progress of the fever at Cadiz and Gibraltar, it has been thought proper to give a short topographical and medical description of each of those places; and to the latter I have added a sketch of the spot where the disorder broke out in Gibraltar in 1804, and from whence it was traced to other parts of the garrison.

The proofs and illustrations are also inserted in the Appendix, and the work itself is formed

into four Reports, each one containing a mixed historical account of the different epidemics in the south of Spain from the year 1800 to 1813.

It has been suggested, that I might with propriety add a fifth, and separate Report, comprising some practical observations which I had an opportunity of making on the bilious or autumnal remitting and intermitting fever, as it appeared in the military hospitals at Colchester in 1809, after the return of the troops from the expedition to Zealand. As the present work is not a systematic medical treatise, it may be thought immaterial in point of date, that the observations on the Walcheren fever did not precede the Report of 1810; but some explanation may seem to be necessary to account for the introduction of a subject, apparently so unconnected with the history of *the* fever in Spain.

When the army returned from the Scheldt in 1809, I was ordered to superintend the military hospitals at Colchester, where, during my attendance upon the sick, some useful remarks were made on the nature and treatment of the disorder, which I had determined to publish with a double object; first, to endeavour to dispel the popular delusion which seemed at the time to have been kept alive from party and interested motives, in respect to the unheard-of

mortality of the British Army ; and secondly, to shew that the epidemic which had prevailed so generally amongst the troops, was no new or extraordinary disorder, and that under proper management, it might be made to yield very readily to the action of medicine *judiciously* administered.

It was about the period, when *the enquiry* was instituted by Parliament into the causes of the failure of the expedition, that I was engaged in preparing a work for the press ; but being suddenly ordered to join the army at Cadiz, I lost the opportunity of completing it in the form in which it was originally intended to appear.

The few practical remarks, therefore, that are thrown together in the Fifth Report, were founded upon facts which fell immediately under my own observation.

They demonstrate very clearly the connection that exists between the bilious remittent fevers of warm climates, and the intermittents of our own latitude ; whence it is inferred as probable, that the exciting causes are similar in both, and that the shades of difference, so remarkable in the two states of the disorder, proceed only from the degree of virulence or activity of those causes.

Thus, whilst it is admitted that fevers of the remitting and intermitting class (originating

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miasmata affect the human constitution, as often as it may be fairly exposed to their influence.

This peculiarity is unquestionably important, and it is a curious coincidence that the pestilential fever of Spain has never been known to attack a person a second time in that country; this fact, which was first observed by the native practitioners, has now been confirmed by the experience of several years, and by the concurrent testimony of all the surviving inhabitants of those places where the disorder had most prevailed.

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DIRECTION TO THE BINDER.

The Engraved Plan, shewing the origin and progress of
the disorder in Gibraltar, to face Page 464.

REPORT I.

PART I.

TOPOGRAPHICAL DESCRIPTION OF CADIZ.

THE town of Cadiz is situated under the temperate zone, in the $36^{\circ} 30'$ N. lat. Its area extends about a mile in its greatest length, and something less in breadth, resembling in form the base of a pyramid, of which the circumference may be rather more than three miles. The surface is computed to be from three to seventeen varas, or from about nine to forty-seven English feet, above the level of the sea.

The whole superficies of the soil of Cadiz consists of pure sand, except in particular parts, where crests of the rock appear, which form the nucleus of the soil. The rock itself is of an unequal solidity, being mixed with marine substances, and composed of marble quartz, spath,

and pebbles, united together with sand and yellow clay.

The sand upon the surface is heavy, and constitutes an horizontal stratum from one to two yards in thickness, beneath which appear alternate horizontal strata of fine sand, and of red, yellow, or white clay.

In some places, immediately below this, may be perceived the sea-rock, and at the depth of twelve or fourteen yards, fine sand is found, but as hard as gravel, or the most solid whin-stone.

Upon this slip of land the Phœnicians founded the city, which they left to their descendants, the Carthaginians, in whose possession it remained until they were driven from Spain by the Roman conquerors; under them it long continued to flourish as one of the most opulent in Europe.

From the decline of the Roman empire, little is known of the subsequent history of Cadiz until 1248, when Saint Ferdinand retook it from the Saracens, by whom the famous aqueduct, which had conveyed water to the town from a distance of several leagues, as well as other monuments of art, had been totally destroyed.

The population was also greatly diminished, which before this period had been very considerable, both in the time of the Carthaginians, and during the prosperity of Cadiz as a Roman co-

lony, according to the traditional accounts that are extant. When Don Rodrigo Ponce de Leon took possession of the city as the first Marquis of Cadiz, in 1610, he found it almost depopulated: there were then only 600 householders; and with the strangers and slaves, whose number was much greater, the population amounted to between 8 and 10,000.

In 1768 it had increased so much, that, according to the census taken by the Conde de Aranda, it then amounted to 64,838 souls. In the census which was taken in 1801, the year following the great epidemic, it was reduced to 57,837 inhabitants of all descriptions.

The population has since that period recovered itself considerably. During the invasion of the French army under Napoleon Buonaparte, emigrants from the distant provinces flocked to Cadiz in such numbers, that it was supposed to contain at one time 130,000: after the siege was raised in 1812, most of the strangers returned to their homes, so that the average number of inhabitants actually residing in the town in 1813, when the last epidemic prevailed, was rated at 70,000.

Previous to the year 1800, it was the custom to bury the dead in vaults under the churches, but that practice was afterwards wisely prohibited, and a public cemetery has been con-

structed about a mile from the land-gate; a similar improvement has, I believe, taken place in every other part of Spain.

The situation of Cadiz is singularly striking; on making it from the westward, the first object which is observed from the deck is the light-house of St. Sebastian; the turrets of the houses then gradually appear; and on a nearer approach, the city seems to rise majestically from the ocean; and the whole range of view from the bay forms the most interesting scene imaginable. The nearest land to it on the continent, about two leagues distant, is low; the interjacent space forms the entrance into the harbour and the bay, which reaches to the arsenal of the Caraccas.

The Isla de Leon is about seven or eight miles distant from Cadiz, and is connected with it by an elevated causeway, bounded on one side by the bay of Cadiz, and on the other by the ocean.

The nearest mountains are the Sierras* of Xeres and of Ronda: the Cerro de St. Cristobal, or Saint Christopher's Hill, called by sailors the Moor's Head, rises majestically between them; although at the distance of fifteen leagues, it is readily distinguished at sea, and serves as the

* Sierra — a range of mountains.

point for ships to steer by on making the harbour from the westward.

The towns of Rota, Puerto de Santa Maria, Puerto Real, the arsenals of the Trocadero and the Caraccas and the Isla de Leon, are all situated within the circumference of the bay, and are equally distant from Cadiz about two leagues; there is no fresh water either in the town or within its boundary; there are however wells and norias of brackish water, which answers for cattle and for watering the gardens, outside the land-gate, as well as for domestic purposes in town.

Cadiz was formerly supplied by the famous aqueduct already mentioned, which conveyed the water from Tempul, (a place so called in the Sierra de Xeres) distant eleven leagues, and it was received into spacious reservoirs of mosaic work, from whence it was distributed into the cisterns of the town; but all this useful and magnificent structure has disappeared, although it may be traced by many large masses that have resisted the ravages of time. At present every house has its *algibe*, or cistern, in which the water is collected from the *azoteas* or flat terraces during the heavy rains, and when this provision is consumed, recourse is had to the excellent water of Puerto de Sta. Maria, which is conveyed in boats destined for the purpose.

The ancient poets, historians, and geographers have celebrated the island of Cadiz for the fertility of its soil, and especially for the excellence of its climate; but that tract which is now called Isla de Leon, distant eight miles from Cadiz, is the only fruitful spot; for beyond the Puerta de tierra or landgate of the town, which is the key to the island, there is a heavy, sandy soil, which is only made productive by the constant labour of the gardeners. The fineness of the temperature was such that the poets placed their Elysian fields near Puerto de Sta. Maria, nine miles across the bay, and opposite to Cadiz, where the river Lethe (Guadalete) separated them from the rest of the world.

Whoever has lately visited these places, and lived in either, would be induced to believe the whole to have been a poetic fiction, were it not ascertained from unquestionable authority, that this circumscribed spot merited the eulogiums of many of the ancient writers, particularly of Strabo, Pliny, Diodorus, &c. * some of whom

* The greatest part of the isle of Cadiz was lost by an earthquake, according to the Spanish historian Mariana, who tells us that that in the 398th year after the building of Rome, the earthquakes were so violent, that many cities in the Mediterranean Sea were ruined, and in the 507th of Rome, another part of the isle of Cadiz was broken off and sunk in the sea, which before the shock was many leagues in circumference.

praised it for its fertility and abundance, others for the delicacy of its fruits and its wines, which Ortellius calls most noble, and finally, others celebrated it for the longevity of its inhabitants.

It has been already mentioned that the soil of the town and boundary of Cadiz is for the greatest part stony and sandy; the soil of the Isla de Leon, is more adapted for cultivation, and it yields readily to the efforts of the industrious labourer; the vegetables which grow here are excellent, but there are scarcely any vines to be seen that can produce the grapes so celebrated.

In Cadiz there are three principal plazas or squares, and several smaller ones which contribute to the convenience of the inhabitants, and to the ventilation of the place; a public walk or *alameda*, within its walls, and another outside the town beyond the landgate.

The public buildings in Cadiz chiefly deserving of notice in this report, are the hospitals, jail, and slaughter-houses; there are also five charitable institutions, besides eleven convents of religious orders, an academy of arts and commerce, and a royal college of medicine and surgery.

All these buildings are well situated, excepting the public hospital of San Juan de Dios, which stands on one side of the Market-place, and near the Boquete and Sopranis, the most

crowded part of the *barrio* or district de Santa Maria. The posadas, taverns, and lodging houses where the lowest classes of the people principally resort, are in this quarter of the town; and the sailors, workmen and porters employed on the wharf, together with the muleteers and strangers from the country usually reside here. It will be shewn hereafter that the malignant disorder which forms the subject of this report, first broke out in those streets in 1800.

The other building of which the situation appears to me objectionable is the slaughter-house, it is built at the back of this *barrio* near the sea, and not far from the jail; both stand at some distance from the dwelling houses opposite; the two barracks of Santa Elena and San Roque which are placed on each side of the land-gate, are so near the slaughter-house; that during the prevalence of particular winds, the stench is very offensive, and renders these quarters unpleasant to the troops, the offal, and other impurities being thrown over the wall to be washed away by the sea. The barrack-rooms are all bomb-proof, and at one end of each is an opening funnel-shaped, to allow the confined or impure air to escape. On account of this inadequate ventilation when the British troops occupied the above barracks, it was found necessary to order the doors to be kept open day and night,

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clay, which gives it colour and consistence ; it is, however, obtained without difficulty from the quarry, and easily worked, but it afterwards becomes so indurated by exposure to the air, as to afford a powerful resistance to the force of the waves, and to the action of the sea salt.

This method of building their houses, exempts the inhabitants from accidents by fire, a calamity which seldom happens here, although a populous town.

The elevation of the soil of Cadiz, above the level of the sea, offers natural advantages for rendering it one of the cleanest and neatest cities in Europe ; the public drains cross the town in all directions, and in every street there is one of those great subterraneous outlets, to receive the pipes from the houses in its vicinity ; the streets being well paved and flagged, the water cannot remain in them, for during the heavy rains it is carried off through the great sewers, so that the inhabitants walk perfectly dry and clean at all times and under every circumstance. At an early hour every morning carts are sent round to collect the filth or refuse from the houses, and to remove it to the sea ; the streets are swept daily throughout the year, and regularly watered during the heats of summer.

The walls of the town are for the most part

constantly washed by the sea, some parts of them remain uncovered at low water twice a day, but at the return of the tide the whole of the exposed surface is covered, and the waves which break against the ramparts, carry away with them every floating impurity that may have been thrown from the town. During the spring tides, at the full and change of the moon, it is constantly high water at half past one in the afternoon, and low water at half past seven at night, and the tide rises from twelve to thirteen feet. In the quarters of the moon during the neap tides, the sea only rises from five and a half to six and a half feet.

With respect to the winds which prevail, in this country, it is observable that that which is called by the Spaniards *la briza*, blows from the west-north-west; it begins generally in March, and is preceded by the calm land winds from the north and north-east, which rise with the sun, and continue most commonly until ten or eleven o'clock in the morning; at this hour the wind springs up from the sea and blows moderately the rest of the day, dying away insensibly towards the middle of the night, when the land wind revives; whilst these breezes continue, the weather is always clear and fine.

This wind, which moderates the heat of sum-

mer, and makes the nights so agreeable, is doubtless that which the ancients called the Zephyr; in winter it is changed into a violent south-west wind, and lasts several days together, accompanied by heavy storms of rain; the sea then becomes violently agitated, and roaring waves dash against the walls with such violence, as often to break down their most solid foundations, and threaten to overwhelm the town. This wind is moist and warm like the south; the north and north-west, on the contrary, in winter, are cold and dry, sometimes extremely so, and they generally clear the atmosphere, and render the sky bright and cloudless.

Thus, as the south-west winds alternate with the north and the variable breezes in the winter season, in like manner the Levanter alternates in the summer with the land winds and sea breezes; if these bring with them dark cloudy rains and heavy storms, the former no less violent, blows for several days, becomes calm generally towards night, and recommences at sun-rise. Whilst this Levanter continues, the neighbouring mountains are scarcely to be seen, owing to a heavy dark mist which covers their surface. This wind is so dry and hot that it scorches the tender plants, and occasionally parches up the ripening corn, thus depriving the industrious

husbandman in a few days of the reward of as many months' toil and labour.

The effect of this terrible wind is not less remarkable upon animal life than upon the vegetable creation. The whole circulating system is influenced by it in a very extraordinary manner, the fibres become irritated, the quality of the bile itself is altered, and the most pacific, quiet, temper is rendered irritable; so that quarrels, wounds, and assassinations, are said to be never more frequent than during the prevalence of a Levanter, which, in the province of Andalusia, is called the Wind of Discord.*

* Townsend, in his journey through Spain in 1786 and 7, p. 439. speaking of Cadiz, has the following remark;—"Few places are more healthy than Cadiz; yet when the Solano, or south wind blows, which comes to them over the scorching plains of Africa, having only the intervention of a strait, all the passions are inflamed, and during its prevalence, the inhabitants who are most irritable, commit every species of excess."

This statement, like those of most travellers who have undertaken to delineate the Spanish character, is to be received with great caution. Although the irritation occasioned by this wind displays itself sometimes in acts of outrage among the lower orders, I have observed, generally, the disposition and temper of the inhabitants of Cadiz, and of every other part of Spain that I visited, to be mild, friendly, and good-humoured; and hence I am more inclined to approve of a subsequent observation of this writer, where he says, "for the pleasures of social intercourse, I did not meet with

It is a vulgar opinion at Cadiz, that the Levant wind is salutary; but the best practitioners have observed, that whilst it continues, all the complaints produced by a morbid state of the bile very frequently occur, especially cholera morbus, bilious diarrhæas, &c.; and that in general it so affects the human body, and occasions such debility, uneasiness, and apathy, as to unfit men for their ordinary occupations.

Violent pain and giddiness are often brought on by this wind, and the fatal apoplexies which have occurred in Cadiz, are said by Gonzales and other physicians, to have taken place generally during its prevalence, owing to the powerful excitement induced by it, and in those subjects, whose moderate way of living exempted them from all suspicion of excesses, such as might have been supposed to have brought on the attack.

It has been shewn from experience, that the Levant wind has always had a considerable influence over the Andalusian fever; the disorder

any city more agreeable than this. As all nations are here assembled within narrow limits, by their mutual intercourse they soften each other's manners, and as, notwithstanding the late shock, commerce flourishes in a degree, with its never-failing attendants, wealth, and hospitality, a stranger may pass away his time with the highest satisfaction to himself."

has usually made its appearance in Spain, after the prevalence of easterly winds; this fact, observes Gonzales, although not sufficiently conclusive to enable us to account for the production of the disease, is, however, strong enough to induce us to consider it as one of the most powerful of the exciting causes.

This destructive fever certainly became aggravated, more violent and unmanageable, and appeared always to be more fatal during the prevalence of a Levanter. *

It must be allowed, that the atmosphere of Cadiz is particularly moist; for the wind, from whatever quarter it blows, before it reaches the town, passes over and sets in motion a great expanse of sea, and becomes charged with the humidity thence arising.

* The Levant wind which affects the inhabitants of Cadiz, blows from the southward of east; and it would appear, that by passing over a larger tract of the opposite coast of Africa, and a considerable portion of the land in Spain, it becomes drier and hotter than at Gibraltar, where it is also hot but moister: this may be owing to the course of the wind, which sweeps, as it were, the surface of the Mediterranean sea, and has little land to impede its progress to the rock.

At Malaga, the Levant wind is rather refreshing than oppressive, for it blows due east, and seems to pass over a greater extent of sea, and is consequently moister; but there the north and north-west wind, called the Terral, or land-wind, is very hot and oppressive during the summer months.

The inhabitants, like all those who live near the coast, would by preference, subsist entirely upon fish, if the quantity were sufficient for the numerous population, as it is observed, that when abundant, all ranks of persons, both rich and poor, are eager to procure it; the latter relish it particularly, when fried in oil; but as it is frequently scarce, other kinds of food are substituted from necessity; soup, and the national dish, commonly called *Olla*, is the usual diet of the people, not only here, but throughout Spain; in this aliment, are united and combined both animal and vegetable substances, so that the tendency to putrid fermentation in the one is corrected by the acid fermentation of the other.

This mixture, which is unquestionably best adapted to man, is, however, deteriorated by luxury, or from necessity; the opulent part of the community make more use of meat, pastry, and other gross food, with aromatics, pepper, &c. whilst the middling ranks, the artisans, and day-labourers are obliged to content themselves with the cheapest vegetable productions; so that both classes exhibit frequent instances of sickly constitutions, arising on the one hand, from the abuse of too gross food, and on the other from the want of a more nutritious and wholesome aliment.

It is not possible to form any comparative

estimate of the state of the inhabitants of Cadiz in former times with that of its present population; various moral and physical causes have been continually operating to undermine the strength and vigour of their constitutions. There is now no where to be seen, the dark but manly complexion which characterises the youthful peasant in early life; the countenances are pale and sickly; children especially, are subject to convulsions, diarrhæas, all the symptoms of difficult dentition, rickets, consumptions, and hectic fevers, (the effect of a scrofulous and venereal taint,) and eruptive fevers, which constitute the diseases of early infancy.

The female sex particularly suffer from hysteric and chlorotic affections, and are subject to leucorrhæa, which is a very prevalent complaint. The irregularity of the menstrual period produces obstructions, and these bring on epilepsy, hæmorrhages and phthisis, which often prove fatal to some of the fairest ornaments of society. These last complaints are also frequent amongst the male sex; consumptions, connected with tuberculated lungs are still more frequent, and whether these arise from an hereditary taint, from accidental circumstances, or from contagion, it is certainly not uncommon, says Gonzales, "to see a whole family destroyed by this disorder." The simple catarrhal fevers, incidental to all ages and in every

season, predominate over every other species, and readily degenerate into fevers of debility; and they are sometimes accompanied by so great a prostration of strength, and by such nervous symptoms as often to assume the appearance of typhus.

Hypochondriasis, rheumatism, palsy, gout, and dropsy, are the diseases peculiar to more advanced life, and many unhappy victims are carried off by them after months of suffering and pain.

The spasmodic asthma is observed in persons of both sexes and of every class and age; there is scarcely any permanent relief to be derived from medicine, and the only effectual remedy is to be obtained in leaving the town; numbers attacked with this complaint, have been immediately relieved by going only two leagues off, and on their return to Cadiz have been instantly attacked with a severe spasm, so that this disease may properly be said to be endemic there.*

In noticing the prevailing disorders of Cadiz, it is scarcely necessary to mention syphilis, which is unhappily common to all countries, especially the rich and the luxurious; but here, the scrofulous

* I remember one instance in which the stramonium smoked three or four times, obviated the difficulty of breathing, and removed the spasm, a relief which no other medicine that was tried could afford.

taint is so interwoven with the venereal, that the disease is rendered more destructive, so as often to baffle the efforts of art and the power of medicine.

At all times sporadic diseases have been observed here, as in other towns in the province of Andalusia, *but intermittent fevers are very uncommon*, and those which do appear in Cadiz are generally remarked in strangers, or in persons who arrive from the country.*

From all that has been said of the ordinary temperature of this climate, and the situation as well as the soil of the town of Cadiz, it would appear that the place is healthy, but these considerations alone cannot diminish the influence of many permanent and debilitating causes, which, united, tend to overwhelm as it were, and destroy the equilibrium of the system necessary to health.

Amongst these causes may be included the circumscribed space to which the vast population is confined—the sedentary habits of the natives, and the influence of various strong and fluctuating passions, all of which operating as so many morbid agents, render their constitu-

* Some cases of genuine intermittents were admitted into the military hospitals at Cadiz in 1810, but they were confined to those soldiers who had been employed with the army in the expedition to Walcheren, the preceding year.

tions delicate and unable to bear the hardships of active life. The complexion and colour of the inhabitants, are far different from what are observed amongst the Spanish peasantry, whose manly forms and expressive countenances denote a vigour of health seldom to be met with in the towns.

It has been shewn in this short sketch of Cadiz, that simple catarrhal and nervous fevers prevail—the former apparently arise from the moisture of the atmosphere, and from the vicissitudes in the temperature, and they increase or diminish according to the vital energy of the individual, or to the regular succession of the seasons. The latter seem to be occasioned by the continued operation of the debilitating causes alluded to; these seldom affect the residents of the country, the salubrity of which the inhabitants of the town of Cadiz cannot enjoy.

It is the common opinion in Spain, that a progressive change has taken place in the temperature of this climate; and it is founded on the appearance of late years of hoar-frost, ice, and snow, of which, in the early periods of its history, no instance is recorded; whatever may be the cause the fact is undeniable, and I was assured by Dr. Gonzales, that his experience did not accord with the boasted salubrity which the ancients attributed to Cadiz. He admitted, that from its situa-

tion, in the middle of the sea, not commanded on either side, *and having neither woods nor marshes in its vicinity*, and from the mildness of its climate, it well deserved to be called a healthy place; but he added, that every species of disease had appeared here which is peculiar to the seasons, and that he had seen severe winters as well as summers of extreme heat.

He favoured me with the following lists of the mortality for six years, which give a proportion of four in the hundred annually of the actual population.

In 1801.	- -	2359	} In this year the epidemic fever prevailed.
1802.	- -	2809	
1803.	- -	2463	
1804.	- -	4751	
1805.	- -	2723	
1806.	- -	2726	
		17,831	

In 1806 the proportion of deaths was as follows:

1040	Men
695	Women
650	Boys
337	Girls.
2726	

PART II.

ORIGIN AND PROGRESS OF THE FEVER IN CADIZ
IN 1800.

THE first great sickness in Cadiz, of which we have any account is recorded to have appeared in the year 1466, and to have nearly depopulated the city*. In 1507, an equally fatal malady prevailed there, and according to Capmani, it raged about the same time in Barcelona†. The disorder, on both occasions, was supposed to be the true plague, although, the word *peste*, used by the Spanish authors, is applied to infectious disorders in general.

Of the sickness which broke out in Cadiz in 1582, nothing satisfactory is related; for it was said to have ceased through the intercession of Saint Roque, to whom the city dedicated a chapel upon the spot where the barracks which bear that name are now situated.

In 1649, the plague was introduced into Cadiz, where it lasted three years, and carried off more

* *Ferreras*, Synopsis historica chronologica de España, parte decima. p. 199.

† *Capmani*, Compendio historico y chronologico de las pestes, contagios y epidemias, tom. 4. de las memorias historicas, No. 7. p. 66.

than 14,000 persons ; it was also introduced into Seville by a vessel that came from Malaga and Murcia, and which anchored at San Lucar *. In 1681 it appeared again, and upon this occasion, we are told, that it was in contemplation to send to Marseilles for a person celebrated for his fumigations against the plague †.

From that period there is no account of any extraordinary change of the state of the public health in Cadiz until the year 1730, when the disorder since known by the name of "El vomito negro," or black vomit, first made its appearance, and destroyed great numbers of persons, very few having escaped who were attacked by the disease. In the year following, it prevailed with equal fury, and spread general alarm

* This pestilence was introduced into Seville by a vessel that anchored in St. Lucar de Barrameda, with merchandize from the Levant ; the germs of the disorder were conveyed to Malaga and Murcia in silk stuffs taken from the same ship, and it spread afterwards to Cordoba, Eciga, Valencia, and its neighbourhood : in the course of two months and a half, 46,000 persons were carried off in Seville, and in the adjacent towns.

Don Gaspar de Heredia wrote an account of this plague in Spain, and Don Alonzo de Burgos, physician to the Inquisition at Cordoba, published a work on the subject intituled, "Tratado de la Peste, su esencia, preservacion y curacion, con observaciones muy particulares." Cordoba, por Andres Carillo, año 1651, 8vo. — Don Nicolas de Vargas also wrote an account of this plague.

† Cadiz ilustrada, lib. 6. cap. 19. p. 483. y siguientes.

throughout the country; two symptoms were particularly noted as being most fatal in this disorder, which had not been before observed in Spain; viz. spots of a livid, yellow, or dark colour, that covered the body, and were the certain forerunners of the black vomit: the physicians were of opinion, that the malady was of a pestilential nature, and they advised the magistrates to take the necessary precautions; the court was then at Seville, and Don Josef Cervi, physician to Charles the Third, at that time Duke of Parma and Placentia, was directed to send a practitioner from Seville, to examine into its origin, &c. &c. who declared it not to be the plague: we are not told who this person was. Dr. Cervi, (who had not seen the disease) formed his opinion of it from the report that had been made to him; and he wrote an account to the minister which was never published; it differed, however, from the opinion given at the time by all the practitioners of Cadiz, and by those at the Puerto de Santa Maria, who saw and treated the disorder.

Don Francisco Fernandez Navarrete, the learned professor of the university of Granada, and physician to Philip the Fifth, affirmed, that this disease (*el vomito negro*) was introduced into Cadiz, by a vessel from Spanish America,

and that it spread to other parts of the peninsula. *

In the year 1764, a similar disorder appeared in Cadiz, but it does not seem to have been general, nor very fatal, having been confined principally to the barracks, in which were quartered two regiments of infantry. Don Josef Salvaresa, physician to the King, and to the royal navy, and Dr. James Lind, have both written an account of the malady. Professor Aregula, at Cadiz, favored me with a copy of Salvaresa's MS., in Latin, which gives the following description of that fever ;

“ *Morbi quem Hispani Vomito prieto nominant brevis descriptio : —*

* The year 1730 was remarkable for the drought that was supposed to have occasioned the influenza, which prevailed very generally at that time ; some barometrical observations, shewing the increased weight of the atmosphere during the period, made by Gottlibius Ephraim, in his treatise, “ *de efficaciâ aëris in corpore humano,*” corresponded with those made by Fernandez Navarrete in Castile and Andalusia.

This author wrote to the Spanish physicians, exhorting them to give a history of the Catarrhal constitution, (which returned in 1738) to investigate its origin and causes, and to point out such measures as might tend to prevent the disorder (*la peste*) which then threatened all Spain. This work (8vo.) was dedicated to the Royal Academy of History at Madrid in 1738.

“ Invadit hic morbus cum horrore et rigore, quos statim excipiunt calor æstuosissimus, anxietas, cibi fastidium, nausea, capitis et lumborum acutissimus dolor, ut et partium scrobiculo cordis subjacentium, levissimum manus attactum non ferentium; sitis modica, alvi adstrictio; continuò jacere coguntur ægri pro vertigine, et virium prostratione.

“ Elapso vix unius diei curriculo, pulsus, qui primo celer et magnus, parvus et tardus percipitur, augetur virium prostratio, vix ægro datur per momentum caput attollere, oculorum nitor obscuratur; facies mæsta, nausea longè major: actiones torpent adeò, ut vix æger respondeat ad interrogata; jactationes assiduæ; evomit ingesta omnia; aut pronus, aut supinus jacet, decubitus in latus non sustinens.

“ Tertio die predictorum symptomatum catervæ accedit vomitus, primo biliosus, sensim obscurior; frigus extremorum, singultus, Icterus fuscus: intenduntur anxietates, vomitus copiosiores.

“ Procedit sic morbus, donec quarto, aut quinto die humoris atri supernè et infernè cum immani angustia; copiosissima expulsio superveniat ad ægri obitum durans.

“ Liquor rejectus pro mali acutie variè coloratus apparet, vel enim æmulatur loturam carniū, non rarò æruginosam; sæpissimè atrum

et semi-concretum sanguinem; frequentissimè pulverem carbonum cum aqua subactum, et agitatum diceres in summè periclitantibus; observatur etiam aliquos ægrotos absque tussi vel vomitu spuere tenuissimum sanguinem, foetidum exhalantem odorem.

“ Explorata hoc morbo defunctorum cadavera ventriculi fundum, orificia et adjecta tenuia intestina sphacelosis maculis correpta exhibuerunt, nulla in reliquis visceribus observata lesione; detegitur etiam liquor fuscus in ipso ventriculo contentus.

“ Notatum fuit in constitutione Epidemica Gaditensi anni 1764 præcesisse ver, et æstatem siccissimam, autumnumque pro maxima parte et ipsum siccum, ut plurimum aggressum fuit malum homines labore fractos, vino deditos, et pane ex vetustis diu conservatis et corruptis farinis confecto, usos.

“ Iis qui ex morbo ad summum ferè periculum evecto feliciter evaserunt, mansit Icterus chronicus, paullatim superandus.” *

* It appears that the epidemic of 1764 was confined solely to Cadiz, and that (according to Salvaresa) it was occasioned by the old and corrupted corn. Amongst the poor, whose diet consisted chiefly of bread, the disorder was most violent. In this year the animals were first affected, and the mortality was particularly observed amongst those which fed on grain; viz. poultry, pigeons, &c. Insects, called by the Spaniards *langostas*, were also seen there previous to

The following is Dr. James Lind's account of this fever of 1764, in his *Essay on Diseases incidental to Europeans in hot climates*: Part I. c. iv. p. 122.

"This fever," says Lind, "happened at Cadiz, in Spain, in the months of September and October 1764, when excessive heat, and want of rain for some months, gave rise to violent epidemic bilious disorders, resembling those of the West Indies, of which an hundred persons often died in a day. At this time, the winds blew mostly from the south, and after sun-set there fell an unusual and very heavy dew. This disease began commonly with alternate chills and heats, nausea, pains of the head, of the back, of the loins, and at the pit of the stomach. These symptoms were often followed, in less than twenty-four hours, by violent reachings, and a vomiting of a green or

the breaking out of the fever. The same kind of insect made its appearance in the spring of 1800. The epidemic of that year was attributed to causes, which will be shewn hereafter, and it extended from Cadiz to other towns in Andalusia. The domestic animals were not affected until the disorder had become general.

Homer mentions the death of dogs and mules as the forerunners of the pestilence in the Grecian camp before Troy.—*Iliad* i. 69.

yellow bile, the smell of which was very offensive. Some threw up an humour black as ink, and died soon after, in violent convulsions, and in a cold sweat.

“ The pulse was sometimes sunk, sometimes quick, often varying. After the first day, the surface of the body was generally either cold, or dry and parched. The head-ach and stupor often ended in a furious delirium, which proved quickly fatal. The dead bodies having been examined by order of the Court of Madrid, the stomach, mesentery, and intestines were found covered with gangrenous spots. The orifice of the stomach appeared to have been greatly affected, the spots upon it being ulcerated: the liver and lungs were both of a putrid colour and texture: the stomach contained a quantity of an atrabilious liquor, which, when poured on the ground, produced a sensible effervescence; and when mixed with spirit of vitriol, a violent ebullition. The dead bodies turned so quickly putrid, that at the end of six hours their stench was intolerable; and in some of them, worms were found already lodged in the stomach.

“ His Majesty’s ship the Tweed being at that time in Cadiz Bay, several of her men were taken ill when on shore; but by being carried

on board, all of them recovered. Neither did the black vomit, or any other deadly symptom of that fever, make its appearance in any of the ships. The dread of this distemper forced many people of fashion to retire into the country, where they remained in perfect safety from it." *

* Dr. Bancroft, in his Essay on the Yellow Fever, p. 442. has quoted these facts, referred to by Lind, and observes, that "from these accounts it appears that the disease was not propagated in the country, and that seamen, who had imbibed miasmata on shore and became sick, did not infect others when sent on ship-board, and *consequently*, that the disease was not contagious."

Lind, who had considered well the subject upon which he wrote, did not venture to decide so hastily. "How far," says he, "this fever, as produced by the land air, is contagious, it is more difficult to determine; the exemption from it, which those generally enjoy who sleep at a distance from the shore, whilst others, who have suffered by a neglect of that precaution, are sick on board, seems to prove it void of any contagion; but upon a *more narrow examination*, we shall be inclined to *adopt a contrary opinion*, passing in silence the many means whereby infection may be communicated to us, to elude the strictest inquiry, not only immediately from the diseased persons, but from his clothes or attendants, we need insist only on positive facts:"—p. 183. Part 4. c. 1. And after adducing the instances, he concludes, "that the fever may be communicated by contagion, but that this contagion is very slight, unless co-operating with a bad air; and in a ship is often greatly checked, if not wholly destroyed, by going out into the open sea."—185. This is consonant to the opinion I have formed upon the subject, and accords with the observations afterwards made in the different epidemics of Spain, where proper precautions were used.

Don Joseph Masdevall, physician to Charles the Third, has given an account of the malignant fevers which prevailed in Catalonia at different periods, from 1764 to 1783 *. This author's description of the symptoms and treatment of the disorder are highly interesting. After reading Salvaresa's MSS. and Lind's short account of that which broke out in Cadiz in 1764, I referred to Masdevall's works, expecting to find a more detailed history of the fever, which I concluded to be the same; but his description of the epidemic in Catalonia differed very materially in many essential points. He nowhere takes notice of some of the most formidable symptoms which were observed at Cadiz in 1800, such as discharges of blood from the gums and from different parts of the body, vomiting of black matter, dark bloody stools, &c. &c. and equally overlooks several other circumstances peculiar to the Andalusian fever. He tells us, that the French troops, who had been the allies of Spain during the war in Portugal in 1764, had suffered greatly from disease which

* *Relacion de las epidemias de calenturas putridas y malignas.* Madrid, 1797. Por Don Joseph Masdevall. This celebrated physician is called by the author of *Efemeridas de Roma*, "the Spanish Hippocrates." He was sent to Catalonia, as inspector of health, and was afterwards made a nobleman of the first class in that province by Charles the Third.

broke out amongst them in that country, and that on their return through Catalonia the same year, mixing with the people of that province, in whose houses and towns they were quartered, they communicated a malignant fever, which occasioned dreadful ravages, and the fatal effects of which were long felt in that country. In all the different varieties of this disorder, the same signs, character, and accidental circumstances were observed, but it did not begin its attack in all alike, nor did it run its course in the same manner, although it was equally fatal in its effects.

“ This fever,” says Masdevall, “ was of so contagious and malignant a nature that all those who attended upon the sick became soon affected, and were attacked by it.”

A period of thirty-six years had elapsed since Cadiz had been visited by any pestilential disorder, or complaint similar to that described by Salvaresa and Lind in 1764; the bills of mortality during that long interval, shew the regular proportion of deaths in respect to the population of the place, which had increased considerably from one year to another; but neither this augmentation of the population, the irregularity of the seasons, nor the prevalence of particular winds, seem to have produced any material change in the state of the public health.

Towards the latter end of the year 1799, the weather was remarkably severe, and it continued so during the months of January, February, March, April, and May, of the year 1800, with equal irregularity. Excessive cold, heavy rains, and violent winds, alternately succeeded each other, so that there was scarcely any appearance of spring; the heat of summer set in from the beginning of June, and by the month of August the Mercury in Fahrenheit's thermometer rose to near 90 degrees, according to Gonzales's meteorological observations; and the prevalence of the east wind, or *Levante seco y abrasador*, as it is called, tended to increase the distress which the intense heat of the weather generally occasioned.

Notwithstanding this heated atmosphere during the months of June and July, no material alteration was observed in the health of the inhabitants of Cadiz.

About the beginning of August the scene began to change; a certain species of fever made its appearance in the Barrio de Santa Maria, which soon attracted the notice of practitioners, from the violence and singularity of its symptoms, and from the uncommon rapidity with which its course was terminated. In this quarter of the town, described in the commencement of

this work, the streets are narrower, less ventilated, and not so clean as in all the other parts, and here the poorer inhabitants, dirty in their persons, and crowded in filthy rooms, generally live together; it was amongst these subjects, already predisposed to disease, that the disorder broke out, which afterwards spread like a pestilence over a great part of Andalusia.

The malady, although at first confined to this district, continued daily to gain ground, and in whatever house it appeared, every person belonging to the family was attacked. The frequent deaths justly alarmed the magistrates, who, anxious to check the evil, assembled together all the practitioners of the town, to deliberate on the measures of precaution necessary to be taken; but upon this as upon other occasions, where these numerous consultations have taken place, and where each individual thinks it incumbent upon him to talk a great deal, useless discussions arose, which led to nothing, and added to the general confusion and dismay. The prevailing disorder was attributed to all the causes which have ever been assigned for the production of fever, and as many names were given to it, as synochal, putrid, bilious, ephemeral, &c. &c. Those who considered it as a

simple epidemic of the season *, rejected all idea of contagion, and spoke only of the effects of heat, of the dry state of the atmosphere, of the exhalations from the sea, of the drains, of the low tides, and of the alteration of the bile, &c. But unhappily nothing was determined upon at this meeting, nor were any measures of precaution taken. †

* Cadiz being surrounded as it were by water, and refreshed by the sea breezes, whilst the neighbouring towns are oppressed by the hot air which passes over an arid soil, being moreover a mercantile town, its inhabitants are not subject to the inconveniences or hardships of the peasant or labourer, who, during the harvest and the vintage, is exposed to the heats of the sun and the heavy dews at night; the latter, too, indulges in quantities of ripe and unripe fruits, which he obtains with ease, whilst the poorer people of Cadiz cannot always procure or purchase them. Hence, it could scarcely be admitted, says Gonzales, in his "*Disertacion Medica sobre la Calentura maligna contagiosa que reynó en Cadiz, el año de 1800,*" p. 24. that these, which are among the many causes usually assigned for the complaints of the season, could have had any influence in occasioning the disorder, which prevailed in Cadiz in 1800. "*Siendo estas las causas mas generalmente acusadas, en la produccion de las enfermedades estacionales, se verificaran por consecuencia en las poblaciones mas expuestas á ellas, con preferencia á los que lo son ménos; y en el caso presente ha sucedido todo lo contrario; pues al paso que Cadiz se veia devorado por una fiebre de mucha gravedad y consecuencias, los pueblos inmediatos no padecian semejante azote, y solo empezaron á sufrirlo, quando la afluencia de los emigrados de Cadiz trasplantó á ellos el germen de contagion.*"

† "It was not to be wondered at," says Arejula, p. 158. "that the physicians of Cadiz should have mistaken this

In the meantime the disorder continued to make gradual progress *in the district where it*

disorder, which came upon us unawares, and which we had *neither seen* before nor expected; it had not shewn itself at first in so marked a manner as was necessary to enable us to distinguish and classify it with accuracy, but it was not long before it was stamped by its proper name: we soon observed that the person nearest to the sick, was generally the first attacked with the disorder, and that if he entered a house, the whole of the family was infected, however considerable in point of number.

"We also ascertained that the disorder not only spread from one individual to another, but that it passed from one house to the next adjoining, and so on along the street, ultimately affecting the whole district; this order of invasion was observed principally in the districts most distant from the centre of the town, where the inhabitants associate much together, and have very little intercourse with those who live in the interior of the town, and in the opposite districts."

Dr. Bancroft, in p. 449 of his essay, has partially quoted a passage from this chapter, to shew that at the third meeting of the faculty several of the physicians declared, that the disease was not contagious, some affirming that "they had not lost a single patient by the reigning disease," and others, "that out of two or three hundred cases not more than one or two had terminated unfavourably." He has also cited the authority of a student of the college of medicine at Cadiz, Friar Juan de Acosta, "who had seen most of the sick brought into the hospital of the convent of St. Juan de Dios, who declared it to be of a very bad sort, but concurred with the others in thinking it not contagious."

But Dr. Bancroft has omitted the note of Arejula, annexed to his observations on this subject, which note I shall insert, from the original work given me by the professor himself, it being at least curious.

broke out, and by the middle of August the number of deaths amounted to twenty-five or thirty a day.

The best informed persons now began seriously to inquire into the truth of the reports which were circulated, that this was a disorder of a pestilential nature, and that it had been introduced into the town; the uncertainty of some of the faculty, and the indecision of the magistrates, only tended to increase the suspicion, and added to the general alarm; it was rumoured, that a vessel, called the Dolphin, had arrived from Spanish America, in which were conveyed the seeds of the disorder, and that some of the smugglers, who had been frequently on board during her quarantine in the bay, were the first persons taken ill, in the streets of Boquete and Sopranis, in which they resided, and where it was supposed they had secreted their goods.

“ Los dos medicos D. Francisco Far, y D. Pedro Navas que sustuviéron mas esta proposicion, *muriéron los priméros* de la expresada calentura con diferencia de quatro á cinco dias uno de otro.”

“ The two physicians, Don Francisco Far and Don Pedro Navas, (who most vehemently maintained that the prevailing disorder was not contagious,) affirming, that they had not lost a single patient, were the first who died of the fever in question, within four or five days of each other.”

The Board of Health at Cadiz, was at this period merely a nominal establishment; health officers were, however, appointed, who took the duty by turns weekly, and at the time the Dolphin arrived in Cadiz harbour, Don Joseph Valialta was the *Diputado de Sanidad*, or member of the Board of Health on duty. This person lived in the Plaza de las Tablas, near the San Juan de Dios, and not far from the Boquete, where the disease broke out. It was the general belief throughout Cadiz at the time, and it was confidently mentioned to me by many respectable inhabitants there five years afterwards, that the quarantine laws*, originally

* So little had the danger of admitting vessels immediately to Pratique been considered, that those from South America or from the United States, used to enter the port of Cadiz, and were admitted to Pratique and communication, from the time they touched there, and this appears, by a royal order of the 1st February 1800, which expressly exempted all vessels whatever coming from the United States, from performing quarantine.

The smugglers from the coast of Africa are also numerous, and they certainly never asked leave, whenever a favourable opportunity offered, either to land themselves, or to discharge the cargo they brought over.

The crews of the Spanish privateers, as well as many of the French, which continually entered and went out of the bay of Cadiz, mixed indiscriminately with those of the American vessels which they detained and brought into that port, as well as into others; and as there was no appearance amongst the latter of any contagious disease, while on the other hand, the king's order, already mentioned, favoured them, they

weak, were on that occasion but little attended to, and that Villialta had received from some persons in the Dolphin, a sum of money, which induced him, not only to give the ship *Pratique* sooner than the time required, but to connive at the communication which took place with persons from the shore, and particularly with smugglers and others, living in the *Sopranis* and *Boquete*. Two health guards, or more properly speaking, custom-house officers, were put on board of the *Dolphin*; these were soon after taken ill; one of them survived, and the other died.

were permitted to land without undergoing quarantine; these privateers were also in the habit of going over to the Moors, and communicated with them at the time when the coast of Barbary was afflicted with the plague, which was always much dreaded in Spain, and which carried off a great proportion of the population of Tangier, Tetuan, and other places in the neighbourhood, as will be found noticed in my second report.

Mendoza, in his account of the epidemic at Malaga, says, that clothes of Spanish sailors who die of infectious disorders on the voyage home, are packed up without being fumigated or washed, and are sent to their friends.

“ Cuando algun marinero muere en America durante el viage que casi siempre es del vomito, su ropa regularmente hecha un lio sin lavar, ni fumijar, se la traen a su familia, que se sirve de ella, y las mas de las veces, sin haberla siquiera ventilado.” — *Mendoza*, *Historia de las Epid. Padecidas in Malaga*, 1803 and 4.

Don José Villialta, the health officer, who, it has been mentioned, was suspected of having connived at the smuggling which was carrying on from the Dolphin, was reported to have caught the disease, and it was added, that struck with remorse at the dreadful effects which he foresaw were likely to result from his misconduct, and feeling deeply the reproaches which were heaped upon him by his acquaintance, he gave himself up to despondency, and died in a few days of the prevailing fever, about the 20th.

The circumstance of Villialta's illness, and the exact period of his death, are faithfully recorded at Cadiz; the event confirmed the general opinion at the time, and occasioned so much alarm amongst the inhabitants of that quarter of the town (Barrio de Santa Maria) that on the 23d a great crowd of persons assembled before the house of Don Francisco Marti, Syndico Personero, or head of the municipality, and supplicated him in the most earnest manner to permit them to join in procession, and to carry out the image of our saviour (Nuestro Padre Jesus) from the church of Santa Maria.

Such was the terror of this fanatic people, that they conceived themselves the objects of offended Heaven, and imagined that by following the cross with humility, they should effectually appease the anger of the Deity: the

magistrate, dreading this assemblage of persons in a part of the town where the disorder was spreading, in vain endeavoured to quiet their apprehensions, but all reasoning was ineffectual, and the procession took place, passing through the Sopranis and Boquete, and from thence to other quarters of the city, where the disorder had not yet appeared; but in five days after, cases of the fever were reported in the other Barrios, and on the 28th of August, there were 157 deaths in Cadiz. *

* Dr. Bancroft has given the following account of this circumstance: "the procession accordingly took place about the 5th of August, an immense concourse of the people joined therein, and it lasted seven hours; during which time, the unfortunate people were exposed to the rays of a burning sun, and under *great fatigue*, to all the mental agitations, which religion or fear could produce; and this chiefly in those parts of the town, where the marsh miasmata were most powerful." See Essay p. 451. 463.

I have already shewn in the description of Cadiz, that these marsh miasmata do not exist there, and the passage in Arejula's work, from which Dr. Bancroft has taken the account of the procession, we are only told, "that the disorder broke out in the Barrio de Santa Maria, amongst the New Castilians, strangers to the place, who live much together, and in close, confined habitations; in consequence of this procession, and the multitude of people assembled together, the disorder was propagated to different parts of the town; any person who has been in Spain during the procession in warm weather, can readily imagine the possibility of a contagious disorder spreading from the assemblage of all ranks of persons in the streets and churches. I am the

It was now ordered that the dead should be conveyed away in carts, and buried outside the town *; the ringing of bells was prohibited,

more surprised at Dr. Bancroft's remarks on this subject, as he knows, from observation, when we were together on the staff in Portugal, that the poor, infirm, and ailing persons make every effort to join in these processions, and that this is the case in all Catholic countries.

"That a procession," says he, "in such circumstances, should produce a great extension of the disease can hardly be doubted; though not in the way that Arejula, and others, have supposed; for as the *well* and *not the sick*, joined in the procession, personal contagion was not likely to be present or active among them." p. 452.

Arejula, after mentioning the procession, and the circumstances alluded to, makes the following observation, which I shall give in the original.

"Desde este momento todos los barrios se ardieron con este roce y proximidad de gentes, todos empezaron desde luego á contar centenares de contagiados. Los nombrados de la cuna, Ave Maria, y S. Antonio, que apénas tenían algun enfermo, se llenáron de ellos, y lo mismo los de S. Lórenzo y Viña á donde no habia penetrado aun la calentura.

Las gentes de Cadiz, amedrentadas por el crecido numero de enfermos que habia, huyéron muchas del pueblo; y á todos aquellos que se refugiaron, llevaron la enfermedad, y corrieron la misma infeliz suerte que esta plaza; los que vieron esto, y se guardáron de nosotros, se conservaron sanos, y con la fortuna de no haber conocido la calentura amarilla: todo esto, y lo que se ha especificado en el capitulo anterior *prueba decididamente que la enfermedad es contagiosa.*" p. 249.

* The practice of burying in churches, the effect of ignorance and superstition, was general throughout Spain, until

and every measure was adopted to tranquillize the minds of the people, but the dread of this

the year 1800, notwithstanding a decree of the council of Castile had passed, although not in force, to prevent it.

This custom had prevailed so long, that it was extremely difficult to abolish it, on account of the great influence which the Friars maintained over the minds of the people, by persuading them that the devil could have no power over the defunct, if he was interred in holy ground.

Amongst the wise laws of Theodosius the First, in the year of Christ 392, there is one which prohibits the burying in churches, where, from mistaken piety, the dead bodies were heaped together to infect the living. It is probable that some contagious disorder or fatal epidemic, which appeared to result from this practice, induced the Spanish Emperor to enact so judicious a decree.

In most Catholic countries through which I have travelled, and where superstition had existed for ages, the practice of heaping up their dead in extensive subterraneous vaults, is beginning to give way to a more rational system. Public cemeteries have been constructed outside of the towns in Andalusia, whither the bodies of the dead are conveyed, and deposited with the usual ceremonies. This is, I believe, the case at the Montmartre at Paris, and is so at Seville, Cadiz, Malaga, and in other parts of Spain; in all of them the *bovedas* or vaults under their churches have been closed up since the great epidemic of 1804, and I hope for ever.

It may be observed, that in this enlightened country, the custom of burying in churches, and in the very centre of our towns, is still permitted. The present mode

great calamity was so strongly impressed on every individual, that it only increased the aptitude to take the disease, and many instances occurred of deaths accelerated solely by the terror thus induced.

The spare diet and an abuse of preservative means, brought on such debility as to be fatal to many persons, and to such a degree did the confidence in preventatives prevail, that scarcely a person was to be seen without a handkerchief steeped in thieves' vinegar, others kept garlic constantly in their mouths, in their bosoms, and in their pockets; and others again, wore aromatic and cordial amulets; this practice greatly contributed to affect the

of interment in the abbey church of Bath, and in several churches in the crowded part of London, is surely objectionable; and I cannot avoid expressing a hope, that in the projected improvements of the metropolis, this subject may be taken into consideration, and that it may excite the attention of the legislature.

Until some regulation on this head does take place, however we may pride ourselves on our superiority over the prejudices of foreign nations, we shall be subjected to the reproach of having retained a custom, which has been censured in them as arising from superstition, and which the most fanatical of those nations has had the good sense to abolish.

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to attend upon the sick ; the apothecaries' shops were shut ; the greater part of the practitioners in the town were themselves taken ill, and many of them were victims of this terrible scourge.

Although several of the leading members and magistrates of the city had been early carried off by the fever, the most perfect order prevailed in Cadiz, and none of those irregularities and disgraceful scenes took place which had occurred in other towns during the period of public calamity.

The mortality, which was great in the beginning, began to diminish on the approach of autumn. Early in October the British fleet under Lord Keith appeared before Cadiz ; and this novel sight produced an extraordinary effect upon the minds of the people. Thus the fear of an attack roused them to individual exertions for their defence ; and the inhabitants, who before had given themselves up to despondency and thought only of their domestic misfortunes, now left their close infected houses, and by *re-spiring a purer air*, contributed essentially to their own recovery. Whatever may have been the cause, whether proceeding from the new impressions which were excited by the activity of the scene, or by the efforts which all were called out to make, to resist an expected landing of the British troops, or from the change of the season, certain it is, that the public health

was so perceptibly improved, that there were scarcely any deaths reported towards the end of the month *. The contagion was however conveyed, by emigrants from Cadiz, to the neighbouring towns †; the communication had been

* It is mentioned by Mons. Berthe (head of the French commission sent into Spain in 1800), in his "Precis historique de la maladie qui a régné dans l'Andalucie en 1800," that the disease which prevailed at Cadiz at that time was not introduced into the arsenal of the Caraccas until the arrival of a frigate which had been lying some time in the bay, and was ordered into dock to be dismantled. This frigate, adds M. Berthe, had lost several of her crew, and when she was admitted into dock, she had on board some sick, most of whom died after they were taken to the Naval Hospital. From this period, according to the report of the chief physician of the arsenal, the fever developed itself, and spread with rapidity to all the points of this establishment, and it carried off in a very short space of time about the fourth part of its inhabitants; but he says it raged with the greatest fury amongst the unfortunate galley-slaves.

When in Cadiz on the 10th of March 1806, I had a conversation with Mons. Buillon, the superintendant constructor of the ships of war at the Caraccas, on this subject: he informed me, that M. Berthe's account was not correct; that very few of the galley slaves had the disease either in 1800 or 1804; and that it was not introduced into the Caraccas by any frigate, but by the *workmen of the yard*, who were continually passing and repassing; these workmen had their families living chiefly at Cadiz, Port St. Mary's, Port Real, Chiclana, and [the Isla de Leon; they went in and out of Cadiz during the sickness there, and it was from *this cause alone* that the disease was introduced into the arsenal.

† "It appears evident," says Gonzales, in his *Disertacion Medica*, p. 25, "from the official communication which

cut off too late, the disorder spread rapidly to them all; and the attempts to check its progress afterwards were ineffectual.

Those who had fled from Cadiz, now endeavoured to return; and although the gates were ordered to be closed against them, yet many found means to get in, a great part of whom were shortly after attacked with the disease, and fell victims to their indiscretion. Thus it was clearly proved that the poisonous *miasmata* were

passed between the magistrates of Cadiz and those of the neighbouring towns, and from the enquiries which they made respecting the nature of the disorder then prevailing in Cadiz, that those places were considered free from any sickness, and especially when towards the end of August it was first in contemplation to adopt precautionary measures at Puerto Real, Puerto de Santa Maria, Chiclana, Rota, Xeres, San Lucar de Barrameda, and other towns. Had this not been the case, those applications and enquiries would have been unnecessary, and the cutting off the communication between those places and Cadiz would have been injurious and impolitic.

“From all that has been said,” continues this author, “it is inferred, that the disorder first broke out in Cadiz; 2dly, that it was not simply a complaint of the season, as it was generally imagined; and 3dly, that the atmospheric heat could not be considered as the remote, but as the predisposing cause, (since the heat was much less felt in Cadiz, than in the inland towns,) may be proved by examining their respective local positions, and by the fact, that the first victims to the disorder in those towns afterwards were the very individuals who had fled to them from Cadiz.”

still active, and that the disorder acquired fresh vigour in proportion as new subjects presented themselves to its influence. *

Various means were devised to purify the air of the town, and to fumigate the public buildings, &c. Recourse was had to the firing of cannon, (a dangerous and erroneous practice); and at length, about the 12th of November, the city was declared in a state of health by the celebration of *Te Deum*.

* This pestilence did not shew itself beyond the Sierra Morena, the extensive chain of mountains that divides Castille from Andalusia.

“ We know positively,” says Arejula, p. 256. “ that all the towns which were infected, attributed their misfortunes to the inhabitants of Cadiz who fled to them, not with any intention of introducing the disorder, but to save their lives by taking refuge in places where no disease whatever prevailed at the time. Thus it happened that the seeds of this pestilence were scattered in the neighbouring towns, such as Puerto de Santa Maria, Isla de Leon, Puerto Real, St. Lucar, and others; which can, to their sorrow, too well attest the truth of this statement.

“ Were I to attempt,” continues Arejula, “ to give the exact history of this calamity, and to adduce the proof of the facts I have related, I should have to mention several families, who would either take offence, or would at least resent themselves upon me. As, however, my doing so could not tend to the public good, especially as almost every one is convinced that the disorder was contagious, it is prudent to leave the subject as it is, without further investigation.”

The number of persons attacked with this disease in Cadiz, from the beginning of August to the first week in November 1800, amounted to 48,688; of those who recovered and were convalescent, 40,699; and of those who died within the city, to 7,292. In Seville the mortality exceeded 22,000, and in Xeres the number of deaths was returned at 10,000.*

* Vid. Appendix : the Account published by authority.

PART III.

DESCRIPTION OF THE SYMPTOMS OF THE MALIG-
NANT FEVER AT CADIZ IN 1800.

PROFESSOR Arejula, who had seen more of the disorder than any of the physicians in Spain, and to whose excellent work on the subject I have so frequently had occasion to refer, has given a detailed description of the fever as it appeared in Andalusia in 1800.

It was remarked, that the invasion of this disorder was not always the same in every individual, and that the symptoms even varied according to the mode of its attack — sometimes assuming a regular, at others, an irregular form.

The following series of regular and irregular signs comprehends all that is essential to the physician to enable him to form his prognostic, and to regulate his plan of treatment.

Those who were taken ill in the regular and usual way, were seized as it were of a sudden, without the least prelude or warning.

Although persons were attacked with the disorder at all times of the day and night, it most

frequently invaded from four or five o'clock in the morning to the middle of the day, but more commonly in the middle of the night, or towards day-break.

It then began with chilliness or sense of cold, with violent pain across the forehead and temples, and all over the body, particularly the loins and small of the back, and the upper and lower extremities; over the orbits of the eyes, with a difficulty of raising them or looking upwards; general lassitude; dryness of the nostrils; no inclination to spit out, although the tongue was *remarkably moist*, and in general clean; a yellowish or subicteritious colour of the skin, especially from the third day; the countenance assumed a faded and downcast appearance; the azure colour of the opaque cornea of the eyes was changed to a fixed red and yellow, which, to a person unacquainted with the disease, might give the idea of the commencement of ophthalmia, and of a prevailing inflammatory diathesis.

The patients endeavoured to change their posture in bed frequently, and fainted away or fell in the act of raising themselves or of standing up.

The pulse was febrile, and its beat was either forcibly strong, or it denoted a want of action of the heart, and of energy to propel the blood to the circumference of the body.

On an aversion to animal food was consequent a loss of appetite and frequently vomiting, but seldom a diarrhæa, though on some occasions both evacuations took place at the same time, and almost constantly with more or less nausea and painful sensation at the pit of the stomach. Sweat and urine seemed entirely bilious.

A remission* of the above symptoms, and of the fever, with sweat† or without, took place in 20 or 24 hours, and an exacerbation on the following day, with a remission or apparent apyrexia on the third, sometimes on the fourth, fifth, and seventh, although this was rare.

Whilst these symptoms continued, the animal functions were seldom disturbed, at least so long as the fever was not much increased; but on its termination, debility and want of appetite always remained for some time, even after the fever had subsided.

* Arejula acknowledges that he never met with a true and well ascertained intermission; which he regrets, as such an occurrence would have enabled him to form a better prognosis of the fever, and to subdue the disorder without difficulty. p. 171.

† The appearance of a mild and constant perspiration, kept up so as to produce a remission of the fever in 24 or 48 hours from the commencement of the attack, was so favourable a sign, that on its ceasing the patients generally continued to do well; but if the fever held on, it was a bad sign. Ibid.

The irregular or anomalous signs of this disorder were as follow :

A sensation of cold or rigor ; a dull pain of the head and eyes, which appeared swoln, heavy, and extremely red. The febrile motion of the pulse moderated without order or period ; sometimes being very high, at others apparently without fever.

The heat of the body was natural ; the tongue tremulous and dry, with a dark stripe down the middle, or at other times of a bright yellow colour. The lassitude and languor were so excessive, and so great the disinclination to move, that it was frequently necessary repeatedly to ask the patient to put out his hand, that his pulse might be felt ; and he drew it back unconsciously almost whilst stretching it out.

In addition to these symptoms, the efforts to vomit were frequent ; a weight and uneasiness about the region of the liver, with pain, and a sense of burning heat at the pit of the stomach, were complained of ; fainting ; change of colour into a leaden hue ; coldness of the upper and lower extremities ; continued or interrupted vomitings ; first of a bilious, afterwards of an atrabilious matter, or in other cases entirely black from the commencement.

The discharges from the bowels were of the same kind, appearing like ground charcoal,

or rather like the black liquor of the ink-fish. *

The patient appeared unquiet in his bed, changing continually from one side to the other, and even frequently moving his head, body, and limbs, yet unable to remain long in any posture, sometimes lying across the bed or trying to get up.

In this state he was slow in answering questions, and he spoke in a hoarse voice and in stammering accents; a violent pain of the throat was felt, which prevented deglutition, or rendered it difficult; deafness then † came on; and red or black and livid spots appeared, especially on those parts of the body that were pressed upon.

Yellowness, discharge of black blood from the mouth, nostrils, anus, eyes, and even from the ears, hiccough, entire coldness of the extremities, convulsions, and black lips were the signs which preceded death.

There were some few cases in which an almost

* *Sepia loligo*.

† Arejula always considered deafness a good sign in simply putrid fever, but in the typhus icterodes the forerunner of death. 173.

He also observed, that he did not see blood issue from the eyes or ears; but he was assured of the fact by physicians of veracity, that they had witnessed hæmorrhages from those parts.

Discharges of blood were common from the mouth, nose, anus, and vagina. *id.*

sudden emaciation or wasting of the body took place.

There were other symptoms that were always mortal ; such as the dark red, or sublivid colour of the tongue, like that of a person after drinking red wine, with saliva sparing in quantity, but viscid ; darkness under the eyes ; suppression of urine ; a considerable irritation of the urethra, particularly towards the glans, which forced the patient to squeeze the penis, as happens to those labouring under a fit of the stone.

The whole of these symptoms did not present themselves at once, nor in the same period of the disorder ; in some they appeared 24 hours after the invasion ; and in others, on the second, fifth, or even the seventh day.

Several of the last description were seized with delirium, and they became so furious, that it was necessary to confine them to their bed ; others continued in an apparently sleeping state, but painfully awake ; and many preserved a firmness of mind to the last moment of their lives.

In many cases, there were patients who constantly strained to vomit, but brought up nothing, and had no discharge from the bowels, but these had their extremities very cold, and laboured under great difficulty of breathing.

Carbuncles were met with in three instances by Arejula, two of which were fatal ; large

tumours were found on different parts of the body of several persons, which terminated with the greatest rapidity, either in suppuration or in gangrene; in many swellings of the parotid glands appeared, which were either discussed or suppurated without danger to the patient; but it was remarked, that in these cases, the fever and debility were prolonged, and that convalescence was very slow.

A cutaneous eruption, (vulgarly known in Spain by the name of Sarpullido, resembling the miliary eruption) was common; but it was considered favorable.

It will be readily understood, from the above description of the fever, how difficult it was to form a prognostic, or to foretell the result; indeed, no opinion could be given of a favourable or fatal termination until three or four days had passed over with continued amendment; there were, however, signs by which the prospect of the patient's recovery could be held out, and others by which death might be announced almost with certainty.

These have been accurately stated by Arejula, who describes what he actually saw; and they have been confirmed by subsequent experience.

The person, he observes, attacked with regular chills, a moderate pain of the head and loins, nau-

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Those of a white soft skin, and particularly of mild dispositions, escaped much better than persons of an opposite description.

Females escaped better than males, but the fattest were in most danger; there was scarcely one of them, when attacked with the disorder, who had not the menstua, or an appearance of blood; but in old women, this was a bad sign.

Females, who were brought to bed, or who miscarried during the prevalence of the epidemic were in the greatest danger, and consequently a comparatively greater number of them died.

Amongst the young of ten or twelve years old, or just before the age of puberty, a greater number of females died, (in proportion to other ages) than of boys.

It was observed, generally, that this fever exercised all its fury upon those who had reached the age of puberty, and upon the strongest adults, those, especially, of a dark or black colour, and upon those most covered with hair.

It was most frequently fatal to the pusillanimous, or to very timid persons.

Those who had been born or brought up in warm climates, had generally a great advantage over those who had lived in or come from cold countries.

Ailing or sickly persons, and such as had

suffered from lues, or those who had indulged, much in venery, almost invariably died.

Any general eruption or rash upon the skin was a promising sign of the favourable termination of the fever.*

The patient who began to sweat copiously a few hours after being taken ill, with an increased uneasiness at the pit of the stomach, attended with great restlessness and *mal aise*, most commonly died.

If after this copious and excessive sweating the patient became suddenly cool, imagining himself already well, but not feeling that degree of agility or lightness which denotes the absence of disease, and, at the same time, being sensible of a slight shivering, the black vomit usually appeared, and death followed in 24 or 30 hours afterwards. This was the more certain, if accompanied by dimness of sight, which sensation was every now and then, or constantly felt.

At whatever early period of the fever yellowness made its appearance, it was an indifferent sign; but if it appeared after the sixth day, it was a good one.

Sometimes this yellow colour shewed itself all over the surface of the body a short time before death, and very frequently immediately after.

* In 1800 this frequently occurred; of late years these eruptions have been less observed, and the prostration of strength has been greater. p. 183.

It was always considered dangerous, when the disorder came on with rigor, or a sensation of intense cold, and the more so, if there was much redness of the eyes, great pain across the loins, and a dryness of the tongue with a dark stripe down the middle (in many of an orange colour) this appearance of the tongue at the commencement of the fever, was a very bad sign.

But the total absence of the sensations of cold or shivering, at the moment of attack, were bad signs; the regular and lasting shivering fits afforded better presages of the disorder, as it has been mentioned.

A severe pain at the pit or inferior orifice of the stomach, was a bad sign, and especially if accompanied by nausea and bilious or continued dark vomitings, with evacuations from the bowels of the same nature.

The sick who felt strong pricking or shooting pains of the abdomen or bowels, so as to cry out, at the same time, refusing to take nourishment or medicine, and not being quite sensible, died invariably.

It was observed that few cooks escaped during the prevalence of the epidemic; and that it was very prejudicial to those also that were obliged to remain long near the fire.

The black vomit, which came on after the third

or fourth days of the fever, was a bad sign, and it carried off numbers of the sick ; however, a great many escaped with this symptom, and were soon after perfectly recovered.

The earlier in the beginning of the fever that the black vomit appeared, the worse was the sign ; but, in order to judge with accuracy, it was necessary to pay attention to the state of the pulse and to the strength of the patient.

When the black vomit was more copious each time the patient threw up, it was regularly a fatal sign ; but if it could be stopped, there were hopes of recovery. A true hæmorrhage of blood from the mouth very soon carried off the patient.

The discharge of blood by the anus, nostrils, ears, and eyes, always denoted the danger of the sick, for it shewed the great dissolution of the mass of blood, and particularly when it issued from the two last organs.*

When the blood oozed from the gums, without issuing from any other part of the body, it was considered favourable, particularly if this discharge was observed after the fifth or sixth day.

* Arejula confesses that he never saw this, and he concludes, that such instances were very rare.

If it continued two days, and the patient, although tedious and slow in answering, did not lose his senses, he was considered as free from risk.

The moist, clean tongue, of a dark colour, or like that which remains after drinking red wine, with little movement in it, and to which the finger stuck as if it had been covered with starch, was always a fatal sign.

The change of colour of the sick to a leaden hue was constantly mortal.

The large black or red spots which were observed in several parts of the body in different patients, were very bad signs; the small ones were equally bad, and worse if they appeared irregular in form and size.

Of the three persons who unfortunately had carbuncles, two died and one recovered.

Those who had swellings of the parotids commonly recovered, although slowly, and their convalescence was long and painful.

Relapses were very frequent and fatal, for when the patient found himself getting better, he perhaps walked out, and not having strength, this treacherous disease carried him off suddenly.

A suppression, or defective secretion of urine, was a very frequent and fatal sign; but it was much worse if the little that was made was of a

dark colour ; this last appearance was observed in a few hypochondrical patients.

If the pulse beat with equal force, and was steadily kept up from the commencement of the attack, although feverish, it indicated the patient's recovery.

A weak and unequal pulse was bad, and it was fatal if accompanied by perturbation of mind.

If the invasion of the disorder took place with a contracted and vibrating pulse, it was bad.

Those persons that complained of scarcely any sensation of cold on being attacked with the fever, and who on going to bed had observed, that they did so merely by way of precaution, without afterwards showing any inclination to get up, and yet laboured under pains of the head, loins, &c. which they endeavoured to persuade themselves and those about them, were of no consequence ; seldom recovered.

Although hiccough was commonly a fatal symptom in this disorder, it was very important for the practitioner to pay great attention to the state of the pulse at the time it came on, for if it continued to beat strong, and the lower extremities preserved their natural warmth, the recovery of the patient might be expected, but if the pulse fell or was low, and he became light-headed, with coldness of the extremities, the danger was imminent.

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All those who positively refused to take medicine or nourishment died.

A marble coldness of the extremities was always a sign of approaching death.

Difficulty of breathing was always considered a very dangerous symptom.

If after the black vomit, or any other very suspicious symptom, a high fever, with considerable heat, came on, it generally carried off the patient.

It was easy to prognosticate the death of those sick who could not be made to lie in bed in the usual way, but who lay across it.

When persons of modesty were insensible to shame or indifferent about the exposure of their persons, although they answered questions consistently, but deliberately; death invariably followed.

If a pain in the urethra came on in men attacked with this fever, such as to oblige them to compress it, and to pull it involuntarily on account of the irritation, either with or without delirium; they soon died in great agony.

This sensation was peculiar to men; Arejula never saw any woman who complained of pains "*en sus partes pudendas.*" The professor's brother died with this symptom six and thirty hours after the attack. — p. 190.

If convulsion, with or without hiccough, came

on at any time or period of the disorder, the patient died.

If the abdominal muscles were contracted, and the sphincter became closed, so that the sick could neither void by stool or urine ; their death was certain.

Grinding of the teeth was a mortal sign.

Professor Arejula closes his observations with the following remark.

“ The yellow fever of Andalusia only attacks persons once in their lives, and it is of great importance for the physician to know this, in order to form his prognostic and his plan of cure, as well as for the individual who may have passed through the disorder, that both of them being assured of this fact, may step forward without fear to the relief of their fellow creatures who may hereafter be afflicted with so dreadful a malady.” — p. 191.

APPEARANCES AFTER DEATH.

From the Observations made by Professor Arejula at Cadiz in 1800. — C. xv. p. 418.

It was observed on inspecting several dead bodies, that those patients who had vomited only, or who had both vomited and voided by stool an abundance of black fluid, not unlike the me-

conium of infants, but of more liquid consistence, had a considerable quantity of the same matter remaining in the stomach, duodenum, colon, and even in the jejunum and ileum.

We found in all those parts indiscriminately, but in the stomach particularly, gangrenous spots of different sizes, the largest of which appeared about that of a silver penny.

At other times the same intestines were found abraded in various parts of their interior surface, and it was not unusual to meet with both appearances in the same body, and occasionally to discover worms (*lumbrici*) principally in the small intestines.

In many subjects the liver was enlarged, and its consistence so much altered as to appear as if it had been macerated, and this organ, as well as others, was found tinged of a different colour, approaching to the hue between yellow and black.

On opening the cavity of the thorax, the lungs appeared speckled with black and gangrenous spots, which were particularly observed in those bodies, in which the disease had assumed the most malignant form; where there had been remarked but little heat of body, and when the unhappy patients had been rapidly carried off.

In several subjects a portion of the lungs, and even some of the principal blood vessels,

were found in a state of sphacelus, that occasioned those violent hæmorrhages, which, as it has been remarked, were always fatal.

It was not uncommon to find some parts of the brain livid; this appearance, which denoted the extreme malignancy of the disorder, and the extraordinary debility of the nervous system, was chiefly observed in those who had died from the second to the fourth day, without any very violent symptoms.

The yellow colour of the skin, fat and secretions, and the black spots which were more or less extended over the exterior surface of the skin, were very common in these bodies, and it was frequently observed that the inside of the mouth and lips were of the darkest colour, and as black as the deepest charcoal or soot.

It was impossible to examine the quality of the black liquor, or of any other excrementitious matter, nor could those nice investigations be made, which are so desirable to render the study of morbid anatomy both useful and interesting to the physician.

Indeed, such was the pressure of the calamity, and so great the number of sick, who required constant assistance, that scarce time enough was allowed the practitioner to take the repose and sustenance so necessary to his own existence.

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REPORT II.

PART I.

DESCRIPTION OF GIBRALTAR. *

THE rock of Gibraltar is situated on a peninsula in the province of Andalusia, in latitude $36^{\circ} 9' N$.

Its form is oblong, its summit a sharp craggy ridge, about three miles in length, running north and south, its breadth varies with the indentations of the shore, but it no where exceeds three

* The best detailed account of this celebrated fortress is to be found in Colonel James's History of the Herculean Straits, and in Colonel Drinkwater's siege of 1780. In the fourth volume of the Transactions of the Royal Society of Edinburgh, there is also a short but accurate mineralogical description of Gibraltar, by Major Inrie. From these several publications I have made such extracts as related to this subject, together with their observations upon the climate, &c. which have been since confirmed by my own experience.

quarters of a mile. The line of the ridge is undulated, and the two extremes are somewhat higher than the 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, 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 presents a series of rugged slopes, interspersed with abrupt precipices, and its northern extremity is perfectly perpendicular, except towards the north-west, where what are called the lines intervene, is also a narrow passage of flat ground that leads to the Isthmus, and is entirely covered with fortification.

Its southern declivity is a rapid slope from the summit of the Sugar Loaf, terminated by 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 northern 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 side of which is washed by the sea, and forms Europa Point, the extremity of the well known strait of Gibraltar. The western side affords along its bottom a small plain space

occupied by the town, parallel to the walls, wherever the fortifications permit it, and is bounded by the bay of Gibraltar, which is in length nearly eight miles and a half, and in breadth upwards of five miles.

Algeziras, which is situated on the side of the bay, stands almost due west opposite Gibraltar, at the distance of five miles and a half across; in this bay, at full and change of the moon, it is high water at one P. M.; the tide frequently rises four feet, and the highest tides flow from five to six feet.

On the north the mountain is connected with 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 soil on which the town stands, is a red sand, which commences at the land Port-gate, and continues to the gully near the new Mole to the southward, here it is variegated and light, being mixed with sand, and a stiff marly substance, something like fuller's earth. The gardens are not very extensive, but they are highly cultivated, and so productive as to yield a quantity of fine vegetables; the vine flourishes in per-

fection, and the fig trees are remarkable for the flavour and richness of their fruit.

The old town of Gibraltar was originally built on the western side of the rock, and on the site of the Moorish castle.

The present town was raised upon the ruins of the old, after the last memorable siege in 1780; but although General Elliot had planned a regular form for the construction of the edifices, and the disposition of the streets, it does not appear that the design had been followed from that period to the present time.

This extraordinary rock has excited the curiosity of travellers from all parts of the world, but the facility and encouragement which have been always held out to commercial speculations, induced a considerable number of English traders and merchants, as well as foreign adventurers to settle there.

Of late years, in proportion as the population increased, new buildings were erected, and the different governors issued grants to certain individuals, of particular parts of the rock to build upon; as soon as a spot of ground was cleared wooden sheds were immediately run up, and these were immediately let out to the lower orders of Spaniards, Genoese, &c. &c. Each tenement was of small dimensions, consisting generally of one or of two apartments on the ground

floor, but without drains, or any other outlet than a door with one, or at most, two small wooden slides for windows, and a canvas roof coated with pitch, made up the habitation for a family, seldom amounting to less than eighteen or twenty persons. The erection of sheds in this manner became so easy and lucrative, that any needy stranger who found his way into the garrison, had no difficulty in obtaining a lodging in one of them, and thus the population was gradually increased to an incredible amount; for the most part, men of this description were employed during the day, as labourers or porters; and as no mischief seemed to arise from their crowded state during the night, in those miserable, ill aired sheds; the practice continued until the period of the great calamity in 1804.

In 1754, fifty years after the taking of the garrison, the number of all the inhabitants, including every description of persons, amounted to 6260.

In 1804, the population of Gibraltar was computed at 10,000, including 4000 troops, some statements were as high as 14,000, of which number, it was said, 1,000 left the rock on the first alarm of the fever breaking out; but when it is considered that a great proportion of foreigners, such as Venetians, Ragusans, Genoese, &c. &c. which formed a part of this supposed

population, belonged to vessels from the Mediterranean, which only occasionally anchored in the bay, they could not be rated as stationary.

The gardeners and fishermen are mostly Genoese, and with the Minorquins, Spaniards, and Portuguese, who were employed on the public works, all resided in the garrison. The Jews, whose number was reported to amount to 3000, did not exceed, at that time, 1600, according to Mr. Cardoza's account, so that reckoning the persons employed in civil offices under government, merchants and foreigners of every description, to have been about six thousand, and the military four, the whole population in 1804, when the disorder first appeared, may fairly be computed at 10,000.

Even this amount will appear to have been rather excessive, considering the extent and situation of the town, and it must be readily understood, from the crowded state of the sheds and houses, and particularly of those in the lanes and narrow streets, why the fatal malady should have made such dreadful ravages. The mode of life, the habits of indolence, and the filth of the lower class of foreigners, predisposed them to disease, and tended to its propagation after it appeared amongst them; but as the same causes had existed in Gibraltar for some time previously,

and also in the year 1800, when the fever first broke out in Cadiz, and in Malaga, in 1803, without occasioning the slightest change in the health of the garrison during that and the three succeeding years, the origin of the epidemic could not be attributed to them; it is therefore curious as well as important to endeavour to trace it, and to enquire into all the facts which have been assigned for it's production. It has been erroneously supposed, that the water was one source of sickness; whereas that with which the garrison is supplied from the aqueduct at the main-guard, is as pure and as wholesome as any in the world.

During the heavy rains, the superfluous water, which falls in torrents from the mountains, is carried off through the common outlets into the sea; this is a fact, known to every one who has resided in Gibraltar: the idea, therefore, of any portion of water descending from the mountains, and running into the town, so as to occasion miasmata, &c. is as visionary as that suggested by an extraordinary writer, who supposes, that the water of the wells there being corrupted, engendered diseases amongst those who drank of them.

The climate of Gibraltar has been always celebrated for its temperature, and from tradition, it was called the Montpellier of Andalusia;

but although the sky is generally serene and clear, the air at particular seasons, is remarkably penetrating and light, and is certainly unfavourable to weak lungs, and to consumptive habits.

The months of June, July, August, and September are very warm, and the heats are sometimes oppressive, especially during the prevalence of easterly winds. In winter the cold is not of so freezing a nature as that which is felt in the neighbouring mountains of Spain; it is very penetrating, and affects the joints severely. At this season there are heavy rains, high winds, particularly from the south-west, with tremendous thunder and lightning. What has been mentioned elsewhere of the effects of an easterly wind is perfectly applicable here, for before a Levanter sets in, persons long resident on the rock, or who have had rheumatic affections, or fractured limbs, or have been hard drinkers, can foretell its approach some hours before the heavy condensed atmosphere which accompanies it has reached the mountain. These Levanters are raw, damp, and chilly, and often come on with a strong gale, when the whole western side of the rock becomes enveloped in an impenetrable fog; but these condensed vapours are blown off by the same continuation of the east wind, particularly if it inclines to the northward

of east, which it generally does ; and, as Colonel James observes, “ the sky then becomes clear, the heavy and dark mists are dissipated, the sun appears in all its splendour, objects are elevated and brought nearer to the sight, so that Algeziras seems to be advanced into the middle of the bay and Africa, and vessels at anchor off Ceuta are very much raised, and seem to be come forward into the middle of the Straits.”

The winds which blow from the west and north-west are invigorating ; and when in the latter direction, as they pass over the snowy mountains of Granada, they are particularly refreshing. Snow falls but very seldom on the rock of Gibraltar, and ice, though sometimes seen early in the morning, and very thin, on the heights, is considered as unusual ; the hail often falls down in heavy showers, and it drives against the houses with violent gusts of wind. The Sierras of Granada, which are seen at a distance, have their tops covered with snow for three months together ; and in some deep cavities in those high mountains, it has remained for several years without being entirely melted ; the other sierras, together with Apes Hill, on the opposite coast of Africa, are also covered with snow for many days together.

Before the thirteenth century, no particular mention is made of any sickness in the neigh-

bourhood of Gibraltar by any of the Spanish authors I have met with. The year 1350 is remarkable amongst them for the death of their King Don Alonzo, the last of that name, who, after having laid siege to the castle, then in possession of the Moors, was carried off by a pestilential fever which then prevailed in the camp of the Castilians, in the thirty-eighth year of his age *. This disease (*peste*) was distinguished by a species of swelling or tumour, of

* Año 1350. D. C.

En este año el Rey Don Alonso, ultimo de este nombre, puso sitio á la plaza de Gibraltar, contra los Mahometanos que la defendian ; y a principios de el se encendió una *peste* tan cruel en el exercito Español, que alcanzó tambien al Rey, de la qual murió el dia 26 de Marzo del mismo año, a la edad de treinta y ocho años, seis meses, y veimte y tres dias, dexando su real corona sobre las murallas de aquella casi inexpugnable plaza, tanto mas glorioso por su constancia en no temerla, como por no apartarse de perseguir los Mahometanos, segun los aulicos le aconsejaban.

“ *Esta Peste* consistía en una especie de landre ó manera de seca, o tumor, de la hechura y tamaño de una bellota que se hacia en los sobacos, en las ingles, y muy de ordinario en la garganta, que ahogaba con brevedad á los pacientes : *Peste general* dice Mendez de Silva que duró tres años en el mundo despues de su generacion, esto es desde el año 1348 ; de la qual dice tambien el Padre Samiento que Espana padeció tanto que despues del deluvio no hay noticia de semijante calamidad.”

Catálogo Real y genealogico, p. 108. Politheismo ilustrado, p. 125. y Sucesion Real de Espana.

the figure and size of an acorn, which appeared under the arm-pits, in the groin, and more commonly in the throat; and the persons attacked in this way were very soon choaked. This plague, according to Mendez de Silva, continued to prevail generally for three years from the time of its first appearance*, that is, from the year 1348; and from which, says Father Samiento†, Spain suffered so much, that since the deluge there was no tradition of any such calamity; two-thirds of the population of the country having been destroyed.

Long after the Moors had been driven from the country, the plague raged at Gibraltar when possessed by the Spaniards in 1649. This pestilence, which is also described as accompanied with buboes and carbuncles, was supposed to have been first introduced into the port of San Lucar de Barrameda, in a vessel which had arrived there from the Levant. In the course of two months and a half, an incredible mortality took place in Seville and in the neighbouring country, as has been stated in the preceding Report.

From this period to the year 1704, when the fortress was taken by the British, the province

* Catologo Real, y genealogico, pag. 108. Politheisme ilustrado, p. 25.

† Padre Samiento en su dictamen sobre la mesta.

of Andalusia had been frequently visited by plagues and pestilential diseases ; but nothing further has been mentioned of Gibraltar, which contained but a small garrison and but few inhabitants whilst it continued in the possession of Spain.

During the whole period of a century, in which Gibraltar had been attached to the crown of Great Britain, there is no instance on record of any extraordinary mortality amongst the troops or inhabitants arising from local or atmospheric causes, or from the heat of the climate.

There is indeed a traditional account that the trees with which the mountain of Gibraltar was once covered occasioned a sickness in the garrison, and were therefore cut down : this fact is satisfactorily explained by the author referred to*, who informs us, that “many trees and vines grew there very luxuriantly, as in many other rocky countries, when the Spaniards attempted to surprise the garrison over the Middle-hill ; and many of those which had been planted soon after it was taken in 1704, continued till the year 1727, when the regiments who were encamped to the southward, had leave to cut down some for firing, which they took

* James's History.

in its full latitude, and levelled almost the whole." The neighbouring hills of Spain, at the back of Algesiras, and many of the rocky mountains in that country are clothed with woods of large cork-trees, and other species of oak.

According to the Roman and Spanish writers, when the Phœnicians built Carteia, on the ruins of which Rocadillo now stands, the rock of Gibraltar was entirely covered with trees. Of late years a spirit of improvement has shewn itself there, especially in planting, which was greatly encouraged by General Fox, when lieutenant-governor; and as the soil is adapted to vegetation of every kind, it is to be hoped that the idea of trees and plants at Gibraltar being injurious to the health of the garrison, will be entirely rejected*.

With respect to observations which have been made on the excessive heat of the climate, it is

* When General Fox took the command at Gibraltar, towards the latter end of 1804, he encouraged planting as much as he could, and the trees grew and throve remarkably well. I remember Sir James Craig, who landed there on his way up the Mediterranean, one day suggested to General Fox, that the planting might become prejudicial to the health of the place; and upon my opinion being asked, I did not hesitate to draw a very different conclusion, and the original project was persevered in by General Fox; but I much fear that it has not been much attended to since that period.

to be remarked, that during the summer months, there has been certainly at different periods such extraordinarily hot weather, as to occasion considerable distress to the inhabitants of Gibraltar, but notwithstanding all my enquiries and researches, I cannot find that any unusual diseases were produced in consequence : in Col. James's History of the Straits, mention is made of a great sickness and mortality in the garrison after the siege which ended on the 11th of June in the year 1727. "The garrison of Gibraltar" (says he) "lost very few men in the course of the siege, and fewer officers; 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."

In 1752 there was a very remarkable night, during which "the atmosphere was so heated and oppressive, that the inhabitants could scarcely breathe, and each person enquired of his neighbour, whether his house was not on fire; the heat was so great, attended with such a strong sulphureous smell, that the birds forsook their nests and roosts, and flew into the windows of several people's houses," — but no disease followed this extraordinary state of the atmosphere. Col. Drinkwater in his "Siege," p. 257. gives an account of a species of influenza, which first made its appearance in the month of

August 1782, on board the frigates in the Mole, and was soon communicated to the Garrison. "Its general symptoms were sudden pains, accompanied with a dizziness of the head; though others were affected in a different manner; for several days near an hundred men were taken to the hospital daily, but bleeding, and a night's rest, usually removed it. It was attributed, at that time, to the extraordinary heat of the atmosphere, which was unusually warm, owing to the prodigious fires made by the Spaniards on the neighbouring hills, and the stagnant state of the air, but it was afterwards ascertained to have been general throughout Europe, and it was believed that the enemy were not less affected by it." *

* Dr. Donald Monro, physician to the army, in his observations on the means of preserving the health of soldiers, and of the proper seasons for landing troops in different parts of the world, p. 24. tells us, that "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 cold and dry; and the inflammatory complaints continue, but the number of sick decreases considerably. Feb-

In the latter end of 1799, and beginning of 1800, there was a considerable sickness amongst the troops in garrison; a number of recruits had been sent from England, and there being no fresh meat and a scarcity of vegetables, in consequence of the interrupted communication with Barbary owing to a pestilential disease which at that time prevailed amongst the Moors, the dysentery and scurvy made their appearance, and occasioned a greater mortality amongst the soldiers than had been experienced for many years, but it is to be remarked, that no symptom of the disorder which then raged in Barbary, or of that which soon afterwards (1800) prevailed in Cadiz, Seville, &c. shewed itself in any one instance at this period in Gibraltar.

For the three years preceding the one (1804) in which the pestilential fever broke out in Gibraltar, the weather had not been remarkable for any extraordinary changes, the heats of the summer months were not described or noted as

ruary 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." See Appendix.

excessive, but easterly winds prevailed, and were said to have been extremely oppressive in that year.

For a further elucidation of this subject, I have given in the Appendix, an abstract of the chief engineer's Meteorological Journal of the weather at Gibraltar, taken for several years preceding the Epidemic of 1804, to which are subjoined my own observations made in the year following 1805.

The usual military establishment of the garrison amounted to 4000 men, and the average number of deaths for the six years preceding the one when His Royal Highness the Duke of Kent entered on his command, was about seventy two, the year of sickness already referred to excepted.

During the short period of a twelvemonth that the Duke continued in Gibraltar, there were not more than 27 deaths, and in the last six months only 12. This is recorded as a remarkable fact, and would prove either the salubrity of the climate, or the great attention which was paid by His Royal Highness to the health of the troops. The soldiers then drank as freely of the Catalonian wine *, as they had

* Cleghorn, in his introduction to the observations on the Epidemical Diseases of Minorca, (p. 73.) has the fol-

done before or since the Duke's government, but there was this great difference observable, that the canteens of each regiment, pursuant to his regulations, were stationed close to their respective barracks, so that the men could have no inducement or excuse for straying, nor were they permitted to appear in the public roads or streets in a state of intoxication.

lowing passage, which may be applicable to this part of the subject.

" Having gone through what I intended to remark in relation to the natives, I should next, according to the plan of this introduction, give a circumstantial account of the diet and common way of life of the British soldiers in this island; but as this would be a disagreeable task, I shall only observe, that the excess of drinking is, among them, a universal vice, confirmed into a constant habit. *Pudet hæc opprobria nobis, &c.*"

But however different the Spaniards be from the English in their meat, drink, exercise, affections of the mind, and habit of body; yet the health of those of both nations is equally influenced by the seasons. An epidemical distemper seldom or never attacks the one class of inhabitants, while the other remains unhurt; and surprising as it may appear, it is nevertheless true, that the peasants remarkable for temperance and regularity, and the soldiers, who, without meat and clothes, frequently lie abroad drunk, exposed to all weathers, have diseases almost similar, both as to their violence and duration.

Hence, it is evident, how far the power of the air is superior to the other non-naturals, in producing disorders of the animal economy.

Those who have observed the common complaints incident to soldiers in the garrison of Gibraltar will readily attribute them to causes which are easy of explanation. The cheapness of the wine, and the facility with which it is obtained, fully account for a too free indulgence in it, especially during the warm weather: the men thus heated throw themselves down to sleep, exposed to the heat of the sun, and to the draught or current of air, and then, with their bodies in a state of exhaustion and during sleep, the mischief is done.

To this cause alone I traced a great proportion of complaints, which were admitted into the hospitals in 1805. *

* On the 20th of November 1805, the 42d and 78th regiments landed at Gibraltar from England; the 78th consisted of 900, mostly young men, the corps was remarkably healthy, having only ten upon the sick list; in the course of one week after their arrival, one hundred were sent into the hospital, and the surgeon reported, that the men were daily falling sick; General Fox desired me to inspect the regiment, and to adopt such measures as I thought best to check the prevailing disorder.

The weather had been very unsettled, and heavy rain had fallen soon after these regiments landed, the soldiers had been daily and constantly employed in carrying the heavy baggage from the landing place up the rock, to the barrack on Windmill Hill; the young hands particularly drank the Catalonian wine with eagerness, and all of them being happy to get on shore after a tedious voyage, exerted themselves, often beyond their strength, in lifting the weights which they

None of these excesses, however, appeared to be productive of *any disorder* amongst the troops, similar to that of 1804. This fatal *fever first broke out* amongst the foreign inhabitants of the lower town, and it will be shewn in the course of this report, that a considerable interval elapsed

had to carry up the hills: this exposure to wet and fatigue, and the sudden change of diet, occasioned slight fever and bowel complaints, which were however, trifling; but there was another cause; after reaching the top of the hill, there is an arch-way cut through the rock, leading to Windmill-hill barracks, on one side there is a remarkably fine spring of water, and through this arch there is always a strong current of air, and there the soldiers, when heated or fatigued, often opened their shirts or jackets to cool themselves, and standing or sitting there in a state of perspiration, and drinking at the spring, laid the foundation of disease.

I represented these circumstances to General Fox, and recommended the young troops to be moved to some other station lower down, and to be exempted from fatigue duty for some time, and I advised that great attention should be paid by the officers of the regiment to the diet of the men, assuring the general, that the sickness would soon be checked; my recommendation was adopted, and the result was evident; this fine corps became shortly after perfectly healthy.

The 42d regiment being composed of seasoned troops, and quartered in a less exposed situation, had very few sick, and it continued healthy.

The 57th regiment, when stationed at Windmill Hill, had lost several men of the same complaint, with which the 78th regiment was attacked, and they arose from the same causes.

before the military became *generally affected*, although a great part of them were quartered in the town; one regiment in particular, the 54th, occupied the barracks close to the new library garden, and within one hundred and ten yards of the building (Boyd's) where the disorder was first traced, and in which it continued stationary for some time, and it will appear, that although this corps was equally exposed to the same local and general atmospheric causes as the inhabitants of the neighbourhood amongst whom the disorder was prevailing; no case of it was known in that regiment until near a month after it broke out in Boyd's buildings.

By the latter end of September almost the whole of the town was infected, and the south division of the rock, which had continued healthy during all this period, at length became equally sickly, so that in the space of a few months this celebrated fortress, which had been in our possession one hundred years, became a scene of the most dreadful calamity; and as if to render the catastrophe more awful, the pestilence was preceded by an earthquake which agitated the whole rock.

PART II.

ORIGIN AND PROGRESS OF THE FEVER AT
GIBRALTAR.

IN the years 1799 and 1800 the plague broke out on the northern coast of Africa, and spread such devastation amongst the Barbary states, that at Fez, many thousand inhabitants fell victims to its fury, and the towns of Tetuan and Tangier which had always before this period kept up a constant communication with the garrison of Gibraltar, were nearly depopulated. In Tangier alone upwards of 2000 Moors had been carried off, before the end of July 1800. The villages were in as wretched a state as the towns, and according to the report of Mr. Matra the British consul, the disease at that time had extended as far south as Arzillo.

The dread of introducing so destructive a malady into Gibraltar, induced General O'Hara, then governor, to cut off all intercourse with the coast of Barbary, and to establish such regulations and measures of precaution as were necessary for the safety of the garrison; but notwith-

standing the vigilance and activity which marked his government, some smugglers found means to introduce themselves into the town, as appears by a letter from his excellency to the Duke of Portland, then Secretary of State, dated Gibraltar, August 10th 1800, in which he observed, " That in consequence of information he had received that some smugglers from Gibraltar who had landed their tobacco in Spain, had been pursued by the Spanish armed boats, and had disembarked in Barbary, where the plague then raged, and that on their return, denying any communication with that country, were admitted to pratique and came into the garrison* ; they were seized and put into a lazaretto under rigorous quaran-

* Mons. de Leully, a French surgeon, who resided in Gibraltar, and practised chiefly amongst the foreigners, visited one of the Spanish smugglers who had come from Barbary with the plague upon him. — The following memorandum was given to me by Mons. de Leully in 1805. —

" Ayant été appelé en passant près de la place Castle Rarm, par un Espagnol malade que j'ai jugé atteint d'une maladie contagieuse-j'en fis mon rapport aux personnes en place.

Par les questions que je fis à ce malade—par la fièvre qu'il avoit et la langue noire et un bubon du côté gauche j'ai soupçonné comme il étoit contrabandiste qu'il pouvoit venir de la Barbarie, ou il y avoit la peste, depuis les questions que j'ai eu soin de lui faire, s'il y avoit longtems qu'il avoit communiqué avec les femmes, il me répondit qu'il y avoit quatre mois ce qui me confirma dans mon opinion.

Cetoit en 1800, dans le mois de Août.

tine, together with the inhabitants, with whom they had communication, to the number of nineteen, and by the advice of the faculty the boat, in which they came over was burnt, as well as the tenement in which they lodged: that happily no bad consequences followed," but the general adds "that upon landing in Barbary, those atrocious villains had put some Spanish smugglers on shore at Santi Petri near Cadiz, which might have been the means of disseminating the plague both in the garrison and in Spain."

That a pestilential disease did soon after this appear at Cadiz, has been already shewn, but we shall find in the progress of our enquiries on this interesting subject, that although some physicians in Spain did not hesitate at first to ascribe to Moorish origin, the dreadful malady which afterwards desolated the fertile province of Andalusia, it was afterwards traced to another source.

In 1802 the alarm which the pestilential disorder of the preceding year had excited throughout Spain, began to subside, but in the year following and early in October 1803, the garrison of Gibraltar, which had hitherto escaped disease, owing to the vigilance which had been exercised respecting vessels coming from the coasts of Spain and Barbary now became doubly apprehensive, from the frequent reports of a malignant fever having broken out at Malaga, which

was declared to be the same species of disorder as that which had prevailed at Cadiz in 1800.

In private letters that were received by some individuals in Gibraltar, the disease was said to have originated from the French ships which had arrived in the Bay of Malaga*, and that it had spread with extraordinary rapidity from the public hospital in which it had hitherto been confined, to other parts of the town.

In consequence of this intelligence Sir Thomas Trigge, then lieutenant-governor, issued a proclamation prohibiting all communication between the garrison and different parts of the Spanish coast.

About the 22d October, the intelligence from Malaga assumed a more serious character. It was said that the shipping in the bay was equally infected with the town, and that the fury of the disorder was unabated; but at this time it had not spread beyond Malaga.

By the end of the month of November, the number of victims to this pestilence, had amounted to upwards of 7000; — more than one hundred died daily; and at that time 1500 were sick, and many thousands of the inhabitants had fled from the town, and sought an asylum in the neighbouring fields, where great numbers had perished from want.

* An account of these vessels is given in the report of the Epidemic at Malaga in 1803-4.

By the 17th of December, a report was made to the board of health that the disease which had been for some time giving way, was at length happily got under, and that in compliance with the custom of the country the churches, schools, and public places were opened, and Te Deum celebrated.

In consequence of this favorable intelligence from Malaga, the Lieutenant Governor dispensed with the further attendance of the inhabitants of Gibraltar, who had acted as conservators of the public health, and returned them his thanks for the zeal and attention with which they had executed this important duty: the vigilance which had been shewn by these meritorious persons whom I shall afterwards have occasion to mention, was attended with success, for it is a fact, that no case of the fever, similar to that which prevailed in Malaga, in 1803, appeared in Gibraltar at the time in question, and yet the *same general causes existed then as in the year following.*

Reports however continued to be circulated from time to time, that great numbers of the people who had fled into the country from Malaga during the prevalence of the epidemic, had recently been attacked with the disease, on their return to that town. The respectable conservators, composed of the British merchants, as well as natives of Gibraltar, were therefore again called upon to

attend at their posts as before, and to exert all their vigilance in preventing communication with that city. The public health at Malaga was at length declared to be so completely restored that the cordon of troops which had been stationed in that neighbourhood was ordered to be removed, so as to admit of the usual intercourse with other parts of the interior; but it will be shewn hereafter that the pestilence was only dormant, not extinguished, and that it burst forth with such extraordinary virulence and activity in the following year, as to occasion a dreadful mortality wherever the disorder appeared.

On the evening of the 13th of January, 1804, a severe shock of an earthquake was felt at Malaga, accompanied by a hollow subterraneous noise and an unusually violent agitation of the earth.

The thermometer of Reaumur rose to the 14th degree, the atmosphere was obscured by heavy clouds, and the wind was from the northward, but variable, hot, and almost calm. This state of weather (so unusual at Malaga at this time of the year) continued nearly the same, with a little rain morning and evening; from the 13th of January to the 17th slight tremulous motions of the earth were occasionally felt, and on the 21st at 4 o'clock in the morning another earthquake was experienced of six shocks, which lasted

several seconds, and appeared to take a N.E. and S.W. direction.

All the towns to the north east, particularly Carthagera, and those to the south west on the coast of Barbary from Oran to Tangier with those running north west, as San Roque, Algeziras, Cadiz, and Gibraltar, experienced the shock of the 13th of January.*

From this period to the 18th of August nothing extraordinary in the public health was observed in Gibraltar, and although from the beginning of June to the 18th of August, easterly winds had prevailed, the *thermometer*, according to the register kept by the chief engineer†, did not rise higher than in former years, yet the *heat* was generally said to have been unusually oppressive in the garrison.

About this time very alarming reports were circulated of the fever having again broken out at Malaga, and a paragraph appeared in the Gibraltar Chronicle, stating that a contagious disorder, on the nature of which, people did not seem to agree, had again made its appearance in

* "This hill of Gibraltar, I believe (says Col. James) has felt the shocks of these earthquakes, which formerly were terrible both in Spain and Portugal, because there are many large slices of rocks scattered round this Peninsula." — See Col. James's History, p. 410.

† See meteorological tables in Appendix.

that city, that the governor and several individuals in his family were already dead, and that many thousand people had fled from the town, whilst the Board of Health were adopting the necessary measures to prevent the contagion from spreading. On the 25th of August further accounts were received in the garrison that the Spanish practitioners had declared the prevailing disorder to be nothing more than a tertian fever, which was not contagious, and it was added, that from the alteration which had been made in the treatment of the disease, the number of deaths had decreased daily : but notwithstanding these official communications, private letters conveyed a truer statement of the fact, and they all agreed in the observations made on the weather which had been intensely hot on the 16th and 17th of this month, and they mentioned that the lists of sick had so encreased that not less than eighty to one hundred persons died daily from that time to the 21st. Though the fever continued to gain ground in Malaga during the month of July, yet many of the Spanish physicians notwithstanding their dear-bought experience the year before, decidedly maintained for some time that the disorder was not the same as that of the preceding year, that it was the tabardillo (spotted fever) of the country ;—no precautions appear to have been adopted by the Spanish authorities

there until the end of August, by which time some thousands of people had fled from the city, and it was reported that the emigrants had conveyed the infection to many towns in the neighbourhood and along the sea coast. The fact is certain, that this pestilence very soon afterwards made its appearance to the northward of Malaga as far as Cordoba, 75 miles *inland*, and to the north east, to the city of Granada, distant 65 miles. It extended also to the eastward, to Velez-Malaga, Cathagena, and to Alicant. The same malady afterwards broke out in Leghorn, but in no other part of Italy*. It also appeared at the Peñon de Velez on the coast of Africa, which is a fortress situated on a lofty rock in the Mediterranean, and to which the presidarios or galley slaves are sent. The Spanish garrison which is stationed there, receives supplies of water and provisions direct from Malaga, between which place and the coast of Barbary the communication was constantly kept up.

From the same source this destructive scourge extended itself to the westward; the towns of Antequera, Cadiz, and many others as far as Ayamonte, were severally attacked, and the river Guadiana, which divides the kingdoms of Spain and Portugal on that side, would not even have served as a barrier to the introduction of

* See Palloni's account of the fever at Leghorn.

the disease into the latter country, had not the strictest precautions been taken by the Portuguese government, to cut off all communication whatever with the kingdom of Algarve, and the Spanish side of that river. *

But to return to the garrison of Gibraltar: on the 27th of August, 1804, the intelligence from Malaga continuing to be more and more alarming, Sir Thomas Trigge issued a proclamation, prohibiting all vessels, coming from the eastward or westward of Malaga, from entering the harbour, and admitting to pratique those only from the eastward of Carthagená and westward of Tarifa.

On the 28th, the day following, it was reported that a person of the name of *Santos* had arrived in the garrison from Cadiz, where the fever then prevailed, and that he, and several of his family were taken ill: little attention

* At St. Roque, distant from Gibraltar about five miles, the population was estimated at 6000: from the precautionary measures adopted there by General Castaños who commanded the district before Gibraltar, there were no sick, nor were any of the troops (stationed in the Forts of Sta. Barbara and St. Philip's, at the extremities of the Spanish lines) taken ill of the disorder whilst it was raging at Gibraltar.

At Algeziras, where the population was reckoned at 14,000, the disease appeared, but it was confined to one or two streets, and its further progress was prevented by the active means adopted by general Castaños, who had his head-quarters there.

seems to have been paid to these rumours until a few days afterwards, when the assistant surgeon of the royal artillery, Mr. Kenning, reported to Dr. Nooth as chief of the medical department in the garrison, that he had some married * people belonging to the corps under his care, whose complaints had assumed an appearance which embarrassed and alarmed him; on examination of these patients, it was declared that they laboured under the bilious remittent fever common to warm climates, and directions were accordingly given for its treatment. The facts that were afterwards ascertained respecting the arrival of Santos from Cadiz, and his being the person who introduced the infection into the garrison are upon record, and they carry a strong conviction of the probable mode in which he had contracted the disease; indeed from his own confession, and the oath of a respectable witness, it appeared that he had left an infected house at Cadiz, that he had been three times in company with a person actually labouring under disease, about the 23d or 24th of August, that he arrived at Gibraltar the 25th, was taken ill the 26th, and was seen by the French practitioner, Monsieur Jay, on the 27th of August, and that

* It was proved afterwards that the wives of these artillery soldiers had frequent communication with the families who were ill in Boyd's buildings, where it will be shewn that the disease first broke out.

in less than eight days after his being attacked, his mother, two aunts *, one brother, and two sisters all residing in the house, were also seized with a disorder of a similar nature, and of which *no case* was known to have occurred in the garrison previous to young Santos being taken ill. The proofs therefore that young Santos was the first person attacked with the disease, and that he had been the means of introducing it into the garrison, appear to be as strong and conclusive as the circumstances of the case could possibly admit of, especially when it is considered how the malady spread from the house of Santos to the adjoining buildings, whilst the rest of the garrison were totally exempt from it.

For several days the disorder was confined to the range of buildings to which it had been traced, and where Santos lived †, and it was observed to make a gradual progress amongst the different families who resided there, and to spread to the sheds in the neighbourhood.

This peculiarity, added to the rapidity with which, in some instances, the fever terminated its course, excited very general alarm.

* The mother and two aunts were dead of this fever the 16th of September.

† See plan in the Appendix.

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*reason to believe that a very malignant and fatal disorder then prevailed in the garrison; that it appeared the same as that which he had seen near Seville in 1800, and he conjured the secretary, in a most solemn manner, to acquaint the lieutenant-governor of his declaration! **

Both Captains Dodd and Wright immediately waited on Sir Thomas Trigge, and stated the report made by the Spanish priest; they added their conviction and belief, that an unusual and contagious disorder existed in Gibraltar, and they suggested whether it might not be proper to cut off the communication with that part of the town near the new library, where the disease was evidently stationary †: this judicious advice does not appear to have been followed, for it was imagined, that the adoption of such a measure would only tend to increase the alarm which was now spreading throughout the garrison.

In the mean time, such of the inhabitants as could leave the place, made their escape; several small vessels filled with them reached the coast of Barbary; others went up the Mediterranean, and some actually arrived at Malta, where they were permitted to land, as there was no suspicion of any

* See an account of this in the declaration made by Bresciano in the Appendix.

† Boyd's buildings, where the disorder first broke out, and where it remained stationary. See Appendix.

sickness at Gibraltar ; but the strongest quarantine regulations were immediately afterwards enforced in Malta, and in all the ports of the Mediterranean as soon as the fact was discovered.

So early as the 25th of September, the number of sick in the town augmented daily. The officers of the medical staff now first gave a public opinion, which was inserted in general orders, that any intemperance was likely to be fatal during the prevailing sickness, and the balances of pay which were due to the troops, were in consequence directed to be withheld ; but the most extraordinary orders that ever appeared were given out the same day, viz. " The officer commanding the Royal Artillery will order the whole of the guns on the line wall, from the grand battery to the south bastion, to be discharged three times over as soon as he conveniently can." As this order followed immediately after the recommendation from the medical officers to observe temperance, &c. it was generally supposed to have originated with them ; it should be known, however, that Dr. Nooth, then head of the medical department, who had the credit of this suggestion, not only was ignorant of the order which was given, but, as I am well assured, represented in the strongest manner the mischief which would be occasioned to the sick, by the explosion of gun-powder and the making of

fires in the different streets, under the erroneous idea of correcting the supposed vitiated atmosphere, especially as the weather at this period was calm, and there was scarcely a breath of air but from the eastward.

Another order was in consequence given to prohibit bonfires, &c. in the streets in future.— Guards were stationed to afford every assistance to the respectable inhabitants who formed the Committee of Health. This committee was composed of five British merchants, who were chosen to assist the government, and were invested with full powers by the lieutenant-governor — their names deserve to be recorded as having distinguished themselves by their humanity and zeal at this trying moment. Messrs. John Ross, John Smith, William Sweetland, George Alledyce, and — Rankin ; and of the foreigners, whose conduct was so exemplary on this occasion, the names of Bochetti and Danino are not to be forgotten.

A lazaretto was established on the neutral ground, for the poor sick inhabitants, in which there was afterwards a great mortality. The disease having now made some progress in the regiment of Royal Artillery, the non-commissioned officers and men who were quartered in the gunners' barracks, were removed to Windmill Hill (in the south) and a partial movement

of the 54th and De Roll's regiment took place; the former, from the north and south town range barracks, to sheds in rear of the king's bastion; and the four companies of the latter foreign corps were encamped in the King's and Queen's lines.

By the 30th of September the different corps quartered in the town were encamped, and the barracks were directed to be fumigated with alum and brimstone.

Notwithstanding these arrangements, the disease gained ground; but the sickness was principally confined to the inhabitants, although it had by this time, partially shewn itself in some of the corps in town.

It was remarked as a curious fact, that the Jews, who were very numerous in Gibraltar, and who, it was thought would have been more predisposed to disease, from their habits and mode of life, were not generally attacked by the prevailing disorder until after the 18th of September, the day of atonement, on which the Hebrew nation meet together in the synagogues.

On the 19th, four Jews were reported to have died, but it was not ascertained how long they had been ill. The feast of the Tabernacles took place on the 15th or 16th of September; and it is customary at this time for the friends and acquaintance to meet at each other's houses, and to enter the synagogue. Previous to this, the Jews

had cautiously kept to their own families at home, and not one of them was said to have been ill of the prevailing disorder, until after the feast alluded to, when there was rejoicing, and permission given for the admission of strangers amongst them.

This assemblage of the Jews and the communication which followed evidently facilitated the propagation of the malady, and afterwards occasioned such a mortality, that between 7 and 800 fell victims to its fury. *

* Mr. Cardozo, the highly respected chief of the Jews at Gibraltar, was distinguished for his exertions and activity, and would in all probability have fallen a victim to the disorder, had he not been prevailed upon to fly from the danger.

On the 26th of September he embarked with his wife and twelve other persons, in a small vessel called the *Virgin del Carmen*, which sailed for the coast of Barbary, but they were not permitted to land at Tetuan, as they had a foul bill of health.

After beating about for a considerable time (during which seven of the passengers died on board) the vessel passed the straits and anchored in the bay of Oran. The remaining passengers were landed and the disorder ceased. — It did not appear amongst the Moors. When I visited the coast of Barbary in the month of October 1805, I was particular in my enquiries of the consuls at Oran, from whom I learned that the true plague had made great ravages amongst the Moors there in 1800; but that the yellow fever so called, with black vomit, similar to that which prevailed at Gibraltar in 1804, had not been observed in Barbary.

I had the curiosity to visit the Adowars or Wandering Villages of the Bedouin Arabs, situated upon the slope of a

By the first week in October, the number of deaths in the town of Gibraltar amounted to 167, and on the 4th day of the month to 175. From this period the greatest confusion prevailed, and it is not possible to give an adequate description of the consternation and distress which followed. Few persons except the military were to be seen in the streets. Such members of the Committee of Health, as had hitherto escaped an attack of the disorder, continued to discharge their duty, in directing measures of police, in making arrangements for the daily supply of the markets, and in affording relief to the helpless sick. Carts were stationed at the door of the Spanish church to receive the dead bodies that were brought there at all hours of the day, from different parts of the town, to be conveyed to the neutral ground. Those unhappy persons who could not carry the bodies of their friends to the station appointed, left them exposed on the outside of their doors, and as the carts drove past the drivers were forced to take them up and bury them in the pits which were dug every morning by parties of soldiers.

hill in an open country, a few miles from the town of Oran. The tents were all open at the bottom, and by their constantly changing their ground and renewing the air, these tribes were seldom visited by contagion. The plague scarcely ever affected them, whilst the towns were nearly depopulated by that disorder.

The men, who were hired to conduct these carts died so fast and were so frequently replaced that at last it was difficult to find persons willing to undertake this dangerous office for any reward, and it became necessary to employ soldiers from the several corps to perform the greatest part of this unpleasant and hazardous service. Such however was the dread which it inspired, that the Rev. Mr. Hughes, the respectable chaplain of the garrison, assured me, that on one occasion when the alarm and confusion were at their height, he had seen with horror sixteen bodies lying upon the burial ground without a grave being dug, or any person to assist him; the party allotted for this duty having made their escape.

It has been stated, that by the 4th of October the mortality had amounted to 175, and as the disorder was spreading in every direction, it was recommended to the Lieutenant Governor to leave the government-house at the convent in the town, and he accordingly retired to the quarters of the commissioner of the navy in the south district.

Several of the respectable merchants in the town had already been taken ill, and suffered equally with the poorer classes of the inhabitants. The officers of the army, especially the young and healthy were among the first who fell victims to the disease, for they were most active in the

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required and he continued to visit the chambers of the sick, until he was at length seized with the fever of which he died on the 7th or 8th of October.

It was said that General Barnet, previous to his being taking ill, privately acknowledged his conviction that the disorder which he had been led to believe to be a simple bilious fever, was singularly fatal, and the chaplain, Mr. Hughes who visited him four or five hours before his death, informed me, that on his attempting to take him by the hand, the General begged that he would not approach the bed, observing that he was too well convinced of the contagious nature of his disorder.

Lord Pelham Clinton, his aide-de-camp, had been dead of this fever two days before, but that event had been concealed from General Barnet. This amiable youth, worthy of the noble house from which he sprang, had invariably accompanied the General in his benevolent but hazardous visits; they were both actuated by the best and purest motives, and the recollection of their humane exertions during a period of unexampled calamity, will long be cherished with gratitude by the surviving inhabitants of Gibraltar.

It has been stated, that the person who was suspected of having introduced the disorder into the garrison, was the eldest son of a wine house

keeper, commonly known by the name of Santos, The young man had a shop close to Boyd's buildings in Governor's street, and dealt in grocery, &c. It appeared on referring to his passport in the secretary's office, that he left Gibraltar for Cadiz on the 26th of July, 1804.

In his examination before Captain Dodd, the secretary, on the 21st of November following, Santos declared that he had set out for Cadiz about the 26th of July, for the purpose of purchasing some articles of grocery, &c. and that whilst he remained at Cadiz he *heard* of the fever having appeared at Malaga, upon which he hastened his departure from Cadiz, which place he left about the 23d or 24th of August to avoid the quarantine, which he supposed would in consequence be put upon all vessels coming from any part of Spain to Gibraltar, and he took his passage for the garrison in a Portuguese vessel called the *Concepção*, Captain Juan Olivarez, which arrived at Gibraltar on the 25th, and that in two days after his arrival, he (Santos) was seized with a fever, when he sent for Monsieur Jay, a French practitioner on the rock, to attend him. He said that he heard of no sickness prevailing at Cadiz when he left it, but *confessed he was in a room* with one man who was lying in bed ill of a fever as he believed; that the house was a tavern where *he had gone in accidentally* to get

something to drink and that he *did not know* who the person was that was lying in the bed sick. He further declared that in a few days after he was taken ill at Gibraltar. His mother, two aunts, one brother, and two sisters, were all attacked in the same house with a fever, and that his mother and both his aunts died by the 16th of September.

This was the exact account given by Santos on his first examination at the Secretary's office. He had been previously assured, that he had nothing to fear from stating the fact, and as his story was found to be correct as to particulars, both the Secretary and Captain Wright of the artillery who was present, were inclined to give him credit for the whole account; although that part of it appeared somewhat strange, in which he mentioned having gone accidentally into a room to get something to drink where a man was lying ill with a fever.

That he did in this instance suppress the truth will be clearly shewn by his own confession, and that he had actually lived for three weeks in Cadiz, and a part of that time in the same house with this person whom he pretended to have seen accidentally, and who afterwards died of the disorder under which he was then labouring.

On referring to the register of arrivals and sailing of vessels which is kept at the Health-office in Gibraltar, it appeared that the Concepcion Juan Olivarez, did arrive there on the 25th of August, after a passage of 24 hours from Cadiz, and that she afterwards sailed for Lisbon on the 5th of September.

Santos's passport was also endorsed by Mr. Archdekin the British vice-consul at Cadiz, on the 22d of August 1804, with a certificate, that he had on that day presented himself at the Consul office, and proposed returning to the garrison by sea ; so that the exact period of Santos's leaving Cadiz, his arrival at Gibraltar, and of his being taken ill of the disorder, were all briefly ascertained. It was however extremely difficult to explain the manner in which he had contracted the disorder.

Long after my landing at Gibraltar on the 23d of November 1804, the opinions and conjectures upon this subject, were various and undetermined, nor was it possible to ascertain the truth until the 8th of March following, when a person, whom Santos had also mentioned having seen ill of a fever at Cadiz in August 1804, arrived in the garrison.

The Secretary and Captain Wright, knowing my anxiety to obtain every possible information

relating to this investigation, very obligingly sent to me to be present at the examination of this person, whom I found, on my arrival at the office, to be Mr. Pratts, the master cooper in the naval victuallers' yard at Gibraltar. On his being desired by those officers to declare what he knew respecting a fever at Cadiz, in August 1804, he without hesitation related the facts stated in his deposition, to which he made oath the following day before his Excellency General Fox. *

I have been thus particular in giving a circumstantial account of an occurrence, which never having been thoroughly explained, gave rise to many absurd stories, contradicting and confuting each other, and upon these contradictory statements, some have ventured to declare the whole to have been a fiction: I know not whether this detail of facts will be admitted as conclusive evidence of the disorder having originated with Santos; but I can affirm that none of the surviving practitioners could inform me whether any person had been attacked with the disease prior to Santos, at least they had not attended any sick labouring under similar complaints, nor had any case of it been previously reported in the garrison.

Mr. Kenning, Assistant Surgeon to the Royal Artillery, in his public letter stated, "that on

* A certified copy is inserted in the Appendix.

the 12th September he visited every person in town then ill of the disorder, amounting to fifty, and all of them in that part of the town where it first appeared, and that in ten families he found the disease had spread to more than one person in the family." The manner in which the fever spread from Santos's house, is also thus described by Mr. Kenning, who witnessed what he relates:

"Bombardier Fenton's wife, who lived in the building adjoining to Santos's dwelling, and who caught the fever at his shop, was the first I saw attacked with it, and was I believe the second case in the garrison. She was taken ill on the 8th, and they both died on the 12th; these evidently introduced the disease into our regiment (artillery) as those who visited them during their illness, were first attacked. Mrs. Boyd an inhabitant, caught the disorder from visiting Mrs. Fenton, and was taken ill on the 13th, and died on the 19th. Her husband, the owner of the buildings, was taken ill on the 14th, and died on the 16th, and from Santos's house the disease regularly spread to all the neighbouring houses, being for some time confined to that part of the town near Boyd's buildings."

As Bombardier Fenton was a non-commissioned officer belonging to Captain Wright's company, he had soon, but too melancholy a proof of

what Mr. Kenning here states, that such as had visited Fenton and his wife during their illness, were the first attacked in the artillery; the orderly man who attended him in his sickness was seized on the 16th, and Serjeant Shand, with his wife, who had repeatedly visited them, were all taken ill about the same time, together with their three children.

Both the father and mother died on the 22d of September, and from the 8th of that month to the 4th of October, 28 men of this company alone (Wright's) died as well as 18 of Dodd's company, who were stationed within 120 yards of Boyd's buildings, whereas only 35 men from all the other four companies of artillery, though equally strong in complement, fell victims to the disease.

These last companies were quartered at a considerable distance from the spot where the disorder first broke out, and it is shewn in the annexed statement *, that the mortality was

* It has been stated that Fenton was the first man in the Artillery who was taken ill on the 8th September, and died on the 12th, and that the orderly man (Matthew Pole) who attended him during his illness, was himself seized with the fever on the 16th, and died on the 23d September.

I was unable to obtain any correct information of the progress of the disorder in this fine corps, but Captain Wright, who commanded the company to which Fenton belonged, favoured me with the following memorandum of

greatest in the two companies nearest to this spot, and where intercourse with the sick was traced.

Boyd's Building, as it was generally called, joined the south-end of Santos's house *, and there were several small tenements within, which were inhabited by different families. Here the disorder shewed itself on the 8th of September, in Mrs. Fenton, and by the 20th of the month fourteen people had died of it out of this range of building; amongst whom was Mrs. Spinola and her family, consisting of a son and daughter. The house adjoining to the northward of Santos's was the canteen or wine house for the soldiers of De Roll's regiment; the daughter of Belando, the landlord, was taken ill on the 8th of September, and died of the disease in a few days afterwards.

the deaths that took place in the six companies of artillery at Gibraltar during the fever, from the 8th September, to the 4th October 1804.

Strength of the Companies on the 8th of September 1804.		Where quartered.	Deaths.
Captain Wright's	- 88	In Barracks on the Gun- ners parade, distant 12 yards from Santos's house.	28 18
Captain Dodd's	- 90		
Captain Rey's	- 88	Orange Bastion	8 13
Captain Skyring's	- 91		
Adye's	- 92	Moorish Castle	5 9
Hon. Captain Gardiner's	97		

* See Plan in the Appendix.

As this house was daily crowded with the men of that regiment, it is probable that from this source the contagion was introduced into that corps, in which and in the artillery it made considerable progress before a single soldier belonging to any other regiment quartered in the town was attacked by the disorder. By the 24th of September fourteen of the artillery had died of it, and either seven or eight of De Roll's ; and from eight to ten men were falling sick daily in each of these corps, whilst the 10th and 54th regiments, amounting to upwards of 1400 men, also quartered in the town, and breathing the same atmosphere, had not lost a soldier, and had but a very few sick.

The first man taken ill in the 54th regiment, was corporal Flanagan, on the 21st of September, who died on the 24th. A few days previous to his being attacked with fever, he had been employed by an inhabitant to draw up his will a short time before his death. Corporal Flanagan having been clerk to the regiment, and an excellent penman, was induced by the offer of a few dollars to undertake this office, not knowing the danger of approaching the sick man, and breathing the vitiated air of his apartment. The next taken ill in the 54th regiment, was corporal Connor, who led and supported corporal Flanagan to the hospital. He was seized with the disorder on the 24th, and died on the 27th. The malady

afterwards broke out in the sheds, inhabited by the married soldiers of the regiment, who lived on the artillery parade, which is immediately in front of Boyd's buildings. But the barracks of the 54th regiment, which contained 700 men, although not much more than one hundred yards from Santos's house and Boyd's buildings, continued free from the disorder until *the 26th of September*, when the grenadiers and Captain Frederick's company were the first attacked. The quarter of the barracks which these two companies occupied, was at the north end, and in a straight line with Boyd's buildings; adjoining the barracks, were several small houses and sheds, filled with the lower orders of Genoese and Spaniards, and the whole of them were by this time more or less infected.

To the north east of Boyd's buildings, up the hill, were situated the quarters of De Roll's regiment, called the Blue barracks. But it has been observed, that the soldiers' canteen was the house adjoining the one to the northward of Santos's, and where the daughter of Belando, the landlord was ill on the 8th of September, and died of the disorder in a few days after, (p. 120); from this source, therefore, it was said that the regiment became infected, and that the first man taken sick was a grenadier of the name of Mills, who was admitted into the hospital on the 9th,

and died on the 11th. It appeared from the lieutenant-colonel Baron De Sonenberg's public letter to the military secretary Colonel Airey, that "George Mills, an Englishman, had been drafted from the Royals into the regiment De Roll; and that being a bad character and in the habit of frequenting the filthiest houses in Gibraltar; the colonel was not surprised at his having contracted the disease." The second man taken ill was Glan, a private. He was admitted on the 10th, and died on the 17th; and the third was one of the tailors of the regiment, of the name of Keusch, attacked with the disorder on the 18th, and died on the 20th.

From all the information I was able to collect, it was very doubtful whether Mills, the first man taken ill, actually died of the fever. Mr. Desque-rois, the surgeon of the regiment, and his first assistant being dead, and the books of the hospital having been left in so confused a state that it was impossible to obtain any correct account of the symptoms of the disease of which this soldier died. The same difficulties attended every enquiry respecting Glan's illness: but from Keusch, the third man who died on the 20th of September, we were able to trace the progress of the disorder with some degree of accuracy. The fourth person taken ill was private Anthony Rochrick, he died on the 30th. The fifth was private Roman

Mack, admitted into hospital the 28th of September, and died on the 2d of October. The sixth was private Jacque Sockola, admitted on the 1st of October, and died on the 5th. These last four soldiers were employed as regimental tailors, and they worked together in a small room up stairs, over an apartment in which the greatest part of a Portuguese family called Scarnichis was then labouring under the prevailing fever. The house is situated at the corner of the street, not far from the new library, and at right angles, and within a few yards across to Boyd's buildings, (see the plan in the Appendix) In this house Scarnichis's son died about the 7th or 8th of September, and his daughter a few days after her brother. It will be shewn in tracing the progress of the disorder that this quarter was strongly infected.

The three next soldiers of De Roll's regiment who were attacked, were servants belonging to the Lieut. Col. the Baron de Sonenberg, they lived together in one small room, at the colonel's quarters, near the Artillery-hospital; Joseph Fleckle, the *first*, (but the 7th in the order of admission into hospital) was taken ill on the evening of the 29th of September and died on the following morning the 30th, on the grand parade, during his conveyance to the regimental hospital. The *second* servant, (or 8th patient in

this regiment) was corporal Jacque Walkest, admitted the 28th, and died on the 30th and the *third*, private Simon Nick, batman to the lieutenant-colonel, was admitted into hospital on the 28th of September, and died on the 1st of October.

The further progress of the disorder in De Roll's regiment could only be ascertained by the regular succession in the order of deaths as they took place, and as they were entered in the returns and books of the regiment.

The 10th and 11th, were private Havery Hoffman, who died on the 29th of September, and his comrade John Anderson on the 30th.

12. Captain de Metzger, died on the 1st of October.

13. Madame de Metzger on the 7th, and their servant Joseph. 14. Maully on the 11th of October.

15. John Zeigler, a musician, and his wife, were both taken ill on the 28th of September; — he recovered, Mrs Zeigler died on the 3d of October; their child Francisca, which had continued at the breast during the mother's illness, also died, (probably from want of care) on the 11th, and Jacob Rein, also one of the musicians, who attended upon Zeigler and his wife and child, was himself taken ill, and admitted into hospital on the 3d of October, and died on the 6th.

Ensign Lewis, Count de Pollastron, died the

3d of October, his servant (not a soldier) on the 10th * ; Quarter-master serjeant, John Bayorle died on the 7th, his wife and one of their children on the 8th, another child and the woman that had attended upon them, on the 9th October.

Assistant Surgeon Joseph Lodson died on the 12th, and his servant, private Marley on the

* It was believed, by all the officers of De Roll's regiment, that the tailors already mentioned introduced the disorder into the corps ; and the circumstance of the Count de Polastron's death, confirmed the general opinion.

That young officer had ordered one of the tailors, *private Mack* to make him a coat, and some other clothes, which when finished in *the room at Scarnichi's*, were brought *directly from thence*, and they were tried on Count Polastron by *Mack*, who was taken ill a day or two after he had so delivered the clothes, having been admitted into hospital the 28th September, and died as it has been stated on the 2d of October.

Monsieur de Polastron not long after began to complain, but the exact period of his being taken ill is not stated, his death, however, certainly took place on the 3d of October, and his valet de chambre, who constantly attended upon his master, died on the 10th.

The field officer of the regiment, in whose house the Count de Polastron lived, told me this fact, and that he himself, having attended his young friend, was attacked on the 3d ; but he recovered, as well as his two servants, who also sickened about the same time ; all three had served in Egypt, and it may be observed here, that *several* of the soldiers of De Roll's had also served there, and who attended the officers as servants, were either not attacked with the disorder at Gibraltar, or they had it more slightly than those who had not been in that country.

same day ; private Lewis Kahn, servant to Lieutenant Muller, died on the 11th of October, Madame Muller died on the 18th ; Lieutenant Muller was the only one of the family that was not attacked with the disorder, having passed through it in the West Indies.*

Several other admissions and deaths appear upon the returns in regular order, but it is unnecessary to insert them here. The regiment De Roll was encamped to the southward of the Rock on the 2d of October, but the change of

* Lieutenant Muller, the adjutant of De Roll's regiment, who favored me with the official returns of admissions and deaths, informed me, that during the two years he remained at Tobago, he had the fever of the climate *three* different times ; and it appears from a memorandum which he gave to me in writing, that in 1796, when at Dominica, he was attacked by a fever, which the medical attendants called the fatal yellow fever, accompanied by all the violent symptoms of the disorder which he saw in Gibraltar, his loss of strength was very great, and his body turned yellow to a considerable degree.

During the late sickness at the garrison, his wife and two children, young boys, and three servants, were attacked : Mrs. Muller was six months gone with child, and was ill nine days. On the day preceding her death, she told Mr. Muller that she felt so well, she thought she should recover ; but in two days after, the hiccough came on, and continued until her death, attended with a violent hæmorrhage, and vomiting of a dark coloured fluid ; the body was also of a dirty brown yellow.

The children recovered, but the servants died. "I attended my family the whole time," said Mr. Muller, "and I was seldom absent from my wife's room, but I never had the slightest symptom of the fever."

position made no difference in the progress of the disorder in the corps. Out of 414 persons attacked, belonging to the regiment, 187 died.

The following is a copy of some interesting memorandums which were made during the prevailing fever at Gibraltar, by the Reverend Mr. Beiker, the chaplain of De Roll's regiment, and which he was so good as to give me.

Notes du Chaplain Beiker sur l'épidémie regnante à Gibraltar en 1804.

1. Avant que cette épidémie a commencé a y faire ses ravages, il existoit dans le regiment De Roll une espece de fièvre jaune, qui rendoit tout le corps de ceux qui en étoient attaqués jaune comme de la cire, 'autant que j'puis me'n souvenir, il y en a environ six soldats qui en furent attaqués, mais lesquels n'en sont morts qu'au bout du 7, 8, 9, & 10 jours, et il n'y a qu'un seul sergent nommé Neider qui en echappat après avoir été bien malade pendant très longtems et sa convalescence étoit plus longue encore. — *Nota* — Les cadavres sont devenus tout de suite noirâtre et couverts de taches et très prompts à la putrefaction.

2. L'épidémie a commencé bien plus tard au sud qu'à la ville.

3. Il est certain qu'elle a commencé à devenir très mortelle depuis le 20 7bre, et terrible pendant tout le mois d'Octobre.

4. Quelle a commencé à changer de caractère vers la mi Novembre.

5. Les personnes les plus fortes en furent les premières et les plus promptes victimes, surtout les nouvellement arrivées, même après qu'elle avoit pour ainsi dire cessé.

6. Peu de personnes attaquées fortement depuis le 24 7bre jusqu'au milieu du mois de Novembre en échappèrent.

7. Toutes les personnes qui eurent la fièvre jaune en Amérique, en furent exemptes.

8. Toutes les personnes de tout âge et sexe qui l'ont eu une fois fortement à Gibraltar pouvoient pour ainsi dire coucher avec les moribonds, sans devenir recidives. N. il ne'n fut pas de même de celles qui ont éprouvé quelques légères attaques.

9. Tous les employés d'une manière quelconque dans nos deux hôpitaux en sont morts, les craintifs les premiers : je ne parle pas d'un troisième hôpital uniquement destiné pour les autres maladies et les convalescents.

10. Lorsqu'elle a commencé à prendre dans une maison, tous en furent attaqués excepté ceux qui ont déjà eu la fièvre jaune en Amérique.

11. Plusieurs personnes sont mortes faute de secours, d'autres légèrement attaquées dans la

principe l'ont été tout de suite, fortement, parce-
qu'on les mettoit pêle-mêle avec les mourants.

12. Lorsqu'elle a commencé à cesser nous
n'avions plus eu de malade dans notre regiment
pendant très longtems.

PART III.

HISTORY OF THE FEVER AT GIBRALTAR,

IN 1804.

IT was ascertained that although this fatal disorder had begun to spread to several parts of the town of Gibraltar by the middle of September, and had carried off many of the inhabitants, yet no case of it was known in the south district before the 18th or 19th of September.

From the south port gate, which divides the town, north from south, to the southward of Jumper's well, there is an extensive surface of half a mile of red sands, a part of which is levelled for the grand parade; above it is the burying ground for the military, and beyond this there are gardens in a high state of cultivation. There are neither sheds nor buildings, throughout the whole extent of the road along the line wall, and the open space is thoroughly ventilated.

Early in September the 10th regiment of foot was encamped on the grand parade, and the men were kept from straggling by the order of Colonel Holmes, who commanded: a detachment occupied the barracks in the picquet yard

near Water Port. The disease first appeared amongst the officers' servants quartered in Irish Town, where it was then prevailing: Roger Harwood, Lieutenant Parker's servant, was not taken ill until the 22d of September, and ——— Henderson, Lieutenant Hoar's man, on the 24th, they were both soldiers, and slept together; about this time several men of the 10th sickened in the picquet yard, and the patients who were then in hospital in the town, labouring under different complaints, were also attacked (according to the report of Mr. Bennien, the surgeon) with symptoms of the fever. I never could learn satisfactorily if any in camp were ill before this period.

It is to be observed, that during all this time the daily communication with the town and the south was still kept up. The troops quartered in the south continued to mount the guards of the northern division, and those from barracks in town took their tour of duty with the rest at the new mole, Rosia, and the other batteries to the southward. All descriptions of persons belonging to the place were allowed to pass the south port-gate, and *yet* the disease which had been progressively spreading in the town, did not shew itself in the south until after a period of more than three weeks from its first breaking out in Boyd's buildings.

It was about the 15th or 16th of September, that the field officers commanding in the south, very strongly urged the adoption of precautionary measures, and it was suggested by them, that as the disease had not yet appeared in the south, the communication with the north might be cut off. Indeed some zealous officers did stop several of the inhabitants who were then flying in every direction, and were bringing with them bedding, &c. into the neighbourhood of the south barracks, and they obliged them to return into town. This circumstance being represented to the Lieutenant Governor, a general order was issued the following day, the 17th of September, granting full liberty to such inhabitants as chose to reside in the south, to do so without obstruction, but subject to the garrison regulations and orders. *

The Honourable Colonel Colville, who was indefatigable in his attention to the interior œconomy of the 13th regiment which he commanded in the south, considered it to be his duty to take such precautions as his view of the

* The Honourable Colonel Colville, of the 13th regiment, (now Major-general Sir C. Colville, K. C. B.) and Lieutenant-colonel Jones of the Queen's, were the two commanding officers in the south. The latter was field-officer for the day, when it was reported that the people were flying with their bedding, &c. from the town.

subject, and his better judgement directed, and he issued the most pointed regimental orders, in which he observed, "that in consequence of the sickness then raging in town, officers were called upon to be more than usually frequent and particular in their inspection of the married men's quarters; that he forbade most positively any man going into the town; (except upon duty, or when carrying the dinners of the men on guard;) that they were on no account on those occasions to enter the canteen of another regiment, or any house whatever, which they were not ordered into on duty.

"The women and children of the regiment were directed to conform to this order, and any of the former, offending against it, were to be cut off from all intercourse with the regiment, and their husbands to be confined to the barracks. Officers were recommended to send their servants into town as little as possible, and never without a pass for the particular occasion.

"Non-commissioned officers having charge of fatigue parties in town were held responsible not to allow their men to straggle, and to prevent all idle curiosity of looking at the sick or joining in funerals, and the greatest attention was expected to be paid to the state of the ill aired huts and lanes of the south."

There was a report, but it cannot be stated on

authority, that one or two Genoese gardeners were found dead in some of the gardens in the south very early in September, and that (as was afterwards the case with those found dead in other parts of the rock) their bodies were buried on the spot by their friends, who purposely concealed the circumstance of their illness, &c.

The only person to whom the introduction of the disease in the south district could be traced, was a young man of the name of Antonio Sterico, who went up to his mother's house on Scud-hill some time in September, where he died on the 18th or 19th. Sterico kept a wine-house not far from Boyd's buildings,* he lived nearly opposite to Scarnichi's house, where De Roll's regimental tailors worked, as already stated.

The fact of his death was confirmed by all the surviving inhabitants, whom I afterwards questioned on the subject, and it was also reported that his brother, who had landed from a vessel in the bay, in perfect health, had gone up to his mother's house, two days after her son Antonio's death, was himself seized with the fever, and carried off in a few days. The mother survived the loss of her two sons but a very little time.

The disease shortly after appeared in the sheds

* Vide plan.

and small confined buildings adjoining Sterico's house, and it continued to occasion great mortality in all that quarter, at length reaching Captain Mouatt's, the naval agent of transports, and extending itself to the architect's Mr. Bocchetti, to the houses and sheds at Rosia, and up to the south pavilion and the barracks of the Queen's and 13th regiments. *

The troops quartered in the south, began to be affected about this period; the first man sent to the regimental hospital of the 2d, or Queen's regiment of foot, was corporal John Harrard, who was admitted on the the 29th of September, and died on the 3d of October. It appears from the report made by Mr. Maxton the Surgeon, to Lieutenant Col. Jones, "*that Harrard, who was the first man of that regiment on whom he observed*

* I was never able to trace the progress of the malady directly from Sterico's house, nor could it ever be ascertained, whether other infected persons, flying from the town, did not go to this neighbourhood about the same time. It is, however, a well known fact, that Mr. Burd, the surgeon of the naval hospital, situated above Rosia, who had excellent apartments there, accommodated several of his friends who left the town after the 15th of September, the whole of whom, with his own family, consisting of four persons, amounted to sixteen: they were *all* in perfect health at the time they assembled in his house, but every one of them was soon afterwards attacked, and half of the party fell victims to the disease. Mr. Burd, the surgeon, was one of the last attacked, and he died on the 21st of November 1804.

the symptoms of the prevailing fever, was one of those who relieved the men of De Roll's regiment, or Rosia guard, only two days before he went into hospital. Five other soldiers of the Queen's, viz. corporal Smith and private Hunt (who are still alive) had both been on the same guard with Harrard, and were admitted into Hospital the same day (29th September). At that time (observes Mr. Maxton) De Roll's regiment was very sickly." *

The disease afterwards continued to spread rapidly in the barracks, but all my endeavours to trace its progress were ineffectual: out of 13 officers of the Queen's who were attacked, 7 died, and out of 383 non-commissioned officers and privates who were seized with the disease, from the 29th of September to the 24th of December 1804, 91 died. Ensign Griffiths was a remarkably stout young man, and had the fever in so violent a degree, that the four or five soldiers who were sent to him as servants from Captain Walshe's

* The south port guard, Rosia main guard, and Forbes's guard near the barrier, through which last the dead inhabitants were carried to the neutral ground, were called the sickly guards, for very few officers or men who mounted there in their turn, escaped an attack of the fever; it frequently happened that both officers and men were relieved, in consequence of being taken ill on guard: all these guard-houses have been since altered, and made more airy, with additional windows and fire-places, and attention is paid to cleanliness and frequent white-washing.

company, were successively taken ill and died ; this was so striking a fact, that Lieutenant Colonel Jones the commanding officer, unwilling to expose the picked men of the company to so hazardous a service, ordered a soldier of the regiment of the name of Moody to attend the sick officer. This man, who continued with Ensign Griffiths till he died, was the only one of all the six servants who escaped with his life, and this was considered so remarkable, particular enquiries were made, and it was found that John Moody had been with the 1st battalion in the West Indies, where he had the Yellow Fever.*

The 13th regiment which occupied the northern wing of the same barracks, as the 2d or Queen's, was attacked with the disease much about the same time, for it appears from the Honourable Colonel Colville's letter to General Fox's military Secretary (Lieutenant Colonel Airy), in reply to some queries put to him respecting the origin and progress of the fever in the 13th regiment, that "the first men seized with fever, were John Conolly who died on the 30th September, Serjeant Richard Morney on

* These facts are detailed with minuteness, but their importance seemed to require the clearest statement possible. — Colonel Jones who resides at Bath, not long since confirmed them all on my reminding him of the circumstances that have been recorded in this Report.

the 1st October, and Francis Beyd on the 6th, but those three men," (observes Colonel Colville) "did not live in the barracks, for they were married, and inhabited (from necessity) hired huts in a most unhealthy situation, where there were already sick inhabitants." *

"The disease was observed to be confined for some days to the out-liers, *and to those who could be traced to have had communication* with persons in the neighbourhood, which from the circumstance of their being married and allowed to sleep out of barracks, afforded them greater opportunities of mixing with the inhabitants, than the generality of the soldiers, who were kept as much as possible to their quarters.

"The number of days," adds Colonel Colville, "that the three men above-mentioned were ill

* The unhealthy circumstance to which Colonel Colville alludes, was the public drain or sewer running from the barracks, which, from being uncovered, and from the want of water to cleanse it, was, during the heats of summer, extremely offensive; it was at this time, particularly so, the barrack necessities having been emptied into it, and the contents not having then run off. The huts, in which so many sick inhabitants, and some of the married people were living, were built adjoining the sewer, and some immediately over it, with a single boarded floor intervening. The disorder prevailed particularly in this spot; and from its being so near the barracks and the canteen of the regiment, it is not surprising that the soldiers would frequent it when they could.

(at all events but few) cannot be particularly ascertained. Assistant surgeon Macguire being since dead, who attended them in their quarters, it being the commanding officer's wish that they should be kept separate from the sick of other complaints who were then confined to the single ward of the hospital.

"Conolly's wife died on the same day after her husband, but she had been bed-ridden for a length of time before; the wives of the other two men, Morney and Beyd, were also taken ill, after their husbands, but they recovered.

"The fourth man taken ill was Michael Moore, an officer's servant; he slept in a small room in the back yard of the officers' pavilion, but his master's horse being kept in the lane in which Conolly's hut stood, and where there were sick inhabitants, it was supposed from his frequently going to the stable that some communication had taken place. The contagion," continues Colonel Colville, "immediately spread through the servants with the exception of one only. But the wife of this man was attacked with the disease and died; it then reached the officers, and went through all the inhabitants of the pavilion, the servant already mentioned excepted.

"On the 1st and 2d of October the disorder appeared in the barracks, and soon after spread

rapidly through the regiment. There were among those first attacked some idle characters, inattentive to the advice given to them by their officers to confine themselves as much as possible to the society of their own comrades. But it was impossible to trace the infection any further than to the fact that the soldiers were occasionally mixed on guard, and other duties with men of other corps, in which the fever had already appeared.” In the 13th regiment out of 479 attacked with the disease, 349 recovered and 130 died.

It has been already observed, that this malady had spread along Scud-hill as far as Rosia, where there are establishments for officers of the dock yard. The family of Captain Mouatt, the naval agent of transports, was attacked, and out of sixteen persons of which it consisted, he lost two of his children.

A remarkable fact was mentioned to me by Captain Mouatt, which I noted down at the time, and the following memorandum was copied from the books in his office :

“During the sickness in the town and south, there were amongst other vessels in the mole five transports,* army victuallers, viz.

* The transports and vessels at anchor in the bay were more refreshed by the south-west and north-easterly winds, than

1 The Rosina	Robert M·Kinley, master.
2 New Hope	Thomas Brooks, do.
3 Orcaña	George Ellison, do.
4 Assistance	George Kerr, do.
5 Jessie	William Atkinson, do.

In most of the above the fever either did not appear on board, or if it did in any of them the men were very slightly attacked, although they were close alongside other ships in which the disorder was spreading. The Assistance transport in particular lay between two ships, one of which was the sheer hulk, the Guerrier, and in both there were sick. Captain Kerr, the master of the Assistance had his wife and family on board ; and by strictly avoiding any intercourse with the shipping and the shore from which he was not distant an hundred yards, they all escaped*. The Alexander merchantman and

those in the mole : but even here, the breeze was always refreshing, whilst the inhabitants of the rock were oppressed and languid, especially during a Levanter.

* Such was the case at Cadiz, since it appears from the list of shipping in the office of the captain of the port at Cadiz, that sixty-five foreign vessels, (principally from the north, such as Swedes, Russians, Danes, Ragusans, Hamburgers, Prussians, &c.) remained at anchor in the bay, and without communicating with the city, from the 18th of October to the 19th of December 1804, in which there were no sick ; this fact was confirmed by the respective consuls of those

the Union transport, also lying in the Mole, were close to the Assistance victualler, and did not escape, for the fever ran through the greatest part of the crews, several of whom, with the master of the Alexander, Captain Patton, died ; but the communication of these vessels was not cut off either with other shipping or with the shore.

Mr. Lewis, Apothecary to the forces, confirmed the above facts, and in the report which he gave me, containing some observations he had made during the prevalence of the fever, he mentioned Captain Patton, whom he had seen. He was of a gross habit, and had been a free liver ; his mate

powers, by reference to the returns in the different hospitals, and from the report made by the officers of the health office, on the day on which they visited the ships, to set them at liberty.

The following sixteen vessels, viz. three English, six Swedes, one Dane, four Turks, one Ragusan, one Imperial, had sick on board, some had entered the bay of Cadiz, as appears from the dates of arrival, before the 18th of October, or after the 19th of December ; consequently, their crews had communication with the inhabitants of the town, and were infected, which was not the case with those belonging to the vessels above mentioned.

This statement is taken from the account given to the health office by the respective consuls, and has been confirmed by reference to the list of admissions in the different hospitals.

and most of the crew had the fever, excepting one or two boys, but they all recovered.

Captain Mouatt, whose house is close to the Mole, had about this time the whole of his family ill. *He* escaped an attack, *having been ill in the West Indies*, but he told Mr. Lewis at the time, that although he had not actually fever, yet he felt a peculiar sensation of languor and uneasiness which were uncommon. Mr. Lewis having been employed in the Naval Hospital in consequence of the death of the surgeon, Mr. Burd, and his assistant, was also engaged in visiting the sickly ships in the harbour, and in the new mole, chiefly transports. He noticed that all the masters of those vessels who had personal intercourse with Captain Mouatt at his office, (a small room on the ground floor of the house which was then filled with his sick family) were severally attacked with the disease within fourteen days after such communication. But Mr. Wilson, mate of the Union Transport, who was employed in Captain Mouatt's office on account of the death of his clerk, for seven days about this time, was taken ill on the 7th of October, and being sent to the Naval Hospital, he died on the 10th, three days after his admission.

Mr. Lewis informed me that he himself was not fairly attacked with the disease until the 18th of October, and Mrs. Lewis and her two eldest

children eighteen days after him, *viz.* on the 5th of November; another child sickened on the 8th, but the whole family recovered.

It is to be observed, as a striking proof of the importance of early attention to the disease, that out of 50 persons attacked with fever on board the different ships, only five died. Captain Mouatt assured me, that as soon as a man complained he was reported, and some opening medicine was ordered to be immediately given. This judicious practice, and the situation of the vessels in the mole, exposed to a constant ventilation, whilst the inhabitants were oppressed by the reflected heat of the rock, may very reasonably be considered as a cause of the little comparative mortality amongst the shipping.

The progress of this disease was no where more strongly marked, nor more accurately observed than in the family of Mr. George Cooper, whose house stands in a garden at Rosia; his brother Mr. Mathew Cooper, the registrar of the Admiralty Court at Gibraltar, favoured me with the following interesting account. “ On the 1st of October 1804, Mr. Alexander, who was clerk to Mr. Thomas Cooper, stationer, in the town of Gibraltar, had walked up to Rosia towards the evening, and went into a small room in which Mr. George Cooper and some of the family (consisting of eight persons) were sitting,

all in perfect health; the report which Mr. Alexander made of the state of the sickness in town alarmed them; *for he had been all that day stationed as health-guard at the Spanish Church where the dead carts were kept*, and he shewed his list of dead, which when he came away, amounted to 167!!! In the course of half an hour Mr. Alexander left the house on his return to town, and soon after his departure Mr. Cooper locked the garden gate, and being alarmed at the account he had just heard, he at once decided that there should be no communication whatever with any person from without. This determination was rigidly adhered to, and the family continued perfectly well until the evening of the 5th of October, when Miss Cooper first complained of chilliness and pain in the head and loins, &c. Mr. Burd the Surgeon of the naval hospital, was then sent for, and he declared that his patient had the prevailing fever, and he recommended the rest of the family to be kept separate; in consequence of this advice, Mr. George Cooper left with her only one female attendant, and that there might not be any communication, he removed the remainder of the family to another house in the same garden, about 25 yards distant, but this precaution was of no avail, for on the 6th, the day following, Mrs. George Cooper, who was the female that attended her sister-in-

law, complained about 11 o'clock in the morning of sensations similar to what Miss Cooper had described, and immediately took to her bed; from the moment she was seized, she gave herself up to despondency, and she died about 1 o'clock on the 8th, having the black vomit, and her body being of a deep yellow a short time previous to her death. Mrs. Garnet, youngest sister to Mr. George Cooper, although she had never communicated with any person after the evening of the 5th, (but had been in the room with the rest of the family, when Mr. Alexander was sitting there) was taken ill on the 6th, and died on the 13th; this lady was pregnant, and four months gone with child; the day preceding her death she miscarried, and a violent hæmorrhage coming on, hastened the melancholy scene."

Mr. Mathew Cooper, who favoured me with this account, and who had had no communication with any of the sick part of the family was himself attacked on the 8th; the fever left him on the 4th day, but his strength was so reduced that for a fortnight he was unable to walk across the room. His sister, Miss Cooper, who was *the first* attacked was free from fever on the 4th or 5th day, but was much longer in recovering than her brother.

Mrs. Mathew Cooper sickened on the 9th,

having attended her husband, the preceding day ; she continued ill three weeks, and had the black vomit on the 4th day, but owing to a powerful injection which was thrown up, a considerable quantity of dark coloured matter came away, and she happily recovered.

On the 11th Miss Frances Cooper, who had attended on Mr. George Cooper on the 6th, was taken ill, and was carried off in convulsions, on the evening of the 14th, her body very yellow and emaciated. She had also gone into Miss Cooper's room to give her broth, medicine, &c. but not until after the 6th when all precautionary measures were abandoned and the remaining part of the family met together.

Mr. George Cooper (after the 6th of October, when his wife was first attacked) attended occasionally the whole of the family who fell sick, and afterwards being appointed one of the conservators of the public health for the south district, and being obliged to report the number of deaths in the 24 hours, and to see the bodies removed, he went round the neighbourhood daily ; thus he continued to discharge the painful duty which had been imposed upon him, in the full persuasion that whilst endeavouring to relieve the distresses of his fellow creatures he should be enabled to forget or at least bear with fortitude his own domestic misfortunes, but not-

withstanding the confidence with which his long exemption from disease inspired him, although hourly exposed to the breath of pestilence, this worthy man was at length seized on the 21st of October in the same manner, and with the same symptoms as the rest of his family. On the 3d day he complained of suppression of urine, *a fatal symptom*, and he never passed water to the day of his death, which took place at one o'clock on the 26th; about two hours before he died, his brother, Mr. Mathew Cooper asked him if he felt any pain,— he said No; but his extremities becoming cold, the fatal event which had been expected was ushered in by the black vomit an hour before it took place.

The last person connected with Mr. Cooper's family who died, was Mrs. Witham, an old lady of seventy-six; she had enjoyed remarkably good health, and had lived for many years in a cottage by herself, upon the hill, under the gardens of the commissioner of the navy *, on the 4th of November she walked down to Rosia, and dined

* The situation of Witham's farm, is well known to those who have been at Gibraltar, from its having been the spot on which General Elliot erected a wooden building, during the famous siege, and from whence he could command an extensive view of the enemy's naval force in the bay, and of their motions in the lines and camp of St. Roque. This ground was granted to his Aid-de-camp, Captain Witham,

with the surviving members of Mr. Cooper's family; she was taken ill on the 7th, and died on the night of the 10th, completely yellow.

Thus, out of nine persons connected with the family at Rosia, five died, but the servants (who have not been mentioned) consisting of one man a gardener and two women were also taken ill, but they recovered,

Mr. Alexander already alluded to as having been perfectly well when he visited the Coopers in the south, on the 1st of October, returned to town the same evening; he was taken ill on the 7th, and died there in the house of Mr. Thomas Cooper, on the 11th.

A curious striking fact remains to be mentioned. Mr. Thomas Cooper, the (stationer in the town of Gibraltar, and brother to Mr. Cooper at Rosia) finding that the disorder was spreading in the town (about the middle of September) took the resolution of leaving his house and shop to the care of his clerk, the above mentioned Mr. Alexander, and on the 26th of the month, he retired with his wife, child, and servant to Douglass's brewery, on Europa point; they had previously laid in a stock of provisions, and they

and a cottage was built upon it, in which his widow died. It was allotted to me as my quarter, by Sir T. Trigge, and I went to live in it, three weeks after Mrs. Witham's death.

remained in that extensive building without communicating with any other persons than these belonging to Mr. Douglass's family, consisting of six, who also shut themselves up, and they all continued in health from the 26th of September until Christmas-day, when they met at the family house at Rosia.

Mr. Watkins, a respectable wine merchant, who also left the town, retired with his wife and family to Europa, and occupied another part of the brewery; these cut off all communication whatever, and had no intercourse even with the two other families within the building. The whole of the inhabitants of the brewery went out as soon as the fever had subsided, and *not one of them* had the slightest attack of the disorder.

This fatal malady had made such ravages in Gibraltar, and so few families escaped an attack, that any exemption from disease was generally known and recorded. The family of Colonel (now Major General) Fyers the chief engineer, was another extraordinary instance of the good effects of separation and removal from an infected house and neighbourhood to an airy and well ventilated part of the rock. There is a piece of ground at Lower Europa, which is called the Governor's meadow, and on which some wooden sheds were formerly erected for a lazaretto, but the plan of an establishment there had been

given up (unfortunately for the garrison) and no use was made of them. When the fever broke out in Gibraltar the chief engineer had represented to the lieutenant-governor that the meadow at Lower Europa would be a good spot to send the sick soldiers to, as possessing all the advantages of the sea breeze, and as being out of the reach of communication with other parts of the garrison ; this plan was not approved of, and as the ground was not appropriated to any particular purpose Colonel Fyers (when the disease spread to Engineer's lane and to his house) wrote to the lieutenant-governor, requesting his permission to allow him to occupy the meadow ; happily the colonel's request was complied with. The family immediately removed to Europa, there tents were pitched, and during the whole period of the sickness (which soon after their retreat raged with dreadful fury in the neighbourhood of their house in town) not one of them ever experienced the least complaint. The Honourable Captain Gardner, whose lady, a daughter of Colonel Fyers, was at this time far advanced in pregnancy, was slightly attacked. This officer was necessarily obliged to attend his duty as Captain of artillery, and had occasion to pass through the town to Willis's battery, and into the lines where several of the artillery-men had already died of the fever ; but it is a curious

fact, that although he had symptoms of the disease, they were not so strongly formed as to be capable of effecting reproduction of the disease in others, living in that open and airy situation, for of the whole family, consisting of his lady, the Honourable Mrs. Gardner, Colonel and Mrs. Fyers, the three Miss Fyers, and servants, all living under canvas, none were attacked with the prevailing complaint. The servant who went into town daily for provisions did not contract the disorder, he delivered the articles he brought through the palissades, and also slept in a tent outside of them.

During this period, Mrs. Gardner was safely delivered of a daughter, and I have great satisfaction in adding, that the whole of this highly respected and amiable family, by remaining at Europa, not only continued in perfect health, but escaped the fate which awaited all those who staid in town. *

* It appeared probable, that by sleeping under canvas at Europa point, the coolest and healthiest part of the south, and close to the sea, Captain Gardner escaped a severe attack of the disorder: he always rode to the batteries and stations where his duty obliged him to go, and it may be inferred, that he never remained sufficiently long in any place to take in a dose of the poison large enough to produce the disorder in himself. He was, however, slightly attacked, but never in such a way, that the fever was completely formed.

It will scarcely be expected, that I should be able to give any satisfactory account of the treatment which had been adopted for the cure of this disorder, after the dreadful mortality that had taken place, and especially as so many of the practitioners were amongst the victims to its fury.

From the surviving medical men, I could collect nothing consolatory, nor could any of them hold out a prospect of success from the use of any particular medicine, as efficacious in this disease.

I had collected several cases that came under my own observation ; but they are not inserted here, as it is rather my object to shew the necessity of great attention to the means for preventing the progress of the disease, than to establish any fixed rule for its treatment.

In the conclusion of this work, however, I shall have occasion briefly to advert to that mode of practice, which appears to have been sanctioned by later experience, as producing the best results.

The disorder continued to maintain its original character, notwithstanding the advance of the season. The weather was still warm, and there was no material change until the end of

the month of November, after which the symptoms began to change, and other complaints belonging to the declining season, and partaking of those peculiar to the winter, seemed toward the end of December to have entirely superseded the prevailing epidemic.

Affections of the chest, and a few instances of dysentery were observed amongst the soldiers, about the middle and end of December, when the weather was cold and wet. One well marked case of pneumonia in the beginning of January 1805, taught us the necessity of early recourse to the lancet, which had been latterly entirely laid aside during the epidemic.

Dunn, a private of the 13th regiment, batman to Lieutenant Colonel (now Major General) Sir John Kean, had been three or four days unwell with cough, &c. The Surgeon had bled him slightly on the morning of the 8th; in the course of the day, in passing through the ward of the regimental hospital, I first observed the patient, who appeared distressed, his eyes were red, and he could scarcely breathe, for at every inspiration, he felt as if suffocated, his pulse was *very small*. As there was evident mischief, I requested the Assistant Surgeon (Mr. Howship) to open a vein in the other arm, and whilst the blood continued to flow, I kept my finger on the pulse. The quantity taken

away was considerable, but it was not measured. When I felt the pulse, which had risen as the blood flowed, began to beat with regularity and softness, and when the patient taking a deep inspiration, exclaimed, "I am a new man, and can now breathe!" *we stopped*. In an hour afterwards he broke out into a gentle perspiration, and soon recovered.

PART IV.

OF THE PESTILENTIAL FEVER AT MALAGA,
IN 1803 AND 1804.

AN interval of more than twelve months elapsed before it was in my power to leave the garrison of Gibraltar.

On the 30th of January 1806, I arrived at Malaga, where I availed myself of every opportunity to collect all the facts relative to the disorder which had prevailed there, of which the following is a summary.

The city of Malaga is placed in the $36^{\circ} 44'$ of latitude, and is situated on the coast of the Mediterranean in the centre of a bay, formed by a chain of mountains that run from east to west, (except that part towards the north-west, which is a plain of low pasture ground of four leagues in extent) and is surrounded by high hills, some of which are so near that a portion of the town is built upon them.

From the northern part, the river Guadalmedina issues from between the mountains, and passes with a rapid course through the middle of

the city, leaving the district or Barrio de Perchel and Trinidad to its right, and the remainder of the town to its left.

In consequence of an inequality in the depth of the bed of the river, occasioned by frequent torrents from the mountains, a part of those districts and the whole of the lower town are frequently inundated. Even with the least torrent of the Guadalmina the streets are overflowed, which, upon the waters retiring, are left full of mud and clay.*

The heats of summer are not excessive, and the cold of winter is so moderate, that ice is very rarely to be seen there.

The wind which generally blows from the north during summer, occasions a slight degree of heat, and it is almost always tempered towards the middle of the day by the westerly breezes, which refresh and cool the atmosphere.

This north wind is called by the natives Terral or land-wind, and affects them much more than the Levanter; it passes over the burning soil of the inland country, and conveys with it the

* Dr. Mendoza, in his History of the Epidemics at Malaga, of 1803-4, says, "that since that period, measures have been taken to prevent the water entering the lower part of the town."

suffocating heat of which the inhabitants complain.

The east wind on the contrary is *moderately* warm and frequently prevails at Malaga, where it is more refreshing, owing to the humidity with which it is charged in its passage over an extensive surface of the Mediterranean Sea.

The city of Malaga had often been visited by the plague, and by contagious disorders, under various denominations. The word *Peste* has been used commonly by the Spanish authors to denote them, and frequently without any description of the symptoms.

In 1600 and the two following years a great mortality was occasioned by a *Peste*, which carried off half the population. In the year 1637, a similar calamity occurred with the loss of 40,000 persons in two months, — in 1648-49, and 50, another disorder broke out, which was also very fatal to the inhabitants; and in 1678 there was another pestilence; but I can no where find any account of the disease with the symptoms of the *Vomito Prieto*, or *Negro* until the year 1741, and from that period there was no return of it until 1800, when a few persons were attacked with the disorder in Malaga, and then only towards the close of the year, and long after it had prevailed in Cadiz, and in other parts of Andalusia. Upon all these several occasions, except-

ing the year 1800, says Dr. Mendoza, "The contagion was introduced by vessels arriving from South America."*

The disorder, the *Vomito Negro*, which as it has been said was first observed in Cadiz in the year 1730 and 31, appeared in Malaga for the first time in 1741; and it was said to have been introduced there by some persons who had disembarked from a vessel that had arrived from South America, and who had landed *infected* goods; the disorder carried off upwards of 10,000 persons.

The "*Conversaciones Malagueñas*" from which I have taken this account, refers to the works written upon this subject, entitled "*Crisis Epidemica que le padeció en Malaga, Ano. 1741.*" Por Don Nicolas Francisco Roxano."—"Análisis Medica de la Epidemia que se padeció en Malaga, Por Don Antonio Rubio," and "*Sinopsis e Medica sobre la Epidemia de Malaga, Por Don Francisco Reyes Sahagun.*"

This last physician who practised in the town of Fuente de Cantos, in Estremadura, never went out of the Province or saw the disease; but he has notwithstanding, given a long account of it from the description of others, (as has been too

* Hist de las Epedemias padecidas en Malaga, en los años de 1803 y 1804. Compuesto por el medico, Don Josef Mendoza, en Malaga, 1813.

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1. The Young Nicholas, a Dutch store-ship, sailed from Smyrna on the 14th of March 1803, and arrived at Malaga on the 22d of May, after a passage of 70 days, and having during that period touched at different ports.

2. The two French brigs Dessaix and Union, both chartered by the French Government to convey troops to St. Domingo. "The Dessaix of 209 tons sailed from Marseilles on the 26th of April 1803, with 171 men, chiefly deserters, prisoners, and convicts, almost the whole of them had been forced on board, and were taken from the forts St. John and St. Nicolas, (at Marseilles) in which the jail fever at that time prevailed, and fourteen of these unfortunate men were convalescents and had lately been discharged from the hospital. This vessel entered Malaga on the 17th of May, having lost during the voyage thirteen men; thirty-six on board whilst under strict quarantine in the bay, and three in the fort of Gibralfaro, which overlooks the town of Malaga.

3. The Union sailed from Marseilles on the 5th of May of the same year, with 150 men of a similar description, besides twelve sailors; they had been embarked from the fort of St. Nicholas at Marseilles, where it has been said the jail fever prevailed; and this vessel entered the harbour of Malaga on the 3d of June 1803. During the passage seven men died, and eight on board in

the bay.—Total deaths 67. This was the French account, but they lost many more, who, as they reported, had drowned themselves or deserted. On the 18th of August 1803, the remainder of the people were permitted to disembark, and they were conveyed at night to the Moorish Castle of Gibralfaro, and on the 7th of September 1803, the two brigs were admitted to pratique.

The 4th vessel was the Providence, belonging to Manescau and Co., at Malaga, she was bound from Monte Video, and laden with cocoa, hides, and tallow; she entered the bay of Malaga on the 9th of June 1803, and was admitted to pratique a few days after her arrival. *

“ It was generally asserted and believed by Arejula, that the first man who died of the epidemic in Malaga was a person well known there of the name of Felix Muñoz, a noted smuggler. On or about the 14th of July, he

* There were three other vessels (not mentioned by Arejula) that entered the port of Malaga on the 9th of June from the Havannah and Monte Video, viz.

1st. St. Nicolas, with sugar from the Havannah in 57 days, consigned to the house of Grivigne and Co.

2d. La Amistad, with 23,000 hides, from Monte Video, in 121 days.

3d. Brig Eagle, with sugar from the Havannah, in 67 days.

Taken from the Register of Arrivals, in the bay of Malaga, 1803.

was known to have gone on board the *Joven Nicolas*, from whence he brought away samples of cotton and tobacco, and he himself confessed to the physician Don Manuel Maria Hazanas who attended him, that from the moment he left the ship he felt ill.

In fact this man on his return home took to his bed and died on the 5th or 6th day of his illness.

This circumstance produced at the time great consternation in Malaga; immediately after his death his wife and all his family fled into the country; and even to this day, says Arejula (19th March, 1804) the house remains untenanted. Hence, he concludes that as no one entered the house, the disorder of which he died did not spread, and the alarm subsiding, no further notice was taken.

From this period there was an interval of 35 or 36 days until the sickness broke out in another family, which is regarded as the source of the epidemic.

The following are the facts stated by Arejula on the subject; "the disorder which broke out in Malaga, in 1803, was believed positively to have commenced in the house of an inhabitant in the district of Perchel, on the west side of the Guadalmedina, of the name of Christopher Verduras. He was a caulker by trade, but a noted smuggler, and a person who was

likely from his character to do any thing for gain. It was generally believed in Malaga that Verduras, about the latter end of August, had brought from on board of one of the vessels in the bay *, and secretly conveyed to his house a person who was labouring under a disease of which he soon after died; it was afterwards discovered that the body was buried privately in the neighbouring church of St. Peter, in the middle of the night.

“ On the 26th of August, Michael Verduras, the son of Christopher was taken ill in the same house, and from the report of the physicians who attended him, there is no doubt of his having died of a contagious disorder. In two or three days after Michael had fallen sick, two other men, friends of his, and caulkers by trade, who worked with him, were also attacked with the fever, — one of them died, the other, Lucas Perez, recovered.

“ Shortly after the death of Michael Verduras, which took place on the 3d of September, 1803, his mother and two sisters sickened with the same symptoms, according to the report of the physician, Don Francisco del Pino. Christopher Verduras the father died on the 15th of Sep-

* Some affirmed it to be the Dutch vessel, others an American ship.

tember, and his daughter and another son, Antonio were also attacked and died on the 19th.

“Whilst the fever was thus running through Verduras’ family, the above-mentioned physician was called to visit a young man, a sailor of 19 or 20 years of age, who lived in a house immediately opposite to that of Verduras, and was the friend and companion of Michael; his symptoms were similar; about the same time Pascual, a baker, who lived in a house adjoining to Verduras, was attacked with the disorder, and the similarity of symptoms was so remarkable, that Dr. Del Pino called a consultation, in which it was determined that a report should immediately be made to the governor of Malaga, of a very alarming disease having made its appearance, and the two physicians accordingly declared that they had seen several sick persons labouring under some alarming symptoms, such as were unusual in that place. The governor received this report, and transmitted it to the Board of Health, but no notice was taken of the matter.”

The disorder however continued to spread gradually, not only in the narrow lanes and streets of the district de Perchel, where Verduras had lived, but it afterwards extended to others of the suburbs, and to the adjoining dis-

trict of the Trinidad, Capuchins, and Alto, which is at some distance from the Perchel, owing it was said to the inhabitants of these last, principally labourers and workmen who joined early in the morning to hear mass in the church with those of the Perchel district, which was the first open when that ceremony was performed daily.*

“It has been said,” observes Dr. Arejula, “that the person who was secretly conveyed to Verduras’ house, died there, and was buried in the church of St. Peters; this interment took place with the connivance of the curate Don Pedro Parra, who was himself taken ill a few days after Michael Verduras was attacked, and this clergyman died, together with the physician (Dr. Buzon) who attended him, and they were both suspected of having been parties concerned in some smuggling transactions that were going forward in Verduras’ house: in like manner every person belonging to, or connected with the curate’s house, was taken ill and died; even the sacristan or vestryman and his wife, as well as the *Mona-guillo* or *boy* who attends the priest at the altar.

* It must be observed, that in Catholic countries, and especially in Spain, the lower orders chiefly are very attentive to their religious duties, by going early to church, to hear mass, previous to their entering upon the employment of the day; from this source, and in this manner, it was supposed the disorder was propagated from the district of Perchel to other parts of the town.

“ The facts were well known at the time, and it was” says Arejula, “ affirmed by all the inhabitants of the district De Perchel, that those persons who had entered the Church of St. Peters to hear mass on St. Michael’s day, were all taken ill, and a great part of the congregation died.

“ On this account the people conceived so great a horror of this edifice, that it became necessary to shut it up, and it continued closed until the termination of the epidemic, on the 18th December 1805, when Dr. Arejula, accompanied by several physicians of Malaga, entered the church for the purpose of fumigating it with the oxygenated muriatic acid, &c.”

I had not seen nor heard of Dr. Arejula’s book, nor was I personally known to the professor till after my first visit to Cadiz, to which place I proceeded by sea from Malaga, in March 1806.

On reading his account of the fever as it appeared at Malaga, and collating all the facts which he had detailed so clearly, I was pleased to find that we had both followed the same track in our enquiries, and that our information was drawn from nearly the same source.

Being anxious, while at Malaga, to trace the progress of the disorder, I visited repeatedly several of the first houses that were attacked, accompanied by the Alcalde of the Barrio, Don Diego Al-

varez, Don Gulliermo Strachan a merchant of the house of Maury and Co., and by M. Delestra, Officier de Santé of the French hospitals.

From the result of our enquiries among all the surviving inhabitants of the different families, it appeared that the disorder spread from Verduras' house, in the following order :

1. Verduras.
2. Pedro de Torre.
3. Gabriel Vasquez.
4. Blaize Martin. *
5. Franciso Ferrari. †

* Martin stated in his declaration, that his house was the third attacked with the disorder, and that eleven persons in his family were ill, of whom five died ; that the first who was attacked with the fever in the family, had visited *Verduras'* house, which was immediately opposite ; and he added, that his near neighbour, an acquaintance, who was concerned in smuggling, was about this time attacked with the disease, and all his family, and that they all perished.

With respect to his own house, Martin gave us the following particulars : —

On the 25th September, 1803, his wife, Maria Angela Ferrari (sister to Francis Ferrari the cooper) died at one P. M., on the sixth day of her illness.

On the 28th September { his daughter Josepha died on the
at night - - { sixth day of her illness.

On the 5th October { another daughter Rosalie died on
at nine at night - { the 5th day of her illness.

And 14th October at { his son Antonio died on the 5th or
six in the morning { 6th day of the disorder.

† Ferrari gave us the following statement of the progress of the disorder, and of the deaths in his family, viz.

There was here a distance of 40 paces from one house to the other, sufficient to have obviated the propagation of the disease, but there was either relationship or personal intercourse between the families of each, as appeared from the declarations of N^o 4 and 5.

The inhabitants of the other houses in this neighbourhood were progressively infected in the beginning, but I had no other opportunity of prosecuting my enquiry, nor would it have been necessary.

In treating on this subject, Dr. Bancroft, p. 471, of his essay, has the following passage: "Arejula, who admits (page 153) that this was the true yellow fever of America, pretends that the contagion of it was introduced at Malaga, by two brigs which entered that port, not from America, but from Marseilles, on their

On the 9th of October, 1803, the first death which took place, was his son Antonio Ferrari.

On the 12th, his daughter Josepha;

On the 14th, his son Jean, and his nephew Antonio, cooper's apprentice;

On the 16th, his wife Antoneta;

And on the 21st, his son Francisco;— all died on the third or fifth day.

Maria Antoneta Frasquita, his daughter, and Josef a son, with the father, Francisco Ferrari, were all ill but recovered.

way to St. Domingo; so that the deaths of 120,000 persons by this disease, during that year, in Spain only, are thus derived from a French port, where quarantine regulations are executed with the greatest exactness, and where no such disease existed. But after having so *often proved* that this fever is void of contagion, and incapable of importation, I shall not be expected seriously to examine this charge against Marseilles, nor the allegations respecting other places said to have been infected by communicating with Malaga; all of these, so far as I have been able to ascertain their local circumstances, having had within themselves such sources of marsh miasmata, as in such an extraordinary season might, with the experience of former years, have been expected to prove highly morbidic. Instead therefore of exhausting the patience of my readers, by describing sources of marsh miasmata in Spanish towns, where their existence has been proved by the frequent recurrence of marsh fevers, I will proceed directly to a place where these sources are less obvious, I mean Gibraltar."

It is very much to be regretted, that Dr. Bancroft had not read Arejula's work with more attention, or at least that he had not given a literal quotation from it, by which his readers

might have formed for themselves a more favourable opinion of the Spanish author's merits, and the real meaning of the passage to which he has alluded.

M. Delestra, the French practitioner, in Malaga, whom I have mentioned as having accompanied me in my daily visits to the Barrio de Perchel, was indefatigable in his endeavour to assist me in my enquiries amongst the surviving inhabitants, belonging to the first houses that were attacked with the disorder in 1803.

He had been sent from Marseilles in charge of the troop ships, the Dessaix and Union, and he was so obliging as to give me a detailed account of the disorder, and of all the occurrences on board those vessels previous to their arrival in the bay of Malaga, and of many other interesting events during the prevalence of the pestilential fever in that city, in 1803, and 1804.

As the narrative was written at my request, I shall insert that part of it which relates to the two vessels mentioned by Arejula, as quoted by Dr. Bancroft :

“ M. Delestra arriva à Malaga le 18 Mai 1803, il etoit chargé de traiter les malades du Dessaix et de L'Union attaqués de fièvres connues sous le nom de fiebres des hopitaux, prisons,

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dernier bâtiment commandé par Le Cap^{ne} Ary Snoor se nommoit Le *Jeune Nicolas*, il venoit de Smyrne en 70 jours chargé de coton et autres marchandises de Smyrne destiné pour Amsterdam. Ils furent tous condamnés à une quarantaine rigoureuse, gardés jour et nuit par une felouque armée et commandée par Don Antonio Gallicedo et ne communiquèrent avec la Ville que le 7 ou le 8 Septembre suivant.

“ Les vivres frais, les medicamens, l'eau, le vin et en general tout ce qui leur etoit necessaire etoit déposé dans un canot ancré à égale distance des batimens quarantainaires et du môle. Le docteur Français, à son arrivée à Malaga fit son rapport sur la maladie qui regnait à bord, donna l'état de situation des marins et des troupes embarquées, demanda des medicamens et vivres frais, et n'attendoit qu'un vent favorable pour mettre à la voile, quand on annonça la rupture de la France avec l'Angleterre. Ne pouvant plus partir pour leur destination, les transports Français virent qu'ils ne pouvoient sans être exposés aux plus grands dangers garder leur malades à bord, où ils etoient encombrés et communiquaient l'infection aux hommes bien portants. On fit ancrer à double une vieille barque à égale distance des deux transports, où l'on forma un hôpital, où il y avoit 107 malades et convalescens. Depuis que l'on ent formé

cet etablissement les malades diminuèrent sensiblement; le 10 Août il n'y avoit que des convalescens, ce fut le 8 que mourût la dernière victime de l'epidemie des vaisseaux. Le Desaix n'eût que sept hommes tant de l'equipage que des troupes qui furent epargnés par la maladie. Tous les autres en furent attaqués et la plûpart rechûterent deux ou trois fois. Il en mourut 43.

“ L 18 Août à l'entrée de la nuit on débarqua les troupes des deux transports et on les conduisit aux flambeaux au fort de Gibralfaro où elles furent casernées et gardées en quarantaine d'observation sans communication jusques au 30 Août.”

These are the facts stated with respect to the vessels in question and the contagious nature of the disorder which appeared on board of them. From the inadequate precautions that were taken by the Spaniards to cleanse and purify their ships, it is not unreasonable to conclude, that infection may have been communicated from them to the town through the medium of boatmen, smugglers, and others.

Although Dr. Bancroft affirms in p. 472, and in other parts of his work, that “ he has *often found* that *this fever* is void of contagion, and incapable of importation.” I think it right to state

what the latest Spanish writers have said upon the subject.

In 1813, Dr. Josef Mendoza, one of the principal physicians in Malaga, published a History of the Epidemics of 1803 and 4, amongst other observations, he tells us in p. 164, that if precautions had been taken in the towns of Montilla, Espejo, and Cordova, they would not certainly have suffered as they did. The prejudices and party spirit that prevailed at that time amongst the juntas, and the want of zeal and activity of the magistrates in attending to the public health, frustrated the efforts of the faculty who strongly urged the necessity of precautionary measures.

The town of *Aguilar*, situated within a league and an half to the southward of Montilla, which was at the time infected with the disorder, was separated from the latter place by a river. As soon as it was known that there were sick inhabitants in several neighbouring towns, the magistrates of Aguilar immediately cut off all communication with them, and the most active measures of precaution were taken, and they succeeded.

In *Rambla*, the same precautions were adopted, but at a much later period, and although it was not possible to put a stop to the disorder in the beginning, its progress was in some measure checked, for it did not extend beyond a few

families, and the remainder of the inhabitants continued well.

In *Espejo* the same thing happened as at *Cordoba*, and *Montilla*.

We are told by Dr. Bancroft that "in 1804, *as well as in the preceding year, this Epidemic appeared first, and prevailed most generally and destructively, in a low suburb, called the Barrio de Perchel, and in other contiguous low parts of the town, &c.*"

I have already given a detailed account of the supposed origin of the fever in 1803, in the *Barrio de Perchel*, and it has been stated that in 1804, it *first* appeared very early in *an opposite part of the town*, called the *Pozos dulces*, for it remained dormant during the winter months, never having been extinguished. This is confirmed in Dr. Mendoza's work on the subject, to which I have had occasion to refer, that the *Barrio de Perchel*, in which low suburb the disorder broke out the preceding year, *was not attacked until the beginning of September, 1804*, although it had been prevailing for near two months in other parts of the town of Malaga.

"Another proof," adds Dr. Bancroft, speaking of Spain (p. 460) "of the non-contagious nature of this Epidemic is derived from the fact (admitted by Professor Berthe and all the contagionists) of its not having spread in the towns or villages

which are at a small distance from the *low grounds* of the Guadalquivir, particularly the elevated village of Alcala de los Panaderos, which is distant only three or four miles from Seville, and takes its name from the occupation of its inhabitants, who are bakers, and make all the bread consumed in Seville." There was consequently, says Mr. Berthe, a daily communication between Alcala and Seville, and "according to the report of the physician at Alcala, twenty-four persons had had the disease in that village, *who all brought it thither* (l'ont apportée du dehors); that eighteen of these died; and *yet*, that in no instance had the fever been communicated there, from one individual to another:" —in a note to this observation, Mr. Berthe endeavours to account for the non-communication of the disease at Alcala, by supposing that the fires in the bakers' ovens had produced a greater ventilation in that village, though in another place he acknowledges that the fires made in Cadiz, to produce a similar effect were not of the least benefit. "When Sir James Fellowes returned to England in 1806" (adds Dr. Bancroft in a note) "I mentioned to him what professor Berthe had stated respecting *Alcala*, and he confirmed the statement as a fact, of which he had been informed, on good authority, in Spain, adding, that the like had happened in 1804, at two villages near Malaga, prin-

cipally inhabited by bakers, who supplied that city with bread; the persons who brought and delivered the bread sometimes remained there the following night, and in that case, were afterwards very commonly attacked with the yellow fever at their own houses; *but the fever was never propagated by them to any person.* He made a visit to one of these villages Turriano (*Churriana*) situated upon the declivity of a hill westward of the Guadal-Medina about five miles from Malaga, a situation which, being like Alcala, removed from all probable sources of marsh effluvia, may account for the non-appearance of contagion in those who sickened there, *much better than a supposition mentioned by Sir James*, of its having resulted from the burning in the bakers' ovens, of certain aromatic herbs, collected in the mountains. Had they burnt all the spices of the Molucca islands, I am persuaded they would have proved as useless for any such purpose, as the fires made in the streets of Cadiz were found to be in 1800."

The facts above referred to by Dr. Bancroft are true, but his manner of stating them and the conclusions he draws are by no means correct. On my return to England in 1806, I mentioned to Dr. Bancroft several curious circumstances, tending to shew that the disorder which had prevailed at Cadiz, Malaga, and Gibraltar in

1804 was contagious ; but he had either forgotten them, or perhaps they might have appeared to him to prove too much against the position which he has laid down and endeavoured to maintain, that the disorder in question proceeded from *marsh miasmata only*, and was in no instance infectious. He has rather preferred mentioning my visit to Churriana, and my *supposition* about the burning of aromatic herbs. Since that communication was made I had occasion, on my return to Spain, to go to Seville, and to re-visit Alcala*. I like-

* Soon after the French army, under Marshal Soult, had raised the siege of Cadiz, the British troops marched out and proceeded to Seville, to join the remainder of the Allied force that had previously possessed itself of that city.

In my way to Seville, I visited Alcala de los Panaderos. The town stands upon an eminence, and is remarkable for the salubrity of its situation, and for the remains of an extensive Moorish wall and castle, which give it a singularly romantic appearance.

This place is more familiar to me, perhaps, than most others, from a circumstance that occurred there, and which, at the time, left a melancholy impression upon my mind : whilst examining its position, I was informed, that my early friend and school-fellow Lieutenant-colonel John Colquitt of the guards, who died at Seville, had been conveyed to Alcala and buried there but a few days previous to my arrival ; on visiting the spot, I found the grave, marked only by a stone pillar with a cross upon it, on the heights at a short distance from the town, fronting the Carmona road ; but a monument was afterwards erected there, with the following inscription, written in English and Spanish ; the last tribute of regard which could be shewn to the memory of my friend :

wise made another tour to Malaga, and passed some days at Churriana, where I had frequent opportunities of conversing with persons who resided there, and who could reason upon what they had observed. M. Delestra, the French practitioner, of whom I have already spoken, informed me, that he was appointed by the Alcalde of that village, the foreign consuls and merchants, who had fled thither during the sickness in Malaga, to superintend the lazaretto that they had formed at Churriana. Twenty persons had already died there, principally those who went daily into Malaga, and had come from thence with the disease upon them; the same observation was made in the neighbouring villages of Torre-Molino, Alhaurin, Alaurinego, and Coin, that the emigrants from Malaga, the bakers, and messengers, or carriers were those affected, and most of them with the symptoms of the yellow fever. But he remarked that not one of them communicated the disease to any individuals of the house.

Sacred to the Memory
of

John Scrope Colquitt, Esq., Lieutenant-Colonel in His Britannic Majesty's foot-guards, who died at Seville on the 5th of September, 1812, Æt. 37, of a fever, brought on in consequence of excessive fatigue, during the expedition to Seville, and of the great exertions which he made, whilst gallantly leading on his battalion to the attack of the Bridge of Triana, on the 27th of August, 1812.

M. Delestra attended eleven of the sick, of whom two only died, one of them on the 2d day of his illness. The man had slept three nights at Malaga in a house in which three of the inhabitants had died, and five were sick. He returned to his village dressed in the clothes which belonged to one of the dead, and the rest of the old things he brought away with him.

Although labouring under all the symptoms of an ardent fever, with a violent affection of the head, with trembling limbs, and apparently suffering from pain, he denied that any thing ailed him; but he was instantly taken to the lazaretto, where he died the day following, having vomited a dark fluid previous to his death.

The second person whom M. Delestra mentioned to have seen on the 6th day of his illness, died in the course of the night, whilst throwing up the black fluid from the stomach.

The nine others recovered between the 3d and 7th day; these underwent the cold effusion, immersions, and fomentations with cold vinegar and water, which M. Delestra assured me produced the best effect in a great variety of cases which had fallen under his notice in Malaga.

Churriana, Torre Molino, and Alhaurin, are built upon an eminence; on each side the water flows in abundance from innumerable springs and with such force that it sets in motion

a number of mills, previous to its descent into the plains below, which are kept constantly moist. Each village contains from 100 to 130 houses, and about 20 ovens, which at different hours during the day are heated with aromatic plants, such as thyme, rosemary, lavender, myrtle, &c. &c. the atmosphere becomes thence impregnated, and the whole vicinity appears enveloped as it were in a cloud, which sometimes is suspended over these villages, excepting when the east wind blows, their position being to the westward with a range of high mountains behind them.

The general opinion of the inhabitants, as I mentioned to Dr. Bancroft, was, that the air of these villages, so remarkably healthy, *derived much of its salubrity from the constant burning of these aromatic herbs and plants*, and I simply stated the fact, without however maintaining or supposing that it was owing to this cause that the disorder was not propagated to any of the inhabitants of these villages.

Although there can be no doubt as to the impropriety of making bonfires, &c. in times of sickness, it must be admitted there is a great difference between the burning of straw, casks, or logs of wood in the narrow, confined streets of a sickly town, during the hot weather, and the burning of aromatic shrubs in the ovens of an open country village. Dr. Arejula says nothing in his work

about the burning of aromatic plants, but he makes the following observations about Churriana, which, as Dr. Bancroft has not quoted, I shall give in the original together with my translation of the passage.

“ He visto todo lo contrario que en estos sitios en los pueblos pequeños de campo bien ventilados, cuyas casas estan algo separadas entre sí, y en los que las gentes procuran reservarse mucho ; sirvan de exemplo Churriana y Alaurinego, dos pequeños pueblecitos, en los que la mayor parte son panaderos, que surten de pan á Málaga ; el primero dista de esta plaza como cinco quartos de legua, y de Alaurinego habrá como legua y media á Málaga. En el primero muriéron como unos veinte sugetos, casi todos panaderos, y alguna otra persona que como aquellos venia á Málaga ; *pero se tuvo gran cuidado en sacar á cuevas ó chozas à los que se hallaban atacados de la calentura amarilla : se curaban por relacion, y se les dexaba cerca el alimento y medecinas, diciéndoles lo que debian hacer ; otros permaneciéron en sus casas ; pero tenian sus gentes la precaucion de colocarlos en los quartos mas ventilados, dexando sus puertas y ventanas constantemente abiertas ; y solo se acerbaba una persona á dexarle el caldo y medecinas, como se practicaba con los del campo.*

“ En Alaurinego sucedió poco mas ó ménos lo mismo ; y aunque hubo mas enfermos, no tran-

scendió la enfermedad á los del pueblo. En Churriana solo se comunicó la fiebre amarilla á la muger de un panadero de los que la llevaron de Málaga.

“ No se crea por esto que los pueblos pequeños se hallan exêntos del contagio quando no se precaven, como sucedió en el Palo y el Borge, en los que todos pasáron la epidemia, y hubo el destrozo que suele ocasionar la presencia de la fiebre amarilla. *La precaucion en separar los enfermos de los sanos, y en evitar el roce entre unos y otros, es la sola que decide en tales casos sobre su propagacion ó no.*

“ Estas observaciones aclaran tambien por qué perecen proporcionalmente mas en los hospitales que en las casas, aun quando esten unos y otros igualmente asistidos, y si fuera posible se convencieran las gentes de que debian separar de sí tales pacientes para curarse desde su primer acometimiento; se salvarian muchos mas de estos, y la calentura no se haria epidemica.”*

“ Churriana and Alaurinego, are two small villages, in which the greatest part of the inhabitants are bakers, who supply Malaga with bread, the first of these is distant about a league and a quarter, and Alaurinego nearly a league and a half from Malaga. In Churriana twenty persons

* Breve descripcion, Arejula, P. 215.

or thereabouts died, almost all of them bakers, and another individual, who like the rest came from Malaga; *but great care was taken* to remove those that were attacked by the yellow fever to caves or huts, where diet and medicines were brought to them, with directions what they were to do. *There were others who were infected and remained in their houses*, but the assistants took the precaution to place the sick in the best ventilated apartments, *leaving their doors and windows constantly open*, and only one person was permitted to approach the bed with broth and medicines, as was done in the huts.

“ In Alaurinego nearly the same precautions were taken, and although in this village there were more sick, the disorder did not spread to the rest of the inhabitants. In Churriana, the yellow fever was only communicated to one woman, the wife of a baker, one of those who had brought the disorder upon him from Malaga. It is not, adds Arejula, to be imagined on this account that the small villages were exempted from the contagion when they took no precautions, as it happened in those of El Palo and El Borge, in which all the inhabitants were attacked with the epidemic, and it occasioned great destruction amongst them.*

* The village of Palo is composed of cottages, which join each other, more or less, and is distant about three quarters of

"*The separating of the sick from those in health, and avoiding all communication between one and another is the only measure which, in such cases can be depended upon to prevent the propagation of the malady.* These observations explain why a proportionably greater number perish in hospitals than in houses, even allowing the sick to be equally well attended in both ; and if it were possible to convince people that the patients should be separated, in their first attack, in order to cure them, many more would be saved, and the disorder would not become epidemic."

I am satisfied that much of the mortality in Spain has arisen from the total want of attention to this judicious remark of Arejula. There can be no doubt that this fever would by proper management become less formidable ; and that there is scarcely a disease known, however infectious, which may not become milder, or lose its infecting power by early attention to *separation, cleanliness, and ventilation.*

As an additional proof of the importance of avoiding exposure to infectious poison or miasmata, whether arising from the bodies of deceased persons or from their clothes, it may be stated,

a league from Malaga, and is much smaller than Churriana ; from Malaga to Borge is six leagues ; and the village is less than Alaurinego, and larger than Churriana.

that the exemption from disease amongst the convicts during the prevalence of the fever in Cadiz in 1804, *was so remarkable*, that when I first arrived there in the month of March 1806, it was communicated to me as one of the most curious facts that had occurred.

I had an opportunity of examining very particularly the situation of the Presidio or house of correction, which is built upon the rampart, at the south-western extremity of the town. The height of the wall from the level of the sea is thirteen varas of Castille, and it is distant about twenty-seven from any of the houses on the opposite side of the road.

In this building there were about 435 individuals that had been brought from different parts of the country, convicted of smuggling and various crimes; the whole of them were employed daily upon the public works under the direction of Don Francisco Xavier Abadia, the town major of Cadiz. This intelligent officer, (now major general in the Spanish service) received me very hospitably into his house, during my stay in Cadiz, and gave me every information upon the subject of the fever, &c.

He had undertaken to improve the suburbs of the town, and by means of these convicts he had actually converted an extensive waste of sandy soil into productive and luxuriant gardens; be-

yond the land Port-gate, the road leading to the Isla de Leon was rendered a most agreeable walk, and contributed to the health of the inhabitants*. During the whole time that the fever prevailed in Cadiz (in 1804) the convicts continued in perfect health although they were marched twice a day round the back part of the town, and through the Land-gate†. General Abadia assured me that they all escaped the disorder, which seemed to attack all other persons, and he believed, that their exemption was in consequence of the regulations which he had enforced amongst them.

The greatest attention was paid to their personal cleanliness, to their regular and daily exercises, and to the purification and ventilation of their quarters, so that even the mats upon which they lay at night, and their blankets were exposed to the sun and shaken out every morning.

But above all, the severest penalties and corporal punishments were ordered to be inflicted upon any of them who, under pretence of lighting his pipe, or asking for a glass of water, or any other motive, should stop to speak to, or communicate with any person whatever upon the road.

* These were subsequently destroyed, to make room for the batteries and other defences against the enemy.

† See a description in P. 8. In this part of the district of Santa Maria the disorder prevailed most in 1800 and 1804.

I never saw a healthier or more robust body of men than these convicts; they were constantly worked hard, and their food consisted only of vegetable soup and bread, with water for their beverage.

When the revolution afterwards broke out almost the whole of these men being formed into a corps, fought with desperate bravery against the French who invaded their country, and they were most of them destroyed.

In the Appendix to Don Josef Mendoza's History of the Epidemic of 1803 and 4 at Malaga there is an account of the measures of precaution which were adopted by the Board of Health of that city, in 1813, in consequence of the plague at Malta, and of the report which was received about the beginning of September, of the existence of the contagious disorder in Gibraltar and Cadiz.

These measures consisted in the most rigorous attention being paid to the admission of persons and effects from those places, and it is a fact proved by Dr. Mendoza and known to us all, as I have shewn in my Report of that year 1813, that whilst Cadiz and Gibraltar were visited by this pestilential disorder, *Malaga continued perfectly healthy.*

The following is that author's return of the prevailing diseases and of the mortality in Malaga for the several years therein mentioned.

In the years 1810 and 11 in consequence of the French troops being in possession of the city of Malaga, the emigrations of the inhabitants were very considerable, and the population was supposed to have diminished one-third, for there were no admissions into the town by sea or land.

On this account the number of deaths during that period, was but small, as appears by the bills of mortality, and in the year 1812, when the enemy left the place in the month of September, the population increased again remarkably fast; this circumstance, added to the misery and privations of the poor people, accounts for the excess in the number of deaths that year; but when these causes had ceased to operate, as in the subsequent year of 1813, the deaths were proportionably few, although the population then amounted to 50,000 souls.

The statements here given shew the ratio of the mortality at Malaga during the three most unhealthy months for four years.

Years.	Sept.	Oct.	Nov.	Total Deaths in the 3 Months.
In 1810	Died 39	45	55	139
1811	63	70	76	209
1812	200	130	149	479
1813	83	87	96	266

Table of the deaths at Malaga during the year 1813, from the 1st of January to the end of November inclusive.

Months.	Men.	Women.	Children.	Total.
January	59	50	57	166
February	34	36	71	141
March	27	32	84	143
April	29	49	64	142
May	29	25	71	125
June	25	33	63	121
July	28	23	30	81
August	27	30	44	101
September	19	24	40	83
October	30	29	28	87
November	39	22	35	96
	346	353	587	1286

From the following account of the diseases to which the deaths are attributed in the bills of mortality for the months of September, October, and November of the last year, 1813, some idea may be formed of the prevailing complaints in Malaga;

In September,

4 persons died of Diarrhæa.

5 . . . of Dropsy.

5 . . . of Pectoral Affections.

2 . . . of Phthisis.

3 . . . of Fever.

2 . . . } of Spotted Fever, or Tabardillo.

3 . . . } of Malignant or putrid Fever.

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Which with 4 violent deaths and other accidents, and the addition of 35 young children, make up the number of 96 deaths in Malaga during the month of November 1813.*

* Whilst the pestilential fever prevailed at Cadiz in 1810 and 1813, there was no appearance of it in Malaga. The French troops were then in possession of the place; and there was very little communication with it by sea or land.

The foregoing statement of the prevailing diseases in Malaga, will convey more satisfactory data to the reader than any conjectures which I can offer. Considering the situation of Malaga, and the predisposition of the natives to disease from their habits of life, it might have been expected that the disorder would have shewn itself there in 1810 and 1813. I am totally at a loss how to account for this exemption unless by reference to the precautionary measures adopted.

PART V.

OBSERVATIONS ON THE EPIDEMIC OF 1804, AND
ON THE MODE OF TREATMENT ADOPTED BY
THE SPANISH PHYSICIANS.

ALL the varieties or modifications of the disorder (a description of which was given in the First Report) were considered by Dr. Gonzales, and the other authors who have written upon it, to be equally contagious, in like manner as the discreet small pox, is not less so than the confluent; but there was reason to believe that it was more contagious in *the latter stage*, than in all the other periods.

In 1804, as in the year 1800, the progress of the disorder was slow and obscure.

It attacked persons commonly at night, sometimes in the evening, and very frequently at day-break; the state of the weather and the temperature of the atmosphere, had a sensible influence; for, upon a hot and dry day, or during the Levant winds, a greater number of individuals were taken ill, and those already under

fever became worse; the disease broke out during the hot season; it was propagated by heat, and subsided in cold and moist weather, as in 1800.

In 1804, the disorder was not so violent in females, old people and children, the number of these who died were in a much smaller proportion than the men, particularly the young, but the strong and vigorous of both sexes were attacked with greater force.

The habitual drunkards and persons enervated by debauchery *, as well as those who had committed any excesses during this epidemic, were not long exempt from an attack, and very few escaped with their lives.

It appeared, that the precautions taken by individuals were ineffectual, for those who confined themselves to a regular diet and regimen, as well as those who had frequent recourse to injections and purgatives, to cordials or to other supposed remedies, did not escape, and the greatest part of them suffered extremely.

The disorder was generally fatal to newcomers, and although it did not favour the

* It was observed, that those who laboured under paralytic complaints were not so liable to be affected by this disorder, nor were those whose wounds or sores were kept open, and from which there was a free discharge. I know not how far epileptic patients were exempted.

native Spaniards, it was most destructive to foreigners; the same observation was made in 1800.

In the epidemic of 1804, the yellow colour of the skin was not so common as in that of 1800, but the black vomit, bleeding from the nose, and other fatal symptoms were more frequent in proportion to the number of sick.

No instance occurred of any person who had passed through the disorder in 1800, having been attacked in 1804. The same remark was made of those who had been ill with it in South America, as well as of the natives of that country who had resided there many years, without ever having had the fever or any disease like it.*

The Americans from the United States were less fortunate, for a great many of them were severely attacked, and several died, some of whom are said to have had a fever in their own country.

All the depressing passions, such as fear, want of confidence, &c. occasioned much mischief; instances are related, in which the disclosure to the patients of their situation and danger, brought on an immediate aggravation of all the symptoms, and ultimately their death.

* That this was not the case in 1813, will be shewn in the report of that year.

The visit of the host, attended with all the ceremony and pomp of the Catholic Church, has been the death-warrant of great numbers, and nothing can be conceived more alarming to a sick person, than to see so many solemn faces and strange people in his apartment, with a profusion of torches, &c. whilst the sound of the little bell which announces the arrival of the procession, must tend rather to depress than to animate the patient.

Some physicians in Spain have had the courage to censure this practice in their writings, and there is not one in this or any other country, who will not agree that it would be better to omit it altogether during a period of sickness, for the danger is as great to the confessor and the attendants as to the patient.

It was most commonly observed during the epidemic of 1804, that those who apparently enjoyed the best state of health, were attacked suddenly with a sensation of cold more or less intense, with a violent pain of the forehead, of the shoulders, loins, and extremities.

These pains alone were sometimes the forerunners of the fever, and they accompanied it in its several forms and varieties, and throughout all its periods.

The sensation of pain across the eyes was so frequent, that it was unusual for the patient not to complain of this affection, especially on looking upwards, and in some persons the sensibility was such as to render the impression of light intolerable.

The pain of the eyes and across the loins was so constant, that it was almost considered a pathognomonic or leading feature of the disorder.

In general the countenances of the sick were pale, and they remained so until the termination of the complaint; but in several of them, the face was flushed and of a blackish hue in the height of the fever, and in others, it appeared almost always in its natural state.

The eyes were sometimes remarkably brilliant, but the vessels of the conjunctiva were full and tinged. At other times there was a *muddy cast* which gave the appearance of the *dull watery eye*.

The tongue was *most commonly moist*, foul, or white, — *thirst* generally moderate, or scarcely ever complained of.

The pulse was often full and quick, but seldom hard.

The heat of the skin was frequently almost natural, but most generally it conveyed a peculiar *acrid*, disagreeable, and *burning sensation* to the finger.

The body was costive and difficult to be moved, although the belly felt soft and without pain; the patient however, invariably complained of uneasiness and weight about the pit of the stomach.

This fever in its mildest form remitted sometimes at the end of twenty-four or forty-eight hours, with relief of the symptoms, and this remission generally appeared after an universal sweat, accompanied with loose bilious stools. The second accession then came on and ran its course in the same space of time, with a diminution of the symptoms, accompanied by similar critical discharges, and towards the third or fourth day the fever entirely disappeared, when the patient became convalescent.

This was the usual mode of attack and course of the slight cases of the disorder in its first period or variety. It did not, properly speaking, degenerate into typhus, but observing some of its characters, retained only the debility peculiar to that fever, under which almost all the sick laboured.

When the disorder did not shew a tendency to terminate in this way, the above symptoms were more constant and violent in the first three days; the remission was more imperfect and obscure, and the restlessness was increased; the skin was dry and burning; little or very partial sweat

produced no relief, nor were the discharges from the bowels of any advantage ;—the vomiting was more continued and various, and a peculiar irritable state of stomach already mentioned as the forerunner of black vomit.

From the second day the eyes appeared more inflamed, the countenance more pale and dejected, the tongue was tremulous and put out with difficulty ; about the third day it became dry, parched, or orange coloured ; at other times continuing moist, and from the first or second day it assumed a leaden colour, and as if spotted with black powder, or it had in its centre a red longitudinal stripe ;—these last varieties in the appearance of the tongue in 1804, were invariably the signs of the black vomit, which came on the fourth day.

In the mean time the sick sighed continually, they talked in their sleep, and were slightly delirious ; during the night they seemed to suffer from a painful state of watchfulness, or they became drowsy, frequently complaining and crying out, and when asked the cause they replied they were quite well and desired to get up.

Those who became insensible on the third day and the black vomiting and convulsions coming on, died on the fourth, or at furthest between the sixth and seventh day ; bleeding at the nose was

more commonly observed in Cadiz during the epidemic of 1804 than in 1800.

It came on from the second to the third day and was never critical, but almost always a bad sign; the patients in whom this bleeding appeared, shewed a constant propensity to put their finger up the nostrils. In some the blood having flowed in a full stream, occasioned so great an exhaustion, as to bring on death in a few hours.

The following are the remarks made by Professor Palloni (in his *Observazioni Mediche sulla Malattia febrile dominante in Livorno, 1804*), in which he gives a faithful history of the symptoms of the disorder, as it appeared at Leghorn; and after describing them in their different stages, he continues; — “Ma non in tutti i casi però si rimarca questo regolare andamento. In alcuni l’invasione se presenta immediatamente con i sintomi gastrici, ed in altri con i sintomi nervosi, prendendo in tal caso la forma di un tifo, di una forza apparentemente non grande, e con l’apparenza ingannatrice di quiete, ed insensibilità nel malato, che mentre lusinga il medico, di repente nell’entrare del quarto giorno l’emorragie delle fauci, e delle narici, il vomito negro, l’itterizia, le convulsioni, e la morte rapidamente, si succedono. Che anzi è da avvertirsi, che mentre nel primo comparire della

malattia in Livorno si presentava essa per lo più con sintomi d'irritazione, e con una vera sinoca, al presente se mostra essa ordinariamente con i sintomi nervosi, vestendo subito il carattere di una decisa malignità."

The diagnostic symptoms are as follow ; —

" Qualunque però sia il suo principio, e l'andamento suo, i sintomi suoi caratteristici sono sempre :

" Incitamento al vomito in principio ; dolori alle membra ; dolor di testa intentissimo alla fronte, e alle tempia ; senso più o meno molesto alla regione epigastrica, ed al fegato ; colore itterico ; vomito in fine di materia simile ai fondi del caffè ; emorragie dalle fauci, e dalle narici ; singhiozzo e convulsioni."

And the professor concludes his description thus ; —

" Da quanto abbiamo esposto, agevolmente si scorge che l'aspetto di questo male è proteiforme, e si modifica diversamente a seconda della forza del veleno, della costituzione dell'individuo, dell'età, e dello stato dello spirito, percorrendo tutti i gradi dalla più leggiera e benigna affezione alla malattia più feroce, e più grave, ma conservando sempre i suoi caratteri essenziali e specifici Rapido è il corso, e violenta l'azione del miasma nei giovani robusti, e sanguigni ; più lento

e men feroce è l'attacca nei deboli, nelle donne, e nei vecchi. Le gravide ne sono state quasi sempre la vittima. Ed i bambini sono stati li più risparmiati." p. 9, 10.

From the foregoing observations and from the whole of the Professor's report, there can be no doubt of the indentity of the disease at Leghorn with that of Malaga, from whence it was generally supposed to have been introduced. He states that the loss in Leghorn out of a population of 60,000, very little exceeded 700 individuals, and he attributes this small mortality to the active measures that were adopted to check the progress of the disease, and which chiefly consisted in promoting *ventilation, cleanliness,* and the *separation* of the sick.

REPORT III.

EPIDEMIC OF 1810 AT CADIZ.

AFTER the termination of the epidemic in 1804, the city of Cadiz continued healthy until 1810. During the years 1808, and 1809, the number of deaths did not amount upon an average to more than seven daily, and notwithstanding the addition of 40,000 souls, to the ordinary population of the town in the month of January 1808; the deaths did not exceed six per day in September and October, which are generally reckoned the most sickly months. *

* Return, shewing the number of deaths in Cadiz, for the years 1808, 1809, and 1810.

	Men.	Women.	Boys.	Girls.	Total deaths.
1808.	797	680	562	433	2472
1809.	1072	629	591	314	2606
1810.	1895	893	950	567	4305

Cadiz had become a place of more than usual importance, in consequence of the critical state of the affairs of Europe, and of the seat of war having been transferred to the Peninsula.

All the public authorities, and the central government which was constituted during the absence of the King, had fled from Madrid to Cadiz; many thousand persons from the different provinces had taken shelter within its walls, from the oppression of the French armies, so that the population towards the beginning of 1810, had been augmented to between 90 and 100,000 souls. The Board of Health, fearful of the consequences of this crowded state of the town, issued such edicts as were judged conducive to the public health, but the measures that were recommended, do not appear to have been attended to by the inhabitants, notwithstanding their dear bought experience of former years; indeed, those who had passed through the disorder in 1800, and 1804, felt themselves secure from a second attack in the event of its return, and to such as had not witnessed the calamities of those years, all apprehension of danger was removed by the uninterrupted health of the town; during the first six months the daily number of deaths bore no proportion to the population; the medical reports of the prevailing disorders peculiar to the season, being so

favourable, served as the criterion of its general salubrity.

In the month of March the attention of the government was roused by the extraordinary mortality that took place on board of the pontones or hulks in the bay, in which were confined the French prisoners belonging to Dupont's army, which surrendered at the battle of Baylen. The extreme misery and filthy state of those unhappy men, labouring under every depression and privation, gave rise to a malignant fever of so contagious a nature that all the Spanish guards and hospital assistants who were employed amongst them, caught the disorder, of which many died. Several of these Spaniards were improperly conveyed to the King's hospital in the town, but the danger of this proceeding having been pointed out by the Director of the Royal College of Medicine, Dr. Francisco Ameller and by Dr. Mellado, the Physician to the Board of Health, the communication with the shipping was prohibited, and every attention was enjoined to prevent the spreading of the contagion.

Towards the end of June it was officially announced, that the disorder on board the hulks had terminated, but I had reason to doubt the truth of this statement.

The number of wretched victims to its fury was never stated, nor could it be ascertained; I know however from good authority, that the mortality was dreadful, and I had too frequent opportunities of judging upon the subject from casual observation, as the dead bodies were commonly left upon the beach by the tide, which had been thrown overboard; and it was not unusual to see several of them daily, and for many weeks heaped together in the pits that were dug on a morning upon the lands between Cadiz, and the Fort of Puntales.

By the 1st of September the town was considered by the authorities of Cadiz, to be perfectly healthy, but I had not at that time any means of obtaining correct information as to the actual state of the public health.

From the period when the edict was issued by the Board of Health, and during the sickness on board the pontones, we redoubled our vigilance and attention to the quarters of the soldiers.

At this time the British troops, and the headquarters of Lieutenant General Graham (now Lord Lynedoch) were stationed at the Isla de Leon, about eight miles from Cadiz. The force under his command consisted of the following corps:

One squadron of the 13th light dragoons, a brigade of royal artillery, and the 3d battalion of

the 1st regiment of guards, with detachments from the 2d and 3d regiments.

2d Battalion of the	44th.
2d do.	47th.
1st do.	79th.
2d do.	87th.
2d do.	88th.
	94th.
2d & 3d do.	95th Rifle Corps.
Royal Staff Corps, and	
20th Portuguese Regiment,	

The prevailing complaints amongst the men were the common fever of the climate (of the simple continued form) with pectoral affections, visceral obstructions, diarrhæas, rheumatism, and venereals, with the usual casualties, including gun-shot wounds, besides ulcers, ophthalmias, &c.

In the monthly report of the 24th of May, 1810, it appears that 1613 men had been admitted into the general and regimental hospitals, and that from the 25th of April, 945 had been recovered and discharged to their respective regiments, and of the whole number there were only eleven deaths.

In the 79th, 87th, and 95th regiments there were several cases of obstinate and strongly marked intermittents, but they were chiefly *observed in those men who had been employed*

on the expedition to Walcheren the preceding year*, and there were *evident obstructions* of the *liver or spleen* in all of them. These corps were stationed at the Isla de Leon, and principally at the advance, at which places they were mostly engaged in the duties of the out-posts and piquets, which of necessity were established on low and marshy ground.

Whenever the soldiers were taken sick they were immediately removed to the regimental hospitals at the nearest station, and from thence to Cadiz, where they generally recovered rapidly under the plan of treatment which was formed on the principle recommended in the fifth report.

A fatigue party of about 1000 men from the different corps was employed daily in constructing the field-works and redoubts near the river Sti. Petri, and opposite to those raised by the enemy ; and they were relieved weekly by other parties until the extensive line of works was completed.

The working parties were encamped upon an elevated and dry ground, and at a considerable distance from the marshes.

During the heat of the day the men remained under canvas, and the tents were doubled.

* See the 5th Report.

Their victuals were prepared by a corps of cooks expressly selected from the regiments, and every precaution was taken to avoid any unnecessary exposure, and to prohibit their lying down in the sun, or sleeping on the ground when heated after fatigue.

This healthy state of the troops was principally owing to the great attention which was paid to their diet, and to the regulations of the army being so strictly enforced by General Graham in every thing that related to the care of the men. A considerable quantity of articles had been sent out to Cadiz by Government for the purpose of assisting in the preservation of the health of the troops employed in the defence of that place. The supplies consisted of the best spirits, port wine, porter, sugar, cocoa, coffee, and oatmeal.

It was represented that there should be a regular distribution of the *cocoa, coffee, and sugar*, it being of the highest importance that a *comfortable hot breakfast* should be found for the soldiers previous to their mounting guard or piquet in the morning, and the attention of the commanding officers of corps was particularly called to *this essential part* of the soldiers' diet.

It was strongly impressed upon their minds, that in all seasons and climates (more especially in that in which we were then engaged) and on the approach of and during the unhealthy months

soldiers should never be permitted to go upon duty, or on the ordinary business of the morning, without something *warm upon their stomachs**: that from inattention to *this point* the most serious mischief had invariably resulted in former campaigns (without its being suspected as the cause) where the troops had been unnecessarily harrassed and paraded *before sun-rise without any breakfast at all*, and perhaps with only a bit of bread or of meat (unaccompanied with any liquid whatever), or with some of a pernicious quality, viz. spirits undiluted, which not being nutritious, could only lead to the most injurious consequences.

To obviate these ill effects, it was suggested that the coffee and cocoa should be prepared overnight, and given warm the following morning; this plan was adopted as the most eligible from being so easy in the execution.

On the alternate days oatmeal was issued, and the following scale of the proportions to be distributed was drawn out:

One ounce of cocoa with half an ounce of sugar per man.

* I have attended very particularly to this subject in the 5th Report, where it will be shewn that the sickness in South Beveland, was attributed, in a great measure, to the want of attention to this important regulation.

Two ounces of ground coffee with three ounces of sugar for six men.

Four ounces of oatmeal with half an ounce of sugar per man.

The issue of porter to the men, at the rate of a pint and a half per day was found to be very beneficial ; but to the soldiers who were employed on night picquets, or on duty near the marshes, the usual ration of spirits was allowed. In this manner we regulated the distribution of the several articles of diet, being guided generally by the experience of their efficacy, varying the rations and substituting spirits and wine according to circumstances.

It was however understood, that the use of *spirits* was more likely to be beneficial, during the wet weather, and in the winter season : and it was proved by the result, that the *comfortable warm breakfasts* were not only more salutary but more grateful to the men when they became accustomed to them as a regular meal.

The British troops in Cadiz consisted of some companies of artillery, the 47th regiment, and 95th rifle corps. These occupied the barracks of St. Elena and St. Roque, close to the landgate, in the district or barrio de Santa Maria, already mentioned, and from these corps detachments were occasionally sent to mount the guards and

man the works, which were then throwing up on the sand hills within a mile and an half of the town. A constant and daily communication was kept up with Cadiz and the Isla de Leon, and both officers and other individuals connected with the army passed backwards and forwards without interruption.

Several sail of the line, two divisions of gun-boats, besides transports, &c. under the command of Rear Admiral Sir Richard Keates, K. B. were lying in the bay, for the protection of the harbour which was crowded with merchant ships and vessels of all descriptions.

The crews and persons belonging to them, had regular communication with the shore; and such as could land mixed of necessity with the people on the Mole, which, from being the place where all the baggage of the army, the guns, and ammunition, and all kinds of merchandize and provisions were landed, was always crowded.

This was the state of things at Cadiz in 1810, when on the 11th of September the physician to the Board of Health first discovered some persons labouring under symptoms of fever, similar to what he had observed in 1800 and 1804; and it appeared from the reports which he made to the Junta (which were not communicated to me until some time afterwards) that the disorder was contagious, having spread gradually on the quar-

ter of the town where it broke out, four out of five of the first family attacked having died, and particularly as the only individual who survived was *not* ill, *having passed through the disease in the epidemic of 1800*. The greatest secrecy was however observed, and nothing was known of the existence of any fever in the town except to the Board of Health, and the Government, until the beginning of October,

Reports were now circulated, that there was a fever of a *suspicious* nature in Cadiz, but they were formally contradicted by those in authority, (which has always been the mistaken policy in Spain) and no one dared to state publicly the fact. I considered it however to be my duty to communicate the information I had received to General Graham, and in consequence of my recommendation to cut off as much as possible the communication with the town and the troops at the Isla de Leon, a general order was issued the day following, prohibiting any officer or soldier from going into Cadiz, except on the most urgent public service. At the same time a communication was made to Sir Richard Keates, of the measures that were adopted to preserve the health of the army; and it was recommended to him to confine the officers and crews as much as possible to their ships, and to interdict all unnecessary intercourse with the shore.

These precautions were taken on the part of the British general and admiral previous to any public notification of the existence of disease by the Spanish government.

On the 16th of October I made a report to General Graham, acquainting him with the opinion of professor Arejula, and of the principal physicians in Cadiz, upon whom I called officially for information, respecting the actual state of the public health. They all agreed in strongly recommending the Board of Health to redouble their vigilance, and to enforce the regulations published in the Edict, to prevent the sick from being crowded in the public hospitals, and to promote the cleanliness and ventilation of the houses, &c. &c. Their opinion was however worded in a very cautious manner, but as it was the first official declaration that was made on the subject, it was sufficient to justify the advice which had been given to the General in command; in fact the disorder gradually increased, and it afterwards appeared in several parts of the town. The number of deaths from the beginning of September to the 24th of October, were now known to have amounted to 929: the population was then estimated at 120,000 persons, without including the numerous families who lived on board of vessels in the bay.

No case of the prevailing disorder had at this time been observed in any of the military hospitals, nor had an instance of contagious fever been known amongst the troops. In my report to General Graham of the 16th October, it was remarked that the ordinary complaints of the soldiers were then very few and remarkably mild for the season, and that within the last two months they had considerably diminished.

This exemption of disease amongst the British troops was a matter of astonishment to the Junta of health, particularly as it was a well-known fact that the prevailing sickness was principally confined at this period to strangers and to persons from northern climates, and even to the Spaniards who had fled to Cadiz from the northern provinces of Spain, and to whom the disorder was most fatal.

In consequence of an application from the Spanish government to the British ambassador, Sir Henry Wellesley, and to the general in command, I was appointed a member of the Spanish Board of Health : this circumstance is noticed merely to shew that it afforded me the advantage of obtaining afterwards every information of the actual state of the town from the official documents to which I had daily access. In my report to General Graham of the 2d of November, 1810, the number of deaths in the town from

the 25th to the 31st of October was stated to amount to 271, men, women, and children included.

On that day (31st) the number of burials was increased to fifty-two; twenty new cases had been visited by the different Spanish practitioners in various parts of the town; a great proportion of the sick had the disease severely, and on the 1st of November there were forty-eight persons attacked with the well marked symptoms of the fever, and it was observed not to be confined to the houses of the poorer class of people only in the Barrio de Santa Maria, but to have appeared in the higher and better quarters of the city.

Some of the British troops stationed in the barracks now began to be affected with the prevailing disorder, and I wrote to the general upon the subject. "In my last week's report of the sick in the army under your command, I had the satisfaction to assure you that at that time no case of *the fever* had appeared amongst the troops, but I have now to state that two men from the corps of Royal Artillery, several from the 47th, and one from the detachment, 2d battalion 95th, *all from the barracks* near the Land-gate at Cadiz, have been since admitted into our general hospital of the Aguada with every symptom of the prevailing disorder; and it is with regret that I have to add,

that Lieutenant Godby of the artillery and Lieutenant Clarke of the 47th regiment are amongst the number of those cases which have terminated fatally and with remarkable rapidity.

“ In my visits to the hospitals yesterday, I examined all the patients who had been recently taken ill in the barracks, and from the appearance of *the sick*, and of the men in general throughout the corps stationed here, I look forward with confidence to our being able by vigilance and unremitting attention to prevent the disease from spreading amongst them ; and as the cold weather, which on former occasions has been known to check its progress, is now setting in, we may reasonably hope for a favourable change ; but as the nature of the prevailing fever in Cadiz is precisely similar to that which I saw at Gibraltar in 1804, and which was then so fatal in this part of the province of Andalusia, I feel it to be my duty to recommend the continued observance of those *precautionary measures* which you have been pleased to order, and that the troops stationed at the Isla de Leon, and the advance (*now in perfect health*) may be prohibited from communicating with the town of Cadiz, except upon urgent service, and this until there shall be a manifest alteration or improvement in the state of the public health.”

A military general hospital had been established

about a mile from, the town, close to the bay, immediately opposite to the enemy's works and within range of shells ; but we had no choice of situation, and as it was healthy and well supplied with every thing necessary for the sick, it was determined to send out to this place every person who should be attacked with the fever in the barracks.

Dr. Snow, physician to the army, had the charge of the establishment. His first report dated the 4th of November, stated the progress of the disorder amongst the men ; most of whom were known to have communicated with the inhabitants. In the barracks near the land-gate, where the British troops were quartered, there was a Spanish canteen, frequented by the lowest order of the Spaniards, and it was impossible to prevent their intercourse with our soldiers in a wine shop.

Dr. Snow, in his letter of the 4th of November, wrote to me as follows :

“ In the report I had the honour of forwarding to you concerning the state of this establishment, at the expiration of last week, I observed that no remarkable increase had occurred in the number of men admitted with fever, although the disease had assumed a different form, and varied in its nature.

“ I have much regret I cannot now transmit to you an account equally favourable. The

cases admitted with fever during the last week, I find are precisely double in number that of the same period at any former time; *nor do I think there can be a doubt as to its nature, the disease clearly identifying itself with that* which has prevailed, and still continues among the inhabitants of the town of Cadiz.

“ During the last seven days, *viz.* from the 27th of October, to the 2d of November inclusive, twenty-six men have been received from the barracks, and two boys from a transport :—

Of the former,

Royal Artillery sent - 4

47th Regiment - - - 18

95th do. - - - 4

“ Seven of these cases have proved fatal ; two in a few hours subsequent to admission, two on the day following admission, and three on the third day.

“ From a consideration of these circumstances I cannot refrain from suggesting to you, the propriety there would be in removing the soldiers from their present quarters ; or if that were impracticable, of removing one or more companies of the 47th regiment, so that whilst a disease so rapid in its progress, and fatal in its consequences continues, each individual may have double the quantity of the space at present allotted to him.”

From the peculiar circumstances under which we were placed, there was no possibility of removing the men from their quarters, as suggested by Dr. Snow ; it having been judged expedient to have a certain number of British troops within the gates of Cadiz. Hence there was no alternative, but to pay the most unremitting attention to the men in the barracks, and the surgeons or their assistants were ordered to visit the whole of their respective corps morning and evening in barracks and on parade, to examine the countenances of the soldiers, to separate such as shewed the slightest symptom of disease, and to send them into hospital immediately.

The white-washing of the barracks and hospitals as well as other operations tending to cleanliness and ventilation, had been invariably practised.

In addition to this report, the physician to the hospital sent me a statement of the nature of the disorder, and of its progress in the corps quartered in the barracks of Cadiz ; and during the whole period of its prevalence there, not one case of it was reported as having appeared amongst the troops at the Isla de Leon.

Having called upon the late Dr. Snow for his general report, I received from him the following letter :

“ Sir,

“ *Cadiz, Dec. 18th 1810.*

“ Agreeably to the request made in your letter of the 9th instant, I have now the honour to transmit to you for the information of the Army Medical Board, a general report of all cases of fever that have come under my care since the 1st of October. I likewise enclose five cases, the particulars of which were noted down every day by my assistants.

“ With regard to the nature of this complaint, as far as my own experience extends, and from all the information I have been able to collect, I think it is contagious ; and that nothing but the very active measures which were taken to check it in the beginning, could have prevented its destructive influence being more severely felt by the troops.

“ In the treatment with exception of three or four cases in which I employed mercury, I was rather directed by the peculiar circumstances that were present than any general principle.

“ (Signed) H. SNOW, M.D.”

Dr. Plenderleath, physician to the forces, had charge of the hospital at the Hospicio in Cadiz ; the following extract of his letter, dated December 13th, 1810, conveys his opinion of the prevailing fever :

“ No one who has read the accounts of the Epidemics of 1800 and 1804, as well as of those which prevailed in Andalusia in antecedent periods, or who has conversed with the Spanish practitioners in this town, can for a moment doubt of their having been most violently contagious, and I suspect the fever we lately witnessed to have been of the same nature, the dangerous consequences of which to the army were guarded against by the timely and precautionary measures you adopted.

“ (Signed)

J. PLENDERLEATH, M. D.
Physician to the forces.”

The pestilential disorder continued to prevail throughout the month of October, and it was confined principally to the inhabitants who had not previously been attacked with it in 1800 and 1804, and to strangers recently arrived in Cadiz. *No case of the fever* appeared amongst the British troops at the Isla de Leon (which town it has been observed was surrounded by marshes and salt-pans). But it has been shewn that the disease had broken out in the barracks in Cadiz, where some of our corps were quartered, and although it had attacked a considerable number of the men, before we were enabled to check its progress, our loss altogether did not amount

to more than *twenty-five* men, including two officers and a clerk in the commissariat department.

Towards the beginning of November the disorder appeared to be upon the decline, for it manifested a tendency to terminate by assuming in several instances a variety of forms and modifications in the symptoms which preceded its final cessation, about the end of the month.

During this Epidemic, between two and three thousand inhabitants were carried off by the fever; but the number of deaths in Cadiz according to the yearly return for 1810 amounted to 4305. Dr. Mellado, physician to the Board of Health published an account of this fever entitled, "*Historia de la Epidemia padecida en Cadiz el año de 1810.*" The ingenious author has proved its contagious nature by numerous well attested facts, and he has endeavoured to shew from official documents, that it did not originate in Cadiz. But he candidly acknowledges the difficulty of tracing it to its source, and of ascertaining who were the first individuals attacked. It was a very remarkable circumstance, that the pestilential fever should have broken out in one of the Canary Islands where such a disorder had never appeared before.

As soon as this fact was communicated to me by the Board of Health, I wrote immediately to

the admiral, Sir Richard Keates, and to Sir James Duff the British consul, to advise them of the sickly state of Santa Cruz de Santiago in the island of Teneriffe, to which place the disorder was said to be confined, and to caution our cruizers and merchant-men on the subject.

I was in hopes that I should have been able to obtain from Teneriffe the most accurate account of the origin of the disorder, and I wrote to the Board of Health to request that every possible enquiry might be made upon so interesting a matter, by ascertaining who were the first persons attacked, with the days or periods when they were taken ill, together with the date of the arrivals of vessels proceeding from places where the disorder was then prevailing or had appeared, including Carthagena, Gibraltar, and Cadiz ; together with a statement of the intercourse or communication which they had with the crews, &c. I added in my letter, that I was more particularly anxious to ascertain these points, as there appeared to be a difference of opinion amongst the practitioners of Cadiz, in regard to the origin of the disorder, that some persons attributed it to the passage of a comet, the encreased temperature, and other atmospheric causes, all of which were so enveloped in obscurity that they afforded me no satisfactory explanation ; that those who denied contagion treated every kind of preven-

tion with contempt, and frustrated in a great measure the plan adopted by the Spanish government for the safety of the public health, and therefore I was led to expect the happiest results from an enquiry which I earnestly recommended to be made.

The Board of Health determined, in compliance with my request, to endeavour to trace the origin of the disorder in the Island of Teneriffe; but in the mean time a letter arrived from the Governor of the Canary Islands, Don Ramon de Carvajal, dated Santa Cruz de Santiago.

Isla de Tenerife, 7 Nov. 1810.

Addressed to Don José Colon, Presidente de la Real Junta de Sanidad de Cadiz; in which his Excellency reports, "that about the 16th and 18th of October 1810, a fever of a bilious and contagious nature was observed by the practitioners of Santa Cruz, and which they stated to be similar to the disorder that had prevailed in Cadiz in 1800, and 1804.

"That it had spread to several streets and quarters of the town indiscriminately, which rendered it impossible to check its destructive progress.

"A Cordon was however established without delay, to cut off all communication with the other towns of the Island (Teneriffe) which observed the Governor, '*estan libres*,' are free

from the disorder, and directions were sent to all the others (Canary Islands) to take the necessary precautions to prevent the introduction of it; and up to this period (he added) 7th November, they continue healthy according to the last account.

“The population of Santa Cruz amounts to about 12,000 souls; of these, nearly three parts are wretchedly poor, but notwithstanding, the disorder *did not first* appear amongst *this class*.”

The Governor's words are these:

“Regulase esta poblacion en 12,000 almas poco mas o menos — de ellas casi las tres partes son gente miserable y a *pesar de esto*, las *enfermedades no entraron primero por esta clase de personas*.”

This was not so satisfactory an account as I wished to have, but I never could obtain any other, nor any answer to my questions. I saw a letter from a reputable person at Teneriffe, to a merchant in Cadiz, in which the writer stated it to be his opinion, and the general belief, that the disorder originated with persons who had arrived at Santa Cruz from Cadiz.

There may have been reasons for not giving me the information I required. I know, however, that a vessel or vessels sailed from Cadiz with French prisoners on board, to the Canary Islands, and that these prisoners were

taken out of the pontones or prison-ships, in which, as I have already stated, the most virulent and contagious fever had prevailed.

I am not certain if the disorder in Teneriffe originated from this source, but I am much inclined to believe that it did; I regret I could not obtain more information on this subject. It appeared to me of so much importance to collect all the facts possible to ascertain its true character, that I was induced to ask General Graham permission to go to Teneriffe, the voyage being short, but the duties of my office in Cadiz would not allow of my temporary absence.

Dr. Bancroft having made in p. 486 — 7. of his Essay, an observation on the disease in Cadiz, 1810, which relates particularly to myself; I shall answer it in this place as briefly as possible.

After mentioning "the state of weather in 1810, being similar to that of 1804, (which in my reports of these years, I have shewn to have been different) in regard to heat, drought, &c. &c," he says, "Nearly the same variation in the degrees of violence occurred in the fever at Cadiz, and would naturally occur to marsh fevers, and to no others in such a season. The following is translated from a declaration, dated Cadiz, November 2d, 1810, and

signed by Sir James Fellowes, and nine Spanish Physicians, viz.

“ We the undersigned Physicians, having deliberated on the questions proposed to us by the Supreme Junta, relative to the nature and symptoms of the disease now prevalent, have agreed that it is the same kind as that which raged there in 1800, and 1804, but that it is less frequently malignant and contagious; we having observed, in many of the sick, disorders of a different character, which *cause* the reigning fever to be less intense and infectious.

“ How a contagious fever (adds Dr. B.) in one set of patients, should become less contagious and intense, because they had different disorders at the same time, I do not understand; probably these other disorders were remittent fevers, or taberdillos.”

“ These Spanish physicians however, seem to have become less confident than formerly, in the supposed contagion of their epidemic; and *I am well informed*, that but a day or two before the date of this declaration, Sir James Fellowes *had decidedly* expressed his belief, that *it was not contagious*, though he formerly entertained a different opinion of the epidemics in Spain and at Gibraltar.”

And in a note Dr. Bancroft makes this extraordinary observation :

“ Whether Sir James Fellowes would ever have entertained such an opinion of these epidemics, had he been left, by Dr. Haygarth and others, to the unbiassed conclusions of his own reason, may, I think, be questioned. And I think it right to mention, as an instance of Dr. Haygarth’s confidence in his own judgment, respecting a *disease* which he *had never seen*, and of which his notions were most erroneous, &c. &c.”

The certificate to which Dr. B. alludes, and of which he has given so inaccurate a translation, was worded by Professor Arejula, and I certainly signed it as a member of the Board of Health, and as agreeing fully with the Spanish physicians, as to the contagious nature of the disorder, and of its having shewn all the character of the malady as it appeared in 1800 and 1804. The following is a copy of the original declaration :

“ Los facultativos abaxo firmados, despues de haber conferenciado sobre la pregunta que hace la superioridad acerca de la naturaleza y caracter de las calenturas que reinan en Cadiz, hemos convenido en que es identica á la que reinó en los años de 1800 y 1804; mas que no es tan comun la malignidad y contagio, segun se advierte hasta el dia en los mismos enfermos no aclimatados, habiendose observado en muchos de ellos enfermedades de otra naturaleza, que car-

acterizan la menor intensidad y propagacion en la fiebre reinante este año.

“ Cadiz 2 de Novembre de 1810.

(Signed)

“ James Fellowes, Director de Hospitales del exercito de S. M. Británica—Juan Manuel de Arejula, José Rivero, Carlos Francisco Ameller, Francisco de Flores Moreno, Manuel Padilla, Diego Terrero, Nicasio Igartuburu, Bartolomé Mellado, Joaquin Granados.”

It is clear that Dr. Bancroft did not see a correct copy of the original, or he could not have given a translation, which, as it appears, conveys a palpable absurdity.

There is nothing said or implied of a change of opinion as to the original nature of the epidemic amongst the Spanish practitioners ; and I do not recollect to have altered my own upon the subject, or to have adopted any doctrine maintained by my friend Dr. Haygarth, for whom I have a very high respect, and should have been happy to avail myself of any information that he or any other eminent physician could have afforded me on so interesting a subject. Dr. Bancroft ought at least to have stated the authority upon which he has grounded his information respecting me. Had he referred to my public correspondence, or to the reports which had been

transmitted to the proper offices, he would have been correctly informed of my real opinions, and of the measures of precaution which I thought it my duty to take as head of the Medical Department, and which are acknowledged to have been productive of the greatest advantage to the service.

REPORT IV.

EPIDEMIC OF 1813 AT CADIZ.

Observations on the Years 1811 and 1812.

AFTER the termination of the epidemic in December 1810, there was no appearance of a return of it until 1813; but towards the latter end of January 1811, two English transports (Metcalf and Phyllerea) arrived in the bay of Cadiz, from Gibraltar, having between 4 and 500 German recruits on board, most of whom had been selected to form a German battalion, from the deserters of the French army*, and from the prisons and hospitals in Carthagena,

* We understood from the French papers, that the disorder prevailed in Murcia. The following official communication on the subject, will shew the opinion of the chief officers of health in the French army, and the precautions which were taken by the general in command, to prevent its progress:—

These Germans had been kept on board under quarantine for upwards of a month, in Gibraltar

"Official communication from the Duke of Dalmatia to his Serene Highness the Prince of Wagram, Major-general.

"Monseigneur — I have the honour to place before your excellency, a letter from the officers of Health of the chief staff of the army, relative to the yellow fever that prevails in Murcia. It is now well authenticated, that the malady which prevails in Murcia is the yellow fever, the effects of which have hitherto been increasing. We have succeeded in putting bounds to its progress, from the side of the province of Granada, by keeping the 4th corps on the line of the Velez de Rubio, where it performs a most vigilant duty: thus all the army, and the population of Granada, are preserved from the terrible scourge.

"I have formed at Seville a central committee of health, which corresponds with many other committees established throughout the whole south of Spain; and with an extraordinary commission which I have sent to the fourth corps, all precautions are taken, that upon the least symptom appearing, the most effectual means shall be employed for recovery and prevention.

"I have also given directions to General Laval to prolong his stay upon the line of Velez de Rubio, till the cold weather shall have weakened the malady.

"I will have the honour of addressing to your excellency such future reports as shall be made to me on this subject.

"I am, with profound respect your Serene Highness's very old and very humble servant,

"MARSHAL DUKE OF DALMATIA,
General in chief of the army of the South.

"Seville, Nov. 7, 1841."

bay; and unfortunately on the arrival of the transport at Cadiz, the weather became so tem-

" To his Excellency Marshal Duke of Dalmatia.

" Monseigneur — We have just received from the officers of Health of the 4th corps, some details respecting the epidemical disease in Murcia, which we have the honour to transmit you. According to the description of the malady, its progress and symptoms, we are authorized to call it the yellow fever; it is imminently contagious, attacks all ages, all sexes, spares neither rich nor poor; it continues to make head in Murcia, has reached the Spanish army, and exercises its fury from the general to the soldier.

" It has not penetrated the line of the 4th corps, where, besides all the precautions which have been adopted to prevent its introduction, there are every where pest houses destined to receive suspected individuals. Some of this description are now in the pest houses of the advanced posts, under observation.

" The officers of health of the 4th corps have established with the Spanish physicians, in the infected places, an epistolary correspondence, which has for its object the giving them information upon the means of curing this disease. This correspondence has furnished the following accounts: —

" The contagion was introduced in Vera by Don Rodrigo, who died upon the day of his arrival. It spread rapidly throughout the different quarters of the town: there have been, between the 29th September and the 25th of October, 371 infected, of whom 32 have died. At Aulus, or Atlas, a small village, there have been 80 unwell, of whom 10 died. On the 20th October, there were 17 unwell, 2 convalescents, and 1 death.

" If the precautionary measures, of which you ordered the execution, have hitherto saved the 4th corps from all infec-

pestuous, that the crews of those vessels and the soldiers were obliged to keep below. When the weather moderated, every assistance was afforded them; but it proved that during *the few days* that the hatches were covered over in consequence of the heavy rains, a complete typhus fever had been formed; that the men (who appeared to be well whilst they had been kept upon deck constantly, and the fresh air had been suffered to pass through the ship) were falling down with the symptoms of a malignant disorder, the germs of which it was evident had been brought by them from the French army, or from the jails and hospitals of Carthagena, and had exploded into fever in the vitiated air by which they were surrounded, in the close and crowded 'tween-decks.

Under these circumstances the most prompt and decisive measures became absolutely necessary. Nearly 100 of the Germans and several of the crew were found labouring under fever, and

tion, the advance of the season may be considered as an auxiliary means of securing its efficacy for the future.

"We consequently are of opinion, your excellency may be perfectly easy respecting the fate of the 4th corps.

"We have the honour, &c.

"By the chief officers of health of the army,

(Signed)

"BROSSIE CHAPPE."

the most serious apprehensions were entertained of the disorder spreading amongst the different transports in the bay. The first object was to separate the remainder of the men on board who appeared in health. The difficulty, however, of landing any of them was great, as the Spaniards were extremely fearful of the recurrence of the disease of the preceding year, and it was the wish of the General in command to preclude all possibility of any misconstruction on the part of the Spanish government, in the adoption of such a measure as landing the sick, however urgent and necessary.

But the situation I held as member of the Board of Health, afforded me the sanction of the government to take upon my own responsibility, the steps that were pursued.

The whole of the men were directed to be washed in warm soap and water on board of the transports, under the inspection of medical officers, and their dirty infected cloathing to be thrown overboard; each man was supplied with fresh hospital dresses on being put into the boats, and 400 of them were in this state landed and sent to a temporary hospital, a mile from the town.

Nearly 100 of the sick remained on board of one transport, whilst the one which had been evacuated was thoroughly cleansed, ventilated,

and fumigated with sulphur, after which they were removed into it.

Thus in the course of a few days the effects of this process with the change of diet, &c. were evident amongst the sick.

On visiting the Germans who had been landed, there were found upwards of forty in whom the disease appeared to be formed ; and several others were selected, whose appearance justified a suspicion that they were infected, and they were placed in a part of the building which was converted into a lazaretto.

By daily attention to the men, both on board and on shore, during the month of February the progress of the disorder was at length arrested.

Guards had been stationed round the building, and no boats were allowed to approach the transports but those immediately employed in this service. After the whole of the sick were brought on shore, I wrote to the Admiral Sir Richard Keates, to suggest the propriety of having the transports (which brought the Germans to Cadiz) thoroughly fumigated and white-washed, previous to their being again employed on the public service.

Whilst this highly contagious disorder prevailed in the lazaretto, no communication was permitted, and the British troops in Cadiz and at the Isla de Leon, continued in perfect health.

On the 5th of March the memorable battle of Barrosa took place ; and the reports of that month would shew the remarkable healthy state of the army, if the circumstance alone of its having beaten double its number of the enemy on that day, did not sufficiently prove the fact.

On my return from that expedition to Cadiz, the reports of the deaths amongst the Germans, which had taken place since their landing, amounted to twenty-five. On the 14th of March there were fifty-seven left in hospital ; of these three only had symptoms of the typhus fever upon them ; more than 200 had been attacked with the disorder ; but it now changed its form, and terminated in dysenteries, diarrhæas, pectoral affections, &c.

The German recruits being again inspected, and found healthy, were encamped upon the sands to the westward of Cadiz, where the whole of them were regularly bathed, and cloathed anew, after which they were allowed to mix with the other troops.

These facts have been detailed at some length to shew the necessity of immediate *separation and cleanliness*, in all cases of malignant fever amongst troops. The disorder above-mentioned, was highly contagious, and would have become most fatal to the army and to the shipping in the bay,

if such early measures of precaution had not been taken.

On referring to the accurate Meteorological tables which were published at Cadiz by Don Francisco Flores, it appeared that there was no material difference in the atmospheric changes of 1811, and 1812, and that the complaints peculiar to the seasons had succeeded in their usual order in both those years.

In May, June, July, and August of 1812, the thermometer shewed a uniformly steady temperature; the highest degree of heat in the first month, was 76° of Fahrenheit; and the lowest 62° . In the second, 85° — 70° , in the third, 86° — 71° , and in the last, to 84° — 76° . The mean height during August being not more than 80° .

In both years throughout the summer months, the westerly and southerly winds generally prevailed, and the east winds blew nearly an equal number of days.

The barometer was constantly higher in *June* 1811, than in *June* 1812; but the difference was trifling.

In *July* 1811, the pressure of the air was something greater than in the corresponding month of 1812, but the variations in its height were less frequent, and not so considerable.

The heat was three or four degrees greater in *July* 1812, and it was remarked there were

seven light cloudy days with one of rain in this month, which was not the case in *July* 1811, and the prevailing winds were from the east, south-east, and west, whereas in *July* 1812, they blew from the W.S.W. W.N.W. and N.W.

By following up the comparative metereological statement for the month of August in both years, we find, 1st, that the pressure of air was equal.

2dly, That the variations in the weight of the air, were greater and more frequent in August 1812.

3dly, That the sky during the whole time was generally clear, but the heat was greater by three or four degrees than the thermometer indicated in the month of August of 1811, during which month there were four light cloudy, and three heavy cloudy days, and the winds throughout August (in each year) blew from south-west, west, or east quarters.

The prevailing disorders amongst the natives during the summer months of 1812, were of the usual bilious character, sometimes shewing a putrid type, but generally yielding to the common remedies, and for the most part terminating favourably. The measles were also general in Cadiz, but of a mild sort. The British troops continued healthy; the principal duties consisted in mounting the guards

at the different stations and batteries before Cadiz, and the Isla de Leon.

This remarkably healthy state of Cadiz, and the exemption of the inhabitants from sickness, under the extraordinary circumstances to which the city was exposed, may be noticed here as worthy the attention of the medical philosopher.

A considerable army under the command of Marshals Soult and Victor, were at this period in possession of the province of Andalucia, and as it was the great object of the enemy to possess themselves of Cadiz, the most strenuous efforts possible were made to carry on the siege of that celebrated place. During several months the ablest engineers were employed in constructing very extensive and formidable works, from whence, as it was reported, shells were to be thrown into the town by mortars of a new construction, and of a stupendous size, which were actually cast in the foundry at Seville. Notwithstanding the great distance and the difficulties attending the attempt, the French at length opened their batteries and succeeded in bombarding the eastern extremity of Cadiz, and afterwards in throwing the largest 13 inch shells into the very centre of the town.

In consequence of the enemy's fire, which was kept up at intervals during both day and night,

the inhabitants were in a continual state of alarm, and persons of both sexes and of all ages, especially those of the poorer classes, assembled in crowds every evening at a distant quarter beyond the range of shells, where they passed the night, either in the open air, exposed to the vicissitudes of the atmosphere, which in these climates during the summer months, are as frequent as they are sudden, or in small confined houses, already filled with numerous families.

But throughout the whole period of the siege, it was remarked by the Spanish practitioners, that neither the privations which these unfortunate people were forced to undergo, nor the assemblage of such numbers under all the unfavorable circumstances of fear and depression, occasioned any perceptible change in the public health.

On the 25th of August, 1812, the enemy raised the siege of Cadiz, and they were compelled to abandon Andalusia, and ultimately the whole of Spain, in consequence of the great battle of Salamanca. Many thousand people who had taken refuge in Cadiz returned to their homes, and the population which had been nearly doubled became gradually reduced. The relief thus afforded to the town by this unexpected

change, contributed greatly to the general health, nor was there any remarkable occurrence until December. Towards the latter end of the month a report was transmitted to me from the Spanish physician of the health-office, Dr. Mellado, that the San Pablo man of war of seventy-four guns had sailed from Alicant on the 1st of December, 1812, having on board a crew of 350 men, and about forty passengers, besides 300 recruits taken from the depôts and jails of Majorca and Alicante, but originally brought from the provinces of Murcia and Valencia (in the former of which the Yellow fever had prevailed the preceding summer according to French reports) in the most wretched state of nakedness and misery.

The San Pablo arrived in the bay of Cadiz on the 4th of December. The wind having blown from the eastward and the weather being favorable the passage was short, and out of the whole number of 700 there were but few persons reported as seriously ill. The ship was put under quarantine, but no regulations were adopted to preserve the health of the people on board, neither were fresh clothes, or linen, delivered to them, so that personal cleanliness under these circumstances was impossible. In a few days several of the crew were taken ill, and a malig-

nant fever soon made its appearance amongst them, of so serious a nature that measures were then proposed (that is not until the 20th of December) for the separation of the sick, who by this time had amounted to 206 individuals. They were then landed and sent to the lazaretto which our German recruits had occupied in the preceding year. Notwithstanding the alarming progress of the malady, nothing was *effectually* done to check it, for by the end of the month seventy-four had died, and the number of the sick left on board and in the lazaretto amounted to 500 out of the 700 composing the passengers and crew.

During this period I frequently rode to the cordon of the lazaretto and conversed with the Spanish physicians upon the subject of the disorder, which they described as the most virulent kind of ship or jail fever. They lamented to me that the total want of the common articles for an hospital, rendered it impossible that justice should be done to the sick, and that their representations to the government were ineffectual. As guards were placed round the building, there was no apprehension of any communication with those within, but every precaution was nevertheless taken on our part to prevent the British troops, who were stationed in the batteries ad-

jacent to the lazaretto from having any intercourse with the Spanish sentries, or with persons belonging to that establishment : by these means we kept our people healthy.

The disorder, as it was to be expected, continued to spread amongst the crew and passengers left on board the San Pablo, and those in the lazaretto.

By the beginning of February 100 had been carried off by it, 160 were seriously ill on the 13th, and most of the remainder had either been attacked and recovered, or were convalescent, and almost all the medical attendants who had been sent to the lazaretto from the town had been more or less affected by the disorder.

It will appear extraordinary that so little was done in the beginning to check the progress of this fatal fever, but it will scarcely be credited, that notwithstanding my constant application on the subject to the Board of Health, and the representation of the Spanish physicians who were equally satisfied with myself of the necessity of *cleanliness* and *separation* of the sick, and of good medicine as well as wholesome food ; *no notice* was taken of the subject until the 13th of February, when an extraordinary meeting of the Spanish Board of Health was called, at which I urged the extreme danger that might arise if the

most decisive measures were not taken to destroy the infection, and that there was reason to apprehend it might be communicated to the inhabitants of the town of Cadiz ; for I was aware that notwithstanding the guards an intercourse was permitted with persons within the lazaretto, which as already stated was only a temporary establishment. It was most earnestly recommended that all the clothes, bedding, &c. of the people should be destroyed, and that the whole of the sick as well as convalescents, should be washed with soap and water, nothing of the kind having yet been done.

In fact neither clothes nor linen were provided until I obtained the sanction of the British ambassador and the General in command to issue from the stores under my direction, the quantity of articles necessary to supply the sick in the lazaretto ; and we had soon afterwards the satisfaction to witness the good effects naturally consequent on these measures, and which might have been produced in the beginning had it not been for the extraordinary apathy of the Spanish authorities on these occasions.

It ought however to be stated in justice to them, that the most flattering letters from the Board of Health, and from the magistrates, were afterwards sent to me, for the efficacious exertions which had been made in this emer-

gency to check the progress of a highly contagious disorder.

We have seen, that during the summer of 1812, the prevailing winds were from the W.S.W. quarter, and that the S. W. alternating with the east wind, accompanied occasionally with a considerable increase of heat, gave rise amongst the natives to bilious disorders of a putrid type, in which crisis appeared to be postponed and often prolonged to the 14th or 21st day.

In adverting, therefore, to the extraordinary situation of Cadiz in the months of July and August, in which the excessive population was composed partly of strangers to the country and to the climate; and considering the general inquietude of the people, who were forced to take refuge from the enemy's fire in a circumscribed space scarcely one-fourth of the extent of the town, and under every privation of wholesome food, &c. it might naturally have been expected that an epidemic disorder would have broken out amongst the inhabitants. We should have inferred, that all these untoward circumstances co-operating with the various depressing passions, would have tended to the formation of disease amongst them, by increasing the predisposition to receive an impression of any active poison, whether arising from the miasmata

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1813, it appears that the west, and south west winds prevailed; that the temperature of heat had not been unusually high, and that there were not any sudden or remarkable vicissitudes of the atmosphere, that there were but few cloudy or dark days, and that the pressure of the air (according to the barometer kept by Dr. Flores,) had been extremely regular and uniform. The complaints of the natives maintained the same bilious character, and followed the orders of the season without shewing any peculiarity of symptoms, until the end of August.

These observations were made by the Spanish practitioners in Cadiz, but they were equally applicable to the British troops and to our military hospitals; for the disorders of the soldiers admitted there, were so mild as to yield readily to the simplest plan of cure, which consisted in the administration of emetics, purgatives, subacids, diuretics, or laxatives; a moderate and light diet, followed in the convalescent state by tonics, such as columbo, bark, porter, &c.

In drawing the parallel between the years 1812 and 1813, there is this difference observable.

In the one there were notable vicissitudes both in the temperature of heat, and in the weather; and the inhabitants of Cadiz were also under the influence of moral and physical causes,

sufficient, as it was thought, to occasion disease, and yet the town was never more healthy. In the other, that is, in the spring and summer months of 1813, there were no irregular changes of the atmosphere, and the west south west winds generally prevailed, but the heat during the month of August varied from the 81° to the 91° of Fahrenheit, and it was observed that the highest point to which the mercury rose, was 95° , with an easterly wind and a cloudy atmosphere.

This difference in the degree of heat during the month of August 1813, and that of the same month in the year preceding, is certainly very considerable ; it was however remarked, that the state of the public health continued as good as it ever had been at that season. The population of the town, as I have before mentioned, had been greatly diminished by the return of many thousand persons to their homes, as soon as the communication was opened with the different ports and the interior provinces of Spain.

By the successful termination of the war, a prospect of great commercial advantages was opened to the inhabitants of Cadiz, and a new impulse seemed to be given to the exertions and feelings of the people at large, by the expectation of great political benefits.

If ever there had been a period when moral causes could be supposed to produce a general good effect, in contributing to the health of individuals, the present might have been considered as the most likely to have been exempted from an epidemic disorder, and in fact until the end of the month of August, the people collectively were, according to all the reports at the time, in a healthy state.

It may be a question, how far the heat (which, however, was not generally complained of as oppressive) contributed to the individual predisposition to be affected by the disorder, which afterwards broke out. The following is a relation of the few facts recorded during this interesting period.

Early in the month of September 1813, a confidential communication was made to me, that a person was then ill of a fever, of a very suspicious nature (as it was termed) in the well known barrio of St. Maria; and that several other inhabitants had been attacked with the same train of symptoms, and had been conveyed secretly to the public hospital.

On enquiry at the Health Office, I was informed that a report had been received there, of some cases of bilious fever having been admitted into the great hospital, but that there was nothing unusual in them; and that the town was

perfectly healthy. This statement did not satisfy me, and the subsequent events confirmed my suspicions. In the regimental hospital of the German battalion in the British service stationed in Cadiz, a case of fever occurred about this time which excited my attention. The patient was a German soldier, and employed as a servant to the mess of the regiment. His disorder was attended with extremely bad symptoms from the fifth day of his attack, such as dark yellow colour of the skin, petechiæ, hæmorrhage of blood from the mouth and urethra, suppression of urine, subsultus, accompanied by delirium, and a remarkable inequality of pulse.

On the appearance of this case, the usual precautions were taken of *separation, cleanliness, and ventilation*. *Not one of the soldiers, who were at this time under the same roof, and in the same ward of the hospital with other complaints, shewed the least symptoms of the disorder abovementioned, of which the patient ultimately recovered.*

On the 4th of September, one slight case of fever was admitted from the barracks, and on the 6th another of the Germans, with symptoms as *they were* at first supposed of *acute rheumatism*. On the 8th and 10th three more of the Germans, and four of the royal artillery, besides a woman and two children, all from the same barracks, were sent in and put on the sick lists.

On the the 11th, 12th, and 13th, the admissions from the barracks increased, making a total of twenty-two men, besides women and children, labouring under the same form of fever.

Three of the cases admitted, were quartered in the barrack of San Roque, all the others in those of Santa Elena, near the land-gate.

Of the cases of artillery, *all with one exception were officers' servants, and all from Santa Elena.*

The two women *taken ill were the wives* of two of the artillery, admitted into the hospital; *two of the children were of the same families,* and the *third lived in the quarters of serjeant Fischer, who was barrack serjeant,* and was the *second who* died of the disorder. This man belonged to the German battalion, and lived in the officers' quarters at the barracks of St. Elena. The following report of his case was made by Mr. Short, the surgeon of the regiment.

“I learned by accident, on the 10th instant, (September) that he was ill, and I immediately visited him; he said he had been ill two days; he was first attacked in the evening with a strong rigor, succeeded by great heat of skin and sweat, pain over the temples and eyes, and general pain of all the limbs, and across the loins; he had, when I saw him, at three P.M. much heat of skin, a flushed face, and his eyes were red, his

pulse quick and full, and he complained of headache, pain across the loins, and of the limbs; his tongue was *moist*, but dark coloured; on his admission into hospital, pills of extract of colocynth and calomel were given, and repeated until they purged him freely, which effect was, however, not produced until the night following; he then seemed very much relieved of the headache, his face and eyes appeared more natural, the skin became cool, and he complained only of general uneasiness all over his body; he was ordered on the 12th, a mixture of liquor ammon. acetatæ, with tinct. camphor, and a little wine, and his symptoms continued nearly the same until the morning of the 13th, when yellowness of the skin and eyes was perceptible, the pulse fell considerably, and his uneasiness increased; he slept much, and began to rave a little; the decoction of bark with the tincture was ordered with the effervescing draughts.

“ In the evening delirium came on with great restlessness and vomiting; a grain of opium was now given every six hours, a blister was applied to the stomach, and the simple effervescing draughts were administered every two hours. On the morning visit of the 14th, it was found that the vomiting had ceased, that he had passed the night tolerably easy; had had two motions,

and was then sensible, answering questions very clearly and distinctly ; at twelve o'clock he was suddenly attacked with convulsions, frothing at the mouth, with a pulse scarcely discernible ; a blister was applied to the back, and fomentations to the legs, with strong sinapisms to the feet. He remained in this state until four p.m. when he expired."

On examination of the body of serjeant Fischer nineteen hours after death, the following observations were made by Mr. Short : " The exterior vessels of the brain and its membranes were turgid, but no other morbid appearance was discovered in the cavity of the head.

" The substance of the heart was pale, relaxed, and soft in its texture ; it contained blood very black, thin, and tending to dissolution.

" The gall bladder considerably enlarged and turgid, with bile of the natural consistence, but very dark coloured ; the liver was healthy. The stomach was free from inflammation."

The man who was alluded to as being the first who died of this disorder was Gunner M'Allister of the royal artillery. I visited the hospital but a short time after his death, on the morning of the 14th of September ; unfortunately the previous history and symptoms of the complaint had not been so accurately noticed as to enable me to give any account of it, and although

I saw the body, no examination took place, my attention being called about this time to the barrack serjeant, whose case has just been detailed. I found him in the low state peculiar to this fever, but sensible, answering distinctly the questions put to him; and as it has been observed in the surgeons' report, the general symptoms were become more favourable, and there was apparently no immediate danger; the case however seemed to me to require great care and attention; and after having suggested the treatment that occurred to me as necessary, I left the ward to visit another part of the hospital. During the short period of my absence the patient was seized with the convulsive fit as described, and on my return to see him a considerable change had taken place. He was lying in a state of insensibility. There was a dark yellow hue over the neck and breast; petechiæ were observable on the skin, and he continued immoveable until four o'clock in the evening when he expired.

The rapidity with which these two cases had terminated, the frequent admissions from the barracks into the hospital during the preceding week, and the circumstance of several persons belonging to the same family and occupying the same quarters, having been taken ill with symptoms nearly alike, and shewing the striking features of

the pestilential fever, convinced me that the report of its existence amongst the inhabitants in town was well founded. I had previously stated my opinion to the surgeon of the German battalion of the nature of the disorder with which the soldiers were attacked, and I requested him to accompany me to the health-office to ascertain if possible, what was the real situation of the public health.

On our arrival at the office, I repeated the enquiry which I had made in the beginning of the month, and I was again told by the members on duty there that some cases of fever had certainly been sent into the public hospital, but that they were of no consequence, and that there was no cause for any anxiety or alarm. As I was responsible for the health of the British force employed in the defence of their city, I told them that I could not be satisfied with such an answer, and that it was my wish to visit the public hospital, and to *see* the sick that had been lately admitted there. Upon this it was intimated to me, that no person would be permitted to go there, *unless by the express order* of the supreme Junta of the kingdom.

This unexpected remark from two respectable members of the health office surprised me at the moment ; finding however that an *extraordinary* meeting of the Board of Health, newly formed

by the Cortes was then sitting at the town-house, we proceeded thither for the purpose of obtaining some information on the subject of their deliberations. Although I had been appointed by the Spanish government, an honorary member to the Board at Cadiz in 1810, and had received the most flattering public testimony of their good opinion, no notice was sent to me in this instance, as had formerly been the case, in all *extraordinary meetings*. But unwilling to intrude myself, I sent in to request that the physician to the health office, Dr. Mellado would communicate to me the particulars of which it was necessary I should be acquainted. This gentleman immediately came out, attended by the Syndico Personero or chief magistrate, Don Bermudes de Castro. The object of my visit being explained to them, and having expressed a wish that the physician might accompany me to the public hospital; the same reply was made, that an order from the supreme board must be first obtained, and that I might meet with great difficulties, &c. in being admitted to see the sick. It was impossible for me to refrain from expressing my astonishment at this mysterious and unusual conduct; but the true cause will be shewn hereafter, and it will appear that it did not proceed from any want of good will on their part, or on that of any of the respectable and worthy persons

belonging to Cadiz, who were members of the Board, and from all of whom I had invariably received the most marked attention and respect.

As the object which I had in view was one of importance, and not of mere curiosity, it seemed unreasonable to delay my inquiries by going through *forms*, which in Spain are multiplied without number, and as every one knows who has resided in that country, retard most seriously the progress of all public business.

We therefore lost no time in going to the public hospital*, where the Reverend Padre Prior

* This hospital of St. Juan de Dios, or John of God's hospital, joins the town-hall, and is situated in the square of the market-place, and near the street of Sopranis and Boquete, in which the pestilential fever first appeared in the year 1800.

To this hospital all the sick of the poorer classes, of the inhabitants of this quarter of the town (Barrio de Santa Maria) are conveyed, where they are attended by the members of that fraternity. In 1810, I was appointed one of the committee from the Board of Health, to examine into the state of the hospital, in consequence of the great number of deaths that had taken place there.

It was at that time proposed, that the following changes should be made in its interior arrangements, and they were afterwards adopted very generally in that and in the other Spanish hospitals.

1st. To substitute straw palliasses for their nasty flock mattresses, which had been seldom renewed, with an injunction to burn the straw after the illness or death of each patient, and to wash the linen of the beds, &c.

who had the direction of the establishment was sitting, surrounded by the priests of the order, who devote themselves to the important duty of assisting and comforting their fellow creatures in the hour of sickness and of death.

I was prepared for the formality of my reception, and for the surprise which my unexpected visit occasioned amongst them; but on explaining to the Prior the motives of it, and reminding him of the services which I had endeavoured to render the establishment in 1810; he very frankly admitted that I was right in my conjectures, and without hesitation gave directions that every facility should be afforded to me of visiting the sick and the hospital whenever I thought proper.

2d. That the sick should be separated from each other, and their beds moved to a greater distance.

3d. That the upper rooms, at the top of the building, which were dirty and the least airy, and to which the unfortunate sick had been always sent, (as it were to a pest-house) should be thoroughly white-washed and cleansed, and be appropriated to surgical patients, who were placed in the most spacious and best ventilated wards below, which in future were to receive cases of fever only.

And lastly, that personal *cleanliness*, separation of the sick, and the constant ventilation of the apartment should be regularly observed, and all impurities whatever immediately removed: — These were the principal rules in our military hospitals.

We proceeded to the wards of the lower apartments in that extensive building, filled with patients, mostly labouring under complaints, common to the country, at that season of the year. We were then conducted by one of the friars to the door of a narrow staircase, which he unlocked with mysterious caution, and having ascended a gallery leading to the upper wards, we discovered at one extremity about twenty persons, some of them frightful objects, in the worst stage of the fever. On approaching them, the greatest part were lying stretched across their beds and throwing up the dark fluid from the stomach; others were bleeding from the nose and gums, and the dark yellow tinge of the skin in all formed the striking symptoms that presented themselves.

These appearances were sufficient to satisfy my mind, and to identify the disorder with that in the German hospital.

On returning to the Prior's apartment, I observed to him, that we had seen enough to prove the existence of the fatal pestilential disorder in Cadiz; that no one who had ever seen it before, could doubt its nature; that he might expect to have his hospital filled with patients, and I recommended *the strictest* observance of the rules and regulations for its management.

When I took my leave of the benevolent Prior, it was not known that he had not passed through the former epidemic; in the course of a week or ten days afterwards, we heard that he had caught the infection, and died in a few days.

My first public letter on the subject of the fever, was written to the officer in command of the British troops in Cadiz, *immediately* after my return from the hospitals.*

The facts were stated as they had been observed, and I strongly recommended, that the companies of artillery, and the German battalion who were quartered in the barracks, should be sent without delay to the Isla de Leon, and be encamped upon the heights in the neighbourhood of that town; this advice was grounded upon my experience of the nature of the fever which had already shewn itself in some of the soldiers from the barracks.

Major General the Honourable Edward Capel, who was indefatigable in his endeavours to co-operate with me in adopting every precautionary measure (until he was himself attacked with the disorder) waited upon the Governor of Cadiz, Don Cayetano Valdes on the following morning, the 15th September, and communicated to his Excel-

* The 14th September.

lency the purport of my letter, and that it was his intention to move out the British troops to the Isla de Leon, reserving only such detachments as were absolutely necessary to mount the several guards over the magazines and stores in the town.

The Governor received this intelligence with amazement, and expressed his displeasure that I should have taken so extraordinary a step. He deprecated the idea of any contagious disorder existing in the town, and insisted that the public health had never been better, pointing out at the same time the dangerous tendency of such alarming reports, and the evil consequence which might arise to the country at that moment, the Government and Cortes being then assembled at Cadiz.

To all this Major General Capel replied, that he was confident such a report would not have been made to him, had I not been persuaded of the facts I had stated, and that as he felt it incumbent upon him to adopt the measures of precaution which had been advised, the British troops would be marched out accordingly the following morning. The Governor Valdes then requested that my official letter of the 14th September 1813, might be left with him, and it continued in his Excellency's possession for several days.

On the morning of the 16th, Captain Shanley's company of royal artillery, and the German battalion, left their quarters at the barracks, and were marched to the Isla de Leon, eight miles from Cadiz, and encamped on the heights called La Sierra de los Martyres, at the back of town, and fronting the sea to the southward.

The women and children belonging to those corps were obliged to remain in the barracks, until other arrangements could be made for them and for such detachments as were necessary to take the guards and duties in the town.

This sudden movement of the British troops, excited a great sensation in Cadiz. The motives for it were explained in different ways, but the real one being known to the Spanish Government, a consultation of all the native practitioners was called for, and (with the exception of Drs. Arejula, Flores, and Gonzales, the three most eminent physicians in the country,) they gave in a certificate stating it to be their opinion, that the city had never been more healthy than at that time, and that there were no cases of fever of a serious nature, &c. &c.

The Regency, however, notwithstanding this strong testimony of their own officers of health, determined upon removing from Cadiz that night (the 16th) and the ministers, with all the

public authorities, were ordered to prepare to accompany the Government. A formal notification of their intention was at the same time communicated to the British Ambassador, and to all the Foreign Ministers, &c.

It would be of no importance to the subject of this enquiry, (even were it possible) to give an adequate description of the events which followed, or of the state of the public feeling, when the intended departure of the Government was discovered. It will however be readily supposed, that my situation was not the most enviable, from its being generally known that I had advised the measure of moving the troops from the town.

My motives were not only misrepresented, but I was actually suspected of having been influenced by some party spirit, and of sinister views, of which the English were at that time accused. But in justice to the Spanish people, it ought to be stated, that this ungenerous feeling and unfounded jealousy were confined to a few factious demagogues, who were constantly endeavouring by their intrigues, to divide the Government and to interrupt the harmony which happily existed between the two countries.

As it may be interesting to those who never were in Spain, to know what was the political

situation of Cadiz at this period ; the following brief explanation will, I trust, be admitted as proper to be introduced here.

The Regency and Extraordinary Cortes, with all the principal officers of the Government, were assembled in Cadiz.

The body of the Cortes, was nearly divided into two parties, called Liberales, and Serviles. The object of the former or liberal party, was supposed to be unfavourable to the removal of the Authorities from Cadiz, (from amongst the inhabitants of which place a great proportion of the American Deputies had been chosen to supply the places of those who had not arrived from the colonies), and the object of the other or anti-liberal party, was believed to be in favour of the departure of the Government to Madrid. The Liberales having uniformly supported the popular side of the question, had the great majority of the people in their favour, and they were apprehensive of losing much of their influence by the meditated change in the seat of Government ; whereas, the Serviles, or anti-liberal party, who were accused of resisting every measure proposed for the reform of abuses in Spain, strenuously endeavoured, it was said, to hasten their removal to the capital, in the hope of gaining the ascendancy, which they afterwards did obtain, and which ultimately led in a great

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his eloquence and great talents, in which he stated, that from the declarations made by the faculty and the constituted authorities, the town was perfectly healthy, and that there was no foundation for the rumours which had been industriously spread, and consequently no ostensible motive for the removal of the Government. In confirmation of this opinion, a letter was read from the late Lieutenant Governor of Gibraltar, Lieutenant-General Campbell, dated September 13, 1813, and addressed to Sir James Duff, the British Consul at Cadiz, acquainting him "That some cases of fever had lately been observed in the garrison, which gave rise to various reports respecting the public health, but that there was not one of a contagious nature, as they were peculiar to the season only,* &c."

* It was remarkable, that about this time, I should have received a very different account from the principal medical officer at Gibraltar, who was the most competent person to judge of the state of health in the garrison; so that it would appear as if his opinion had not been called for.

The following is an extract of a letter from Dr. Gilpin, deputy-inspector of hospitals, dated Gibraltar, 15th Sept. 1813:—

"I am sorry to acquaint you, that within these last few days, several cases of fever of a serious type, have appeared amongst the civil inhabitants of the town; which we (the surgeon-major and myself) reported to the Board of Health here, of which we are members.

After a long discussion, it was resolved, that an extraordinary gazette should be printed and circulated throughout the country, to quiet the agitation of the people, which the late impolitic measures had excited to a very alarming degree ; and thus terminated this singular enquiry.

Notwithstanding, however, so public a declaration, and from such high authority, there were many persons who remembered too well the melancholy occurrences of former years to be satisfied or convinced by the decision of the Cortes, and especially as it seemed to have been formed upon the vacillating opinions of their own practitioners.

The continued reports which were sent to me from persons on whose judgment I could confide, of the silent but progressive march of the disorder, confirmed me in the propriety of my own conduct on this delicate occasion ; and I firmly maintained the opinion which I had given, in the presence of several of the leading mem-

“ The board recommended the immediate removal of the sick, amounting on the 9th to eight, to a place of observation, on the Glacis, without the gates.

“ The most vigorous methods of prevention have been taken. On this day there are twenty-nine cases in the civil lazaret, and eleven soldiers in the barracks on Windmill-hill, which are appropriated, under the proper regulations, for the reception of the military.”

bers of the Cortes, at the house of Sir Henry Wellesley, the British Ambassador, and before Major-General Capel and Charles Vaughan, Esq. the secretary to the embassy, all of whom, notwithstanding their conviction of my zeal for the service, and the object I had in view, expressed an apprehension that my over anxiety and caution had occasioned this unnecessary alarm.

But the events which in a short time ensued, demonstrated that I was correct in the measures I had advised; and those who have survived the epidemic of 1813, can well attest the truth of the facts here recorded.

In the mean time the troops that had been encamped on the heights near the Isla de Leon, were narrowly watched; for it was to be expected, that contagion was lurking amongst them, and this was actually the case; for on the 18th of September, two days after they had left Cadiz, five of the Germans were taken ill, and being *immediately separated from the rest*, were admitted into the hospital tent, at some distance from the encampment. Three of these men had fever upon them, the other two cases were casualties. On the 19th another German was attacked with fever,

and on the 20th a private of the German battalion of the name of *Beck*, thirty years of age, was suddenly taken ill at seven o'clock in the morning with a cold chill, quickly succeeded by intense heat. In the surgeon's report which was sent in to me at Cadiz, it was stated, "That the patient's skin became dry and hot, the eyes red, and the tongue *moist*, rather white but *streaked* with a *brown line* in the centre, accompanied by *violent pain of the head*, and *remarkable prostration of strength*, the bowels *costive*, and the extremities and muscles of the face constantly affected by spasms."

These were the leading features of the disorder which the surgeon described as he noticed them.

I rode over to the encampment to see this case; it was the most decided instance of a severe form of the disease, and the appearances indicated an unfavourable prognostic.

He had already taken the purging pill, assisted by salts; and other medicines were ordered to be given at night with the usual decoctions, &c.

On the 21st it was reported to me that complete debility had succeeded to the high febrile state of the preceding day; that the pulse was scarcely perceptible, although the intense pain of the head continued, with the skin hot and

dry; the means that were employed produced no effect; the extremities became cold about 12 o'clock; the fæces came away of a black colour, with a deposit like coffee-grounds, and he died at 4 o'clock the same evening.

The bedding and clothes, &c. were burnt, and the body was buried at a proper distance from the camp: two other cases from the same hospital tent, terminated fatally soon afterwards, but not so rapidly.

On the 22d and 26th of September three other Germans were taken ill with nearly similar symptoms; but after the 28th there were few admissions, and the type of the disorder seemed to be entirely changed. *The ground of the encampment was dry; the sea-breezes rendered the situation cool, and refreshed the men; their cloaths, blankets, and knapsacks were daily shaken and exposed to the sun and wind; and due attention was paid to their diet, exercise, and personal cleanliness.* The company of royal artillery was stationed at a short distance to the right of the Germans.

The surgeon to the Ordnance Department, in his report to me of the 18th and 19th September, stated, "that amongst the men of Captain Shanley's company in camp, as yet no case of fever has occurred, and of the four cases who are in hospital (belonging to the corps stationed at

the Isla de Leon) none have shewn the smallest symptom of the epidemic prevailing in Cadiz."

In his letter of the 22d September, from the Isla de Leon, he observed, "since my report of yesterday two cases of fever have been admitted into hospital from Captain Shanley's company in camp; they both have the symptoms, in some degree, similar to those which several of the same company had whom I saw in Cadiz, and are both very ill: and on the 25th another man of Captain Shanley's company was taken into hospital with fever of the same type as the two formerly admitted."

During this period no communication whatever was allowed to take place with the other troops quartered in the neighbourhood; nor was *a single case* of the prevailing fever reported in any of the regimental hospitals: that which was occupied by the Ordnance had formerly been appropriated to the sick of the brigade of Guards, and although it is close to the salt-pans and low grounds, we had no instance of any disorder occasioned by the marsh miasmata during the four years that I had the direction of the hospitals.

But to return to the state of the public health of Cadiz:—on the 17th of September the Surgeon of the German battalion who remained to take charge of the hospital in town, reported the

progress of the disorder in the detachment left behind in the barracks.

Private Schöller, a pioneer, had been admitted on the 13th, he could scarcely speak at the time, but it was ascertained that he had been ill some days; he complained of head-ache, and extreme weakness; of pain across the loins and general uneasiness, and of his stomach; his bowels were costive, his countenance expressed pain and languor, his eyes and skin were yellowish, but the skin cool and moist; the tongue felt cold, *moist*, dark coloured, and tremulous; the fæces that came away were dark and tinged with blood; on the following morning the symptoms continued with the addition of constant spitting of dark clotted blood and occasional vomiting.

Delirium which came on at intervals on the second day, became more constant on the third, and it was of the low and muttering kind, with much sleep, and the pulse extremely low; the whole body was cold and covered with clammy sweat. In this state the patient could scarcely be induced to swallow any thing; an involuntary stool came away, and the bleeding from the mouth continued. He remained however, nearly in this state until half past six on the morning of the 4th, when he expired.

The examination of this body was made at one P.M. the same day, by Staff Surgeon Rice, in my presence, and Surgeon Short.

The lungs were found in a state of inflammation, many adhesions had taken place between the pleura and the lobuli, and a small quantity of reddish turbid serum was found in the cavities.

The pericardium contained nearly four ounces of yellow serum, the heart was firm and sound, the liver somewhat enlarged, yellowish on its upper surface, but sound; the gall-bladder contained a quantity of very dark green and gelatinous bile, and its coats were very much thickened, the ducts were free; the stomach was *greatly inflamed* throughout its inner surface, the inner coat thickened and covered with red patches; we found in it a large quantity of very dark brown fluid, slightly gelatinous, and which had apparently a tinge of blood. This fluid occupied a considerable space in the duodenum; the bladder was turgid; the other abdominal viscera appeared healthy.

The admissions into the military hospital, up to the 24th September, amounted to 54, that is, one officer, 39 soldiers, 8 women, and 6 children, of whom six soldiers died.

The symptoms of the disorder appeared to be much milder after the 19th than they had

been, and they for the most part yielded readily to the action of medicine. It was observed that for several days the wind had blown from the eastward, during which the heat was oppressive, but on the 19th it came round to the northward, and the weather became considerably cooler ; to this change was attributed the amelioration of type which was so perceptible, but it did not tend to diminish the numbers who were taken ill, considering the few troops left in Cadiz after the encampment had been formed at the Isla de Leon.

On the 28th of September, the reports from the Isla were very favourable, and the whole of the troops at that station continued healthy ; on that day I visited the regimental hospital in Cadiz, and the sick appeared to me to be doing so well that I flattered myself we should be able to check the further progress of the disorder amongst the men belonging to the detachment in barracks.

On the 9th of October I made a report to the General commanding the British troops, by which a more just idea may be formed of the progress of the disorder, as well as of the events as they occurred. " On the 28th of September it was stated that the troops at the Isla de Leon continued healthy ; I have now the satisfaction to add, that although several cases of

fever have been since admitted into the hospital at that station, they have been for the most part the common autumnal bilious fevers, yielding very readily to the medicines usually administered, and shewing no tendency to putridity, as in the fatal disease which prevails in Cadiz.

“ I regret that I cannot give an equally favourable report of the state of the detachment remaining at Cadiz ; I had been led to expect that the disorder would have been checked by diminishing the number of persons in the barracks of Saint Elena, but it has continued to spread progressively amongst the men and the different families residing there, and its symptoms have in many of the cases which terminated fatally shewn a very malignant character.

“ From the annexed return, which is a continuation of the one dated the 28th September, it appears that in the short period of twelve days, eighty soldiers have been admitted into hospital from the barracks of the town near the Landgate with the fever. Thirty-six have been discharged cured, seventeen have died, and there are sixty now remaining under medical treatment, exclusive of four sailors belonging to the gun-boats, one of whom (since dead) had been ill two days before any remedies had been administered, and he was sent into the regimental

hospital in a state of delirium. He died on the second day after his admission.

“Independent of the soldiers admitted since the 28th September the following persons were attacked by the disorder in the barracks of St. Elena. Captain Shanley of the royal artillery, who had enjoyed perfect health during the whole time he continued with his company in camp near the Isla de Leon, unhappily for himself, returned to Cadiz, contrary to my earnest recommendation, and on the fourth or fifth day after his arrival in the barracks he was attacked by the disorder. He complained of being unwell on the 30th September and he died on the 5th of October.

“Lieutenant Havendon of the 59th regiment attached to the German battalion; Mr. Dumford, clerk of stores; and Hospital-mate Dundas were successively taken ill; the latter had been constantly employed about the sick in the hospital of the Hospicio since the commencement of the sickness, and he resided in an apartment allotted to him there, which was in the coolest and healthiest part of the town, and continued free from complaint; but having of his own accord changed his quarter to St. Elena barracks, where he slept two nights, he was attacked with fever on the third day. He has been since removed to his old apartment in the hospital, notwithstanding

which, his situation is very critical, but I have strong hopes of his recovery.

“Mrs. Deans, wife to the Provost Marshal, seven other women, and a boy of nine years old have been also attacked with the fever; all these are doing well; the wife of the quarter-master-serjeant of the German battalion is reported to have died after a few days confinement, but of this person there is no accurate account given, as she had been attended by a Spanish surgeon.

“One man of the artillery, who belonged to a fatigue party, that came into Cadiz to remove gunpowder from fort Catalina during this week, was taken ill and received into the regimental hospital of the German battalion.

“No other case of the fever has been reported to me since the return of the party to the Isla de Leon, but of the detachment employed to *white-wash* the barracks of St. Elena, three men have fallen sick, and one of them is since dead.

“The periods of the duration of the disorder in those who died, are as follows; they are noted down in the order of deaths which took place since the last report.

“One man died on the third day from the attack of the disorder; he was employed as a butcher by the commissariat. Four died on the fourth day,

two on the fifth, four on the sixth, two on the seventh, seven on the eighth, and three on the *ninth*, and this has been the longest period of a fatal termination, since the first appearance of the disease this year.

“The whole of the detachment remaining in the barracks of St. Elena were encamped on the Glacis on the 7th instant, (October) and on the following day there were several admissions into hospital. The soldiers had all been on guard in the town; on this day three more were sent into hospital from the camp outside the gates.

“It has been observed that all the cases which have terminated fatally exhibited the marked symptoms of the malignant pestilential disorder too well known by the name of ‘*Yellow Fever*.’ The peculiar discharge from the stomach usually called the ‘black vomit,’ and which had only at first been noted in one patient has appeared in five or six others since the last report, and there has been a greater tendency to hæmorrhage from the mouth. Hiccough has been a more frequent symptom; in one case it continued for three days, and in every one, except in the extraordinary case referred to in my report of the 28th of September, it was the forerunner of dissolution.

“I have entered more fully into this report, to shew that my *first* suspicion of the nature of the

disorder (existing in Cadiz on the 14th of September) was well founded, and that the precautionary measures we adopted in removing the troops to the Isla de Leon, was *justifiable and proper*. Their exemption from disease has been manifested in the clearest and most satisfactory manner, and it has been proved beyond all possible doubt, that contagion had prevailed for some time past in the barracks in Cadiz, and in the neighbourhood, and that very few of those who had been fairly exposed to its influence have escaped its effects.

“ I understand that the regiment of Spanish guards, quartered in the adjoining barracks of Saint Roque, has suffered considerably from the prevailing disorder ; but I am not aware that any active measures have been as yet resorted to for the purpose of checking its progress amongst them. I trust, however, they may be induced to follow our example by encamping every individual, and purifying the barracks by white-washing and fumigating, which has been already ordered to be done to those of Saint Elena, previous to their being again inhabited by British troops.”

Some days after this report was sent in, the Spanish guards were encamped upon the opposite side of the glacis, to that which we occupied, and they regulated their movements by those of

our troops ; but it never could be ascertained whether their barrack-rooms were properly cleansed, white-washed, or fumigated.

The loss in that regiment was very great, although the number of deaths was not published.

It has been shewn to what an extent this fever prevailed amongst the British troops, and what measures had been adopted to prevent its further progress, up to the period of the last report of the 9th October.

In the mean time, the disorder shewed itself in several houses in different parts of the town, but it did *not spread so generally amongst the families* of the inhabitants as it had done in former epidemics, owing, in a great measure, to the circumstance of the greatest part of them having before passed through it, for no one was again susceptible of it, or at least known to have been attacked a second time.

When any individual or stranger in a house was taken ill, the *fever* was commonly confined to that particular house, unless there were fresh objects for it to act upon ; and when it did spread, it was through the medium of visitors and others who frequented the chambers of the sick.

This was known to be the fact, as several of the leading members of the government and deputies to the Cortes, who lived with the

different families in Cadiz, were attacked with the prevailing disorder; many of them died, and the deaths of some of the ablest and best men amongst them excited a great sensation in the town. The disorder, however, was not communicated (in various instances) to the attendants about them, for the reasons already given, it having been ascertained that those persons were natives of the place, and that they had all previously gone through the ordeal of the fever.

The worthy Padre Prior of the public hospital of St. John of God, of whom I have already spoken, was taken ill about a week after I had seen him, and he died on the fifth day after his attack.

It has been mentioned, that during the interesting debates in the Cortes, on the 18th of September, on the subject of the public health, the South American deputy, Senr. Mexia, delivered a very eloquent speech, with a view to quiet the alarm of the people, and to shew that from the state of the weather, and other circumstances, it was not probable that any pestilential fever could prevail in Cadiz, and consequently, that the government was not justified in the steps they had taken, &c.

A few days afterwards, several families retired to the country, and particularly to the town of Chiclana, distant about twelve miles, and where

the principal merchants of Cadiz have their country houses. Amongst other visitors whom I met at the table of Sir Henry Wellesley, were two deputies of the Cortes, one of them the celebrated Mexia.

The conversation turned upon the state of the public feeling in Cadiz, and on the determination of the Cortes on the subject of the late debates, &c.

As the view which M. Mexia had taken of the question about the fever, appeared to me so singular, and the public opinion was so strong against me, I was induced to state the grounds on which I had founded my belief of the existence of the disorder, observing, at the same time, that the certificates which he had read in the Cortes to prove the contrary, were rather political than medical opinions.

M. Mexia then acknowledged that he had spoken upon that occasion, more with a view to quiet the public mind than from conviction, and that he believed I was perfectly right. When the deputies took leave to return to Cadiz, I requested M. Mexia to prevail on the government to adopt some precautionary measures, and to inform them of his *real opinion*; and on parting I cautioned him to take care of himself.

All that has been now stated, passed in the presence of Sir Henry Wellesley, Major-general

Capel, and the secretary to the embassy, Mr. Vaughan; and it was very remarkable, that within a few days after Mexia's return to Cadiz, he went to visit a friend of his, another deputy of the Cortes, who was at the time in the last stage of the disorder, and embraced him but a few moments before he expired. From this source *Mexia* caught the infection; he was himself soon after attacked with the fever, and died on the fifth day.

The death of this distinguished person, and shortly afterwards those of Vega, Lucan, and other deputies, and of the secretary of the Cortes; of Capmany, the Johnson of Spanish literature, besides several worthy Spaniards with whom I had been acquainted, and all of whom frequented the hospitable mansion of the British Ambassador, produced the greatest consternation.

The Regency and the Cortes now united in adopting immediate measures for the removal of the seat of government, and in the course of the week following upwards of 20,000 persons left the city. The Cortes were assembled at the Isla de Leon, and many respectable families crossed the bay to Port St. Mary's, where the disorder had not yet appeared; but which afterwards prevailed there, as it did in other places whither the emigrants from Cadiz had retired.

Some of the inhabitants who arrived at Xeres, with the disorder upon them, were placed in houses under the inspection of the Board of Health of that town, and guards were stationed to prevent any communication with the inhabitants. Lazarettos of observation as they were called, were established in the suburbs, in which all strangers who afterwards arrived underwent a regular quarantine before they were admitted among the inhabitants.

Xeres remained therefore in perfect health, owing to these precautions. Mr. James Gordon who is well known there, confirmed this fact, as did every other person with whom I conversed upon the subject.

At Port Royal, surrounded, as it has been mentioned, by marshes, the inhabitants continued free from the disorder. That town had on former occasions suffered equally with the others lining the bay of Cadiz; but precautions were taken very early to prevent the admission of strangers.

At Seville a few cases only of the fever appeared, which terminated fatally in one family. When I arrived there in the month of April 1814, during the Holy week, one of the principal physicians in that city Dr. Rodriguez, was so obliging as to call upon me at the

Alcazar, and he mentioned that some cases of the disorder, similar to that which he had seen there in 1800 and 1804, had been discovered during the preceding year of 1813, in a part of the city which was the most elevated, and the farthest removed from any low and marshy ground; that it was traced to some individuals who had fled from Cadiz in the latter end of September, when the fever prevailed there.

Dr. Rodriguez promised to send me a detailed account of the above cases, but my hasty departure from Spain prevented my receiving it, and several other important documents on this interesting subject.

I shall now recur to the main object of this enquiry, in which is involved the question of the utility of timely precautionary measures in preserving the health of the British army, under the arduous and extraordinary circumstances in which we were placed at Cadiz.

From the 9th of October, the period of the last report which had been made on the state of the troops, the disorder had continued to make considerable progress, for it had gone through almost the whole of the detachment

left behind in Cadiz, notwithstanding all the precautions we had taken to encamp them on the glacis.

The serjeant and orderly men employed in the hospital were all most severely attacked, two of them died; one staff surgeon and four assistants were also taken ill, and one of the latter was carried off by the fever after a short illness.

It was, however, some consolation to have it in my power to report the continued and uninterrupted state of health of the troops at the Isla de Leon.

Towards the middle of the month of October, whilst the disorder was spreading in various parts of the town, many of the soldiers belonging to the detachment, although they were encamped upon the glacis, in a dry sandy situation, and refreshed by the sea breezes, were attacked with fever, and several of them were admitted into hospital with symptoms of great malignity. On the 20th I received a report of the death of two of the English labourers belonging to the store-keeper general's department, who had been received some days before into the regimental hospital of the German battalion with all the worst symptoms of the prevailing fever.

The circumstances attending the disorder and the death of these men appeared so singular

that I was induced to visit the place where they had resided. The senior staff-surgeon to the division, Mr. Vance, accompanied me to the new church, where we found a temporary shed had been erected for three persons to live in, who had charge of the public stores that had been landed from England and deposited in that building. At the opposite extremity of the church there was a space railed off for the reception of the dead bodies which were brought thither from the different parts of the town during the day or night previous to their interment.

At this spot crowds of the lower orders of the inhabitants, consisting chiefly of women and children were improperly permitted to assemble to see the dead bodies, which in Spain are exposed to view with the faces uncovered, and I learnt on enquiry from the only surviving store-keeper, that his two companions had, previous to their illness, been in the habit of looking through the gratings and of mixing with the people. As the two men above-mentioned had never been in the barracks, and had not had, as far as I was able to ascertain, any communication with the sick, there could be no doubt but that their illness must have originated from this source, and it became the more probable as their disorder was of short duration, and as it was attended with

all those marked signs of malignancy which usually accompany diseases arising from contagion, and which had been observed in so many of the fatal cases of the prevailing malady in Cadiz.

In my report to the officer in command it was stated, that from the frequency of admissions of fever-cases lately into the regimental hospital from the detachment in camp on the glacis, and especially from amongst the men who mounted the guards in the town, I was led to suspect that the corporals' guard stationed daily at the new church might have been also exposed to the same poisonous vapours, for I had observed two soldiers standing very near the railing which inclosed the dead bodies, and hence it was likely the rest of the men, when not on duty would also indulge their curiosity in the same way and mix with the crowd.

The facts here mentioned appeared to me sufficiently strong to warrant the conclusion drawn both by Staff-surgeon Vance and myself, I therefore recommended that so long as the sickness continued those sentries only who were of necessity obliged to be placed over the stores should be permitted to enter the church, and that a guard room should be provided at a short distance from the building, &c. &c.

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tion may in a great measure be attributed to the circumstance of their having formed a part of the detachment which *came last* into Cadiz from the Isla de Leon, and were less exposed to the causes of the disorder, to their having been mostly encamped outside the town, and to the barracks having undergone a thorough purification previous to any of the soldiers being permitted to return to them."

As under the existing favorable circumstances, it was intended to bring into town the remainder of the German battalion, I suggested, that in order to remove the possibility of danger arising from infection, which might still be lurking in the barracks, it would be advisable to destroy all the blankets, rugs, old jackets or trowsers, &c. that had been used by the Germans during the late sickness, and it was further recommended that all other articles of clothing fit for use might be washed and exposed frequently to the air, previous to the return of the battalion from the Isla.

Thus terminated the epidemic of 1813; this disorder, which in former years had spread very generally in Cadiz, and from thence to other parts of Andalusia, as it has been shewn, made comparatively but little progress this season; it had been subsiding gradually from the latter end of October, and it appeared, as at other

times, to be checked by the cold weather, which began to set in late in November. The mortality was not so great, neither were such numbers attacked with the disorder as formerly; and for this reason; between 20 and 30,000 people fled from Cadiz about the same time with the Government and the Cortes, to the Isla de Leon, Port St. Mary's, &c. and escaped. The greatest part of the remaining inhabitants had passed through the disorder in the different epidemics of 1800, 1804, or 1810; and I may again repeat this remarkable fact, that no instance occurred of one of them ever having taken the fever a second time; so that when strangers, or those who had not before been ill, were attacked by the disorder in a family, it did not spread to other individuals in that house; this fact has been established by the experience of 14 years, and it is of the highest importance, as it proves beyond all doubt the real character of the fever. If it had not been judged expedient to relieve the detachment in Cadiz by fresh troops from the battalion stationed at the Isla de Leon, the disorder would soon have been got under; but so long as new subjects were exposed to its influence, it became impossible, and we had no resource but to wait for the approach of the cold season, when the epidemic has always been known to terminate.

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hips, thighs, scrotum, &c. became black, a great part of the body was livid, and the epidermis peeled off the back; although he had not vomited previous to his death, a quantity of black fluid was discharged from the mouth shortly after.

Mr. Short the surgeon of the German battalion, who was indefatigable in his attention to the duties of his hospital, informed me in his report of the 3d of November 1813, that five soldiers were taken ill whilst under a state of ptyalism, from the use of mercury.

One of them had very severe symptoms at the commencement, which continued unfavourable during the progress of the fever, accompanied by vomiting and hiccough with little intermission for three days, yet he recovered; the others exhibited symptoms comparatively slight.

A man who had taken the blue pill, and had used mercurial frictions for a considerable time on account of an extensive chancre, but *whose mouth was never affected*, although the ulcer put on a healthy appearance, was taken ill with the fever and died on the fourth day.

Mercury, in the hands of Staff-surgeon Vance, proved to be of no use, except as a purgative in the beginning of the disease; and it is shewn from instances abovementioned, that it did not act even as a preventative. Emetics had been found so prejudicial on former occasions, that

recourse was seldom had to them in those cases in which it had been thought advisable to administer them ; the irritability of the stomach was brought on or aggravated by them, and they induced an irregular determination of blood to the head, without superinducing perspiration or affording relief to the patient.

From the turgidity of the vessels of the eyes, the excessive pain over the orbits, the great heat of skin, and in some instances the lethargic state appearing to arise from an undue determination of blood to the head, Staff-surgeon Vance was led to bleed five men labouring under these symptoms ; the quantity of blood taken away was from twelve ounces to a pound. Four of them were a little relieved from the violence of the headache, and one received no benefit. Of these five cases one died on the sixth, and another on the seventh day with the usual symptoms ; and the three remaining patients were left in such a state of debility and they recovered so slowly that he was deterred from using the lancet again.

As I was in the daily habit of visiting the hospitals I had an opportunity of observing the effects of the practice which had been agreed upon, and in the treatment of this disorder, it was very satisfactory to me to witness the zeal, humanity, and judgment that were displayed by

all the gentlemen of the medical staff under my direction.

Mr. Vance, surgeon to the forces, and Mr. Short, surgeon to the German battalion, were conspicuous for their talents and good conduct; the latter had been with me at Cadiz during the first epidemic of 1810.

Their opinions on the nature of the prevailing disorder, were transmitted to me in the official reports, and in justice to them the following extracts, relative to that subject, may be inserted here.

In Staff-surgeon Vance's report of the 2d of November 1813, he stated, he had no doubt that the epidemic "which has lately prevailed in Cadiz, was the same as that which he witnessed in the West Indies, Carthagená, and other places; that it had been imported this year and kept up here by specific contagion was to him equally obvious."

Mr. Short in his official report of the 2d of November, stated as follows:

"The soldiers of the German battalion who had the *typhus fever* in February, 1811, (mentioned in p. 240.) and those who suffered from the autumnal fever of the same year were taken ill of the prevailing disorder in Cadiz, in the same proportion and in the same manner as the other men.

“ The grenadier company which arrived from the Isla de Leon on the 3d of October, although they remained free from illness for a few days (and encamped on the glacis) yet they *soon* began to send in sick and had the fever in the same proportion as the others.

“ The illness of the hospital serjeant and his wife, and of four of the hospital orderlies, when joined to the manner in which the fever ran through families and people living together, as also the illness of so great a proportion of medical officers, left no doubt upon his mind of the contagious nature of the disorder.”

In his report of December the 4th, 1813, Mr. Short observes, “ I may be here allowed to express my firm conviction that His Majesty’s service owes the saving of a great many valuable lives to the prompt measures taken on the first appearance of this destructive disease to remove as much as possible the troops from its influence, and to the vigilance used in destroying the first symptoms of attack.

“ The proportion of deaths hitherto has been about one in six of those who were attacked with the disorder and who came under my observation, and I find that the men suffered infinitely more than the women and children ; and those who found means to conceal their illness for two or more days, almost invariably died.”

General Abstract of the returns of the military hospitals at Cadiz and the Isla de Leon, from the years 1810 to 1813 inclusive, shewing the number of soldiers belonging to that division of the army, who were admitted, discharged as recovered, or died.

		Men.
Admitted in Regimental or General Hospitals.	From the 18th Feb. 1810.	} 11,752
	to the 24th Dec. 1810.	
	From the 25th Dec. 1810.	} 7,
	to the 24th Dec. 1811.	
	From the 25th Dec. 1811.	} 5,521
	to the 24th Dec. 1812.	
	From the 25th Dec. 1812.	} 2,651
	to the 24th Dec. 1813.	
Total admitted		27,467
Died - - -		611
Discharged from the hospitals to join their regiments in the above period }		26,856

It would appear from the above returns, that there must have been considerable sickness amongst the troops employed in the service of Cadiz, and that the number of admissions into the hospitals was extraordinarily great; but it may be thus accounted for:

Almost the whole of the men were slightly affected at different times upon their first arrival in Spain, owing to the change of climate, the difference of food, &c. Many of their complaints were so mild that it might have appeared in most cases unnecessary to send them into the hospital. It was however my invariable rule to direct the regimental surgeons to examine their men frequently, both in barracks and in the ranks, and whenever any of them *seemed unwell* or *complained* (which it must be observed soldiers will never do until they are actually *ill*, and sometimes not *even then* unless rigorously watched and strictly questioned) they were to be immediately separated and sent into the regimental hospital. There they remained probably three or four days, and after having undergone the operation of bleeding if necessary, warm bathing, a smart purgative, or emetic, the men were again discharged to join their regiments. This plan was often pursued perhaps with the same individual at different periods, and his name returned accordingly as a fresh case admitted, or the same patient may have been transferred from the regimental to the general hospital, hence might arise the apparent excess in the number of admissions compared with the actual force of the division.

It may however be fairly concluded from the small number of deaths shewn in these returns, that the greatest possible care must have been taken to preserve the health of the troops, and that there cannot be a stronger testimony in favour of the professional conduct of the medical officers of the army at Cadiz, over whom I had the good fortune to be placed, and to whose zealous discharge of their duty I was so greatly indebted for my success in conducting the department.

They also exemplify a very important truth, that by paying early attention to the *trifling* complaints of soldiers, and by meeting the first symptoms by preventive means, so as to *interrupt* the formation of disease, many valuable lives may be preserved which by neglect or inattention might be lost to the service. This is clearly demonstrated by the result of our observations at Cadiz; for notwithstanding the two epidemics of 1810 and 1813, and the number of wounded after the memorable battle of Barrosa in 1811, with other casualties attending the operations of a siege; it will, I trust be admitted that our loss was proportionably small considering the period of three years, and that the mortality was much less than might ever be expected to happen again in any other station so situated or under similar circumstances.

OBSERVATIONS ON THE TREATMENT ADOPTED BY
THE SPANISH PHYSICIANS IN THE EPIDEMIC
OF 1813.

I MIGHT here, with great propriety, have closed this report, as enough has been said to prove the contagious nature of the disease which prevailed in Cadiz during the year 1813, and to establish its identity with that of the preceding epidemics; but as it may be expected that I should state the latest opinion and practice of the Spanish practitioners, I shall relate as briefly as possible the result of their observations, together with a few cursory remarks upon this subject.

It was stated in a former part of this report, that the three most eminent physicians in Cadiz (and I believe in Spain) Drs. Arejula, Gonzales, and Flores, did not sign the certificate given in to the government in the month of September, and that they uniformly maintained the same sentiments respecting the contagious nature of the disease which prevailed in that city; they had witnessed the different epidemics from 1800 to 1813, and in all the communications which I had with them both in public and private, their opinion of its origin and progress was invariably the same; and I can affirm, that

during the five years I had the satisfaction to be intimately acquainted with those respectable men, I never heard them express a doubt of its having been imported in 1800.

Don Francisco Flores, the professor of botany in the College of Medicine at Cadiz, is the only practitioner who has published an account of the last epidemic. This distinguished physician was the companion of the ill-fated Malaspina, in his voyage round the world in the Spanish corvettes, *Descubierta* and *Atrevida*, from the year 1789, to 1794. To an extensive knowledge of his profession, he unites all the amiable qualities of private life, and the acquirements of an enlightened scholar.

The limits of this work will not admit of entering into the merits of his publication *, or into his theory of the disease; it may be sufficient for me to give an outline of his practice, which I believe to have been the best and the most successful. After describing the disorder which appeared amongst the natives, he says, “ the Typhus-icterodes or yellow fever that has

* Ensayo Medico-practico sobre el Tifus-icterodes, Fiebre amarilla comunmente dicha, padecido en esta ciudad por los años de 1800-804-810, y 813. Escrito y publicado por el Dr. Don Francisco Flores Moreno medico, honorario de camara de S. M., &c. Cadiz, 1813.

prevailed of late years in Andalusia, is similar to that which had ravaged the United States of America, and the West Indies, and which has been described by different authors under various names. That the disease is of a contagious nature and foreign to Spain, and the symptoms which accompany it are very different from those which mark the disorders of that country.

“To a want of vigilance in the police and inattention to the public interest, in permitting the entrance of vessels from infected places, may be attributed the appearance of this disorder in Spain; for it has been shewn, that from the peculiar healthy situation of Cadiz, and from the meteorological observations of several years, it could not have originated there from local or atmospheric causes; and this opinion, the result of fatal experience, has been fully confirmed by all the principal Spanish writers on the subject.”

The following is the plan of treatment recommended by Dr. Flores, from *the middle of September* 1813, the period when he first visited patients attacked with the disorder, and in whom all the symptoms which characterise the typhus icterodes were soon apparent.

With this view, when called to see the sick in the evening or at night, (which is the usual time

of the invasion of the disorder,) his first object was to *tranquillize* the mind of the patient as much as possible ; an emollient injection of sweet oil was ordered with an infusion of some warm aromatic flowers to encourage perspiration, and sinapisms were applied to the feet to lessen the weight and pain of the head.

The quantity of ten grains of the submuriate of mercury and ten of jalap, with a drachm of sugar was directed to be in readiness to be given the following morning early, or in divided doses, according to the circumstances of sex or age, assisted at the same time by barley water or light broths, until the bowels were perfectly emptied, the evacuation being occasionally accelerated by injections, and by a solution of crystals of tartar.

In this manner he proceeded for the first or second day of the disorder, (but not after that period) without observing any other inconvenience than a slight vomiting, which however was obviated by afterwards giving the calomel *only* in the form of *pills*, of two *grains each*, in the following manner :

After having prepared the patient in the way already mentioned, or if called to see him in the evening or at night, (and without any preparation, if in the morning,) he began with one pill, and in an hour and a half after-

wards a cup of light broth was allowed. The pill was repeated in an hour following, and continued until the bowels were loosened. Sometimes this object could not be obtained after taking four or six of these pills, which was the common dose for an adult ; in this case, after waiting the usual time for their effect, injections of sea water, with four spoonfuls of oil were thrown up, which almost invariably produced copious evacuations, which were encouraged by lemonade, and crystals of tartar ; but where there was great sluggishness of the intestines, an ounce of the sulphate of magnesia and two of manna were dissolved in a pint of decoction of tamarinds, of which the patient drank a small portion every three hours ; and on other occasions a spoonful of castor oil was administered every hour, repeating the injection at intervals according to circumstances.

This method, being pursued as far as the state of the individual would permit, never failed to promote an abundant bilious discharge, leaving the sick, after such evacuations, in the completest tranquillity and ease ; the disposition to vomit ceased ; the anxiety and troublesome uneasiness at the region of the stomach were diminished, as well as the pain and weight of the head, and in most cases a gentle perspiration appeared upon the skin.

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necessary to assist nature by more powerful means.

In general the first symptoms (after the febrile accession of the third or fourth day) which announced the exacerbation of the disorder, were the anxiety, uneasiness, and heat of the epigastric region, which usually predicted the approach of *the black vomit*. This commonly came on whilst the fever was passing from the fourth to the fifth day, commencing by the stomach throwing up any aliment, particularly animal substances, and continuing frequently in such a state as to be unable to retain medicine or food of any kind.

Under these circumstances a strong cataplasm of mustard and vinegar was applied to the stomach, which generally gave relief as soon as it began to act; injections of mallows with sea-water, or two drachms of Glauber's salts were likewise ordered, and to be repeated every three or four hours; one or two spoonfuls of a mixture composed of sp. æth. vitr. c. and tinct. of opium, were frequently given, and especially before taking aliment. At the same time the strength was supported by means of the tincture of bark, to which were added opium and æther, and sometimes the extract, in the proportion of two drachms to a pint. In cases in which vomiting was early excited, small quantities of farinaceous sippings were substituted for animal broths.

When the irritability of the stomach was such that the nausea and vomiting were excited by the common dose of the tincture of bark and the extract, and particularly by too frequently giving medicine as well as nourishment, attended by prostration of strength and extreme lowness ; the chief object was to endeavour immediately to correct this mobility of stomach and to counteract the debility which increased rapidly ; this was effected by ordering small quantities of tonic, nervous, and antispasmodic medicines, which in ordinary cases, were administered from the sixth day of the disorder, or before, according to circumstances.

Two or three spoonfuls of a decoction of bark with serpentaria, æther, and tincture of opium, were given every three hours, or before any nourishment, every other remedy being suspended except the use of injections, which were continued throughout the whole course of the disorder, provided the evacuations were not too frequent.

But notwithstanding this practice, which was adopted with every possible care, it frequently happened that the vomiting, or at least the efforts to throw up, continued, at the same time that the hiccough came on ; when the disease arrived at this period, no time was to be lost in substituting a blister to the stomach, for

the mustard plaster; and for the hiccough, which frequently continued several days, the musk mixture was given every three hours, with or without the decoction.

In those cases in which extreme weakness and insensibility came on, blisters were applied to different parts of the body, and when the stomach would permit their use, the diffusive stimuli were added to the bark, not forgetting the best of all, which was old hock, malaga, or sherry.

After the month of October, the disorder assumed a marked character of putridity; the bloody tongue, although *moist* (a peculiar symptom of this fever) the *oozing of blood* from the *gums*, and from other parts of the mouth, required the use of mineral acids, together with injections of bark, two drachms of the powder dissolved in the decoction anthemidis, to which were sometimes added, juice of lemon, or vinegar, and on other occasions, a *grain of opium*.

Such had been the method which Dr. Flores had employed in the cure of the greatest part of the sick, whom he attended in this epidemic at Cadiz, in 1813, and although the debility, prostration of strength, and other symptoms which mark the feebleness of the vital power, seemed to have contraindicated the first evacuations, he

never omitted to promote them, from the experience of their utility ; and he was persuaded, that in all those patients who in the beginning had used the calomel, either with or without jalap, the symptoms which were developed in the progress of the disease, yielded much more readily than in those persons, who, although they had been well purged in the beginning, had not taken this preparation of mercury, in the manner already described.

Having heard of the wonderful cures which were reported to have been effected by the early administration of bark in this disease, and in much larger quantities than were ever (I believe) given before. I determined, after the termination of the fever of Gibraltar, to go over to Algesiras, and to have a personal interview with the Spanish physician, who had been so successful and had written upon the subject. I had seen in a supplement to the Madrid Gazette of the 19th of July, 1805, printed by order of Government, an analysis of a Treatise, upon this new and infallible mode of preventing or curing the Yellow Fever, by Don Tadeo Lafuente, Physician to the armies of his Catholic Majesty, and Inspector of the public health in the camp before Gibraltar ; which, it was added, having obtained the royal

approbation, the method recommended was entitled to particular notice.

I found Dr. Lafuente intelligent and well-informed, but the most sanguine person I ever met with, in the virtues of the bark. He assured me, that if administered in *large doses*, it was a great specific: the public opinion, he observed, both in Spain and in other countries was rather unfavourable to this remedy, in the cure of the disorder; and he was even inclined to admit, that there was some ground for the complaints daily preferred against the use of it; but that the fault lay not in the medicine itself, but in the mode of administering it; he was persuaded, that if *his* method was adopted, the cure of the yellow fever, would be equally certain with that of a tertian ague, and he did me the favour to explain it as follows:

The person attacked with the disorder *was to be made to take*, at least, *six or eight ounces of bark in the first forty-eight hours*; and it was of great importance, that it should be given as soon as the symptoms of the fever make their appearance.

At the village of Los Barrios, but a few miles distant from Saint Roque, said the Doctor, there were 90 patients who took the bark between the first and eighth hour of their falling sick; none died, except one man, who was carried off by a gouty affection, under which he had laboured

some time. Of eight patients to whom it was administered between the eighth and tenth hour, all recovered; of five, who began between the twelfth and the twenty-fourth hour, three recovered and two died; of twenty, who never resorted to it till the second day, thirteen recovered and seven died; of seventeen who waited till the third or fourth day, eight recovered and nine died; and lastly, out of eighty-nine persons, who made no use of the bark, but took other medicines, (sudorifics included) only twenty-two recovered, and the remaining seventy-seven died: upon this, Dr. Lafuente observed, that in those to whom the above quantity of bark had been given within the first ten hours, a complete stop was put to the disorder, and they found themselves perfectly well and able to go out on the fourth day, without entering upon the second and most dangerous period of the fever, which begins on the third day; in those, on the contrary, who had lost time in taking of this medicine, the fever entered more or less upon the second period; its symptoms were attended with a greater or less degree of violence; and the patients were in much greater danger, although they might ultimately recover.

Dr. Lafuente and Don Joaquin Bobadilla, a physician at Los Barrios, at first began to clear the stomach by some slight emetics, but several

of the natives and particularly some of the *old women*, who were now satisfied as to the efficacy of the bark, often attempted to cure themselves without medical assistance, and they thus taught the doctors not to lose a moment, in *preparations* for the use of this remedy. It was usually observed that some patients recovered, whether they took *emetics* or not; but it was found *highly necessary* to be cautious how they were used, as they not only took up much valuable time, but they were apt to leave the stomach in such a state of irritability as to prevent its retaining the bark. So much were the judicious part of the inhabitants assured of these facts, that they contended as it were who should take most bark in the first forty-eight hours, or who should begin the earliest. No other remedy therefore, was resorted to by the greater number of patients than sending for half a pound or more of the bark in powder the very moment they felt the *first shiverings*, and swallowing it in large spoonfuls to the amount of a full ounce, or half an ounce, or at the least three drachms of bark every two hours, *without losing time or allowing themselves rest or sleep either by night or day*. There were some sick, continued Dr. Lafuente, who took ten, twenty, or *even thirty-eight ounces* of it in a few days, after a relapse

brought on by carelessness or excesses, and sometimes they went on with the bark without necessity, and merely by way of security. However, it was thought better that those who should wish to make a moderate use of the bark, might divide every ounce into three doses, and take one every two hours, with a little broth in the intervals; by which means the quantity of eight ounces would be more readily taken in the forty-eight hours.

Dr. Lafuente observed, that although the patient should throw up one of the doses, he ought to have another as soon after as possible, so that there might be no diminution of the above-mentioned quantity of eight ounces, without allowing him to lose more than a quarter of an hour to quiet the irritability of stomach. If there had been any neglect or time lost, one dose of the bark was to be taken, and repeated in an hour afterwards, and at the third hour some broth was allowed; and in this alternate manner the patient was treated without allowing him *one moment's rest*, until the lost time was made up and the danger averted, which otherwise might have arisen from neglect or delay.

The vomiting which accompanied this disease did not usually begin before the third day, and this was an additional reason why not a moment

should be lost in the first forty-eight hours. To patients, who from a natural dislike to the bark, could not retain it in powder, it was recommended to be given in the form of pills. Dr. Lafuente did not confine himself to laying his observations before the public, and proving their authenticity by a legal instrument signed by twelve respectable individuals; but he also endeavoured to confute the objections which might be made against his method of cure, and amongst other assertions maintained that people of the most delicate constitutions might swallow as much bark as they chose; that the fever, was not inflammatory in any of its periods; and though the copious and hasty administering of bark might bring on a temporary retention of urine, it could be easily cured by rubbing the lower part of the belly with oil, and ought not to be confounded with the suppression of urine, which was usually a mortal symptom in the second period of the disease.

Lafuente also mentioned, and it appears in the work referred to, that he as well as the physician at Los Barrios, and a Friar, who attended the sick, kept themselves free from the contagion at the time when it raged with the greatest violence, and to which they were constantly exposed, by taking half an ounce of bark every morning; and that, having at last agreed to dis-

continue their daily medicine, in the confidence that the disease could no longer prove fatal to them, *they were all taken ill* a fortnight or three weeks after, but soon got rid of the fever by taking some bark within the first forty-eight hours. Dr. Lafuente's concluding observations were important, for he affirmed, that by sending the sick to well ventilated cottages in the country, instead of confining them in hospitals or other regular buildings, not only the patients themselves had more chance of recovery but the nurses who attended them were not under any apprehension of catching the fever, as there *was no instance* of any of them having been taken ill among no less a number than 100, who were employed in a lazaretto of cottages, eight or ten yards distant from each other, which was established in the neighbourhood of Los Barrios.

Some time after my interview with Don Tadeo Lafuente at Algeciras, I made a visit with him to the town of Los Barrios, where I became acquainted with the physician of the place and the above-mentioned Friar. I was accompanied by them and several of the inhabitants to the lazaretto, about a mile from the town, and it was the completest of any I had ever seen. Small huts or bivouacs of canes and branches of trees were arranged in line, and divided into regular

streets. In these the sick had been provided with every thing necessary, and the disorder was certainly not propagated to any of the attendants; although these huts appeared to be so well covered as to admit neither rain nor sun, and seemingly little air, the ventilation was constant and uniform. This was proved by three of us remaining in one of them with the door closed whilst a quantity of sulphur was thrown upon some burning charcoal, from the fumes of which we experienced no inconvenience whatever, as they escaped through the innumerable apertures which were not visible to us, owing to the boughs and leaves that covered the huts.

On our return to Los Barrios the Friar, who was about 30 years of age, very fat, and of a lively disposition, professed himself an enthusiastic admirer of Lafuente's system, and to shew me with what facility a large dose of the bark could be taken, he called for a paper of the powder, and having mixed a quantity, more than half an ounce, into the form of a bolus, and covering it over with wafer-paper, he swallowed it with an air of triumph, accompanied with gesticulations that seemed to amuse the whole of the party assembled; he then appealed to them, if during the fever, they had not adopted the same practice of taking the bark;

and there was not one who did not attribute his safety to that remedy.

The Spanish physicians, who had given the bark in the beginning, were soon deterred from its continuance, and I doubt much, if ever the large doses recommended by Dr. Lafuente were administered with the same constancy and perseverance. I can say nothing from my own experience on the subject, nor from that of any of the English practitioners. The British soldiers, who are alone the subjects of the disorder in military hospitals, are very seldom indeed, received into them, or reported sick, until the fever has been fairly formed, and a long interval too often elapses, before they come under the physician's care ; there could be no doubt that the bark under such circumstances would be improper, their mode of life being totally different from that of the Spaniards, who were the subjects of Lafuente's treatment. The former live mostly on animal food, and are in the habit of drinking plentifully of wine and spirits when they can be got, and the latter accustomed to little animal food, live chiefly on farinaceous and vegetable matter, with water as the common beverage.

From all the enquiries I was able to make, Lafuente's method of treating the disease *with*

bark, does not seem to have been generally approved of in Spain, during the later epidemics; the Spanish physicians appeared to have adopted, with the exception of Dr. Flores and Gonzales, the general plan of treatment recommended by Dr. Arejula in 1800.

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REPORT V.

OBSERVATIONS ON THE BILIOUS, OR AUTUMNAL
REMITTING AND INTERMITTING FEVER (CALLED
THE WALCHEREN FEVER) WITH REMARKS ON
THE TREATMENT OF THE DISEASE, AS IT
APPEARED IN THE MILITARY HOSPITALS AT
COLCHESTER IN THE MONTHS OF SEPTEMBER,
OCTOBER, NOVEMBER, AND DECEMBER, 1809.

DURING the months of August and September 1809, the sick soldiers belonging to the several corps, forming the first division of the army that returned from Zealand, were received into the regimental hospitals which had been previously prepared for them in this country.

But in consequence of the daily increased number of invalids, it was found necessary to form general hospital establishments at different stations in England, particularly at Plymouth, Portsmouth, and Deal, and similar arrangements

were ordered to be made at Harwich, Ipswich, Colchester, Norwich, and Yarmouth, for the reception of the sick, as they arrived from Holland, without regard to the regiments to which the men belonged.

The management of these extensive hospitals, was entrusted to the Physicians and Surgeons of the army, and they were assisted in the duty of attending the sick, by several eminent country practitioners, who were attached to the medical staff, as long as their valuable services were required.

Having been ordered to superintend the establishments at Colchester, I found on my arrival there in September 1809, that the regimental hospitals had been already filled with the sick of the two battalions of the 4th, 20th, 28th, and second battalion of the 43d regiments, the whole amounting to 1400 men; and we had soon afterwards occasion, to convert the greatest part of the temporary barracks at that place, into general hospitals, which were accordingly opened on the 9th of October.

The complaints of the soldiers admitted into these last, were generally of a slight nature, compared with those which had already been received into the regimental hospitals; the worst cases that were afterwards brought over from Holland, were taken to the hospitals at Harwich,

immediately on their being landed from the transports.

Those, whose strength allowed of their removal to a short distance, were sent to Ipswich, and the third class of sick, in whom the disorder did not appear to have made much progress, were selected from the others, and forwarded in waggons to Colchester.

The total number of this last description of persons admitted (independent of the sick in regimental hospitals) amounted to 741, from the 9th of October to the 20th of November; and from the following regiments, viz. 1st regiment of guards and staff corps, 9th light dragoons, 1st, 2d, and 3d battalions of the royals, 2d or Queen's, 5th, 6th, 9th, 11th, 13th, 14th, 20th, 23d, 26th, 28th, 32d, 35th, 36th, 38th, 51st, 68th, 76th, 77th, 81st, 82d, 84th, 92d, and 95th regiments.

The men belonging to the above corps, whose diseases appeared most severe, were separated from the slighter cases, and they were placed in the best and most airy wards; the whole hospital establishment was conducted upon the same plan, and formed into two divisions.

These were formed into subdivisions; the first, second, and third, held the worst cases of fever; the fourth was allotted to convalescents, and the fifth to the recovered men: to

this last subdivision the patients were regularly transferred from the others, according to their progressive state of amendment ; and this mode of changing the air and scene was invariably adopted, which by thus affording new impressions to the sick, contributed essentially to their ultimate recovery.

Although the soldiers who had passed through the convalescent period were sent to the *fifth* or recovered division, they were *narrowly watched* and subjected to *daily medical* inspection. *Full diet* was however allowed to them *there*, which they *had not been permitted to have during convalescence*, and they continued to undergo this probation for a fortnight ; at the expiration of which time, the whole of the men in the fifth division were re-examined by a Physician and surgeon of the establishment ; and if there was no appearance of disease amongst them, or tendency to relapse, they were returned *as fit to march* ; and as soon as their routes could be made out, the different parties were conducted to the depôts appointed to receive them.

We had been led to make the above arrangements from having often seen in former campaigns the very injurious consequences that resulted from the too early discharging of convalescents from the hospitals, or more properly

speaking from the rules and discipline of medical control.

The great object was to prevent relapse, by strict attention to the exercises and diet of the men, and to the state of their bowels. The military officers, who were persuaded of the utility of this plan, assisted those of the hospital in their views to restore the health of the soldier by accustoming him daily to the duties of the parade and to his military habits, so that the service could lose nothing by the detention of the individual from his corps, for so short a time beyond the period of recovery in the hospitals.

In the distribution of the extra diets, or what are termed *medical comforts*, a discretionary power was given to the medical officer in attendance; but one general principle was admitted by all, and acted upon throughout the establishment; that *wine* and *spirits* were not found to be *absolutely* necessary to the removal of the *Walcheren* fever, as it was called; and, that during the *progress of convalescence*, the management and *quantity of diet* was to be considered of the highest importance in effecting a perfect recovery. A very contrary opinion had long prevailed, and it is the popular one in the army, that the British soldier required more nourishment and more animal food than those of other countries, and hence arose the profuse

and liberal allowance of every article that could be thought of, which tended rather to satiate, than to satisfy the appetites of persons recovering from acute disease.

The different diets were therefore regulated at Colchester, upon the idea of utility, in preventing repletion, as inducing relapse; and they were prepared and distributed to the patients at regular periods, under the inspection of proper persons.

A board of commissioned medical officers was held weekly to control the hospital expenditure; the Purveyor's contingent accompts were then examined previous to their being transmitted to the proper office in London, and the same regularity and order prevailed throughout its interior economy. It may be remarked here, that the article of *wine* *, of which a large quantity had been provided, by order of Government, for the *wants of the sick*, and of which there has always been a *liberal* use in military hospitals, was very early found to be of so little benefit as a

* It appeared, in the return of that establishment, that out of *two pipes* of port wine, which had been sent down to the general hospitals, *scarcely one pipe and a half* had been consumed from the 9th of October (when the establishments were first opened) to the 30th of November, although the number of sick, as it has been stated, amounted during that period to 741 men.

remedy in the cure of the disorder at Colchester, that it was seldom prescribed by the Physicians.

In the regimental hospitals the same system was pursued, for it soon became evident to the Surgeons that the prevailing complaint did not require the aid of powerful stimuli, (such as wine and spirits) nor indeed could their use accord with our theory of the nature of the disease, which was grounded on the experience we had acquired in its treatment, and which will be explained in the following pages; but this fact is certain, that recoveries were more perfect, and relapses consequently less frequent under this management; and the Physicians unanimously recommended *porter* in preference to all other liquors, especially in the convalescent state. This beverage was not only more grateful to the men, but it was found to be highly beneficial as they were recovering, and it was in consequence of our representation on the subject, that the troops at Colchester, and, I believe, at other places, were afterwards abundantly supplied with some of the best quality.

The prevailing diseases amongst the troops who had arrived at Colchester, from Holland, were the remitting and intermitting fevers, with dropsies, diarrhæas, and affections of the chest.

Towards the end of November, most of the remittents had put on the regular intermitting form. The cases of dropsy appeared to be the consequence of visceral obstructions, and the pectoral complaints to be kept up by the sudden changes of the weather.

In the reports of the general hospitals, from the 9th to the 31st of October, there were only six deaths; one of these was a soldier belonging to the guards, who had been transferred from the hospital at Ipswich as a convalescent. He died on the second morning after his admission at Colchester, in a state of low delirium.

Another convalescent from the 4th regiment stationed in the barracks at Colchester, who had joined his *corps too soon* after the complaint was supposed to have *left him*, and had committed some excesses, that brought on relapse, was suddenly taken ill and died in a few hours.

The four others sunk under the prevailing fever, which had, in these instances, assumed the typhoid form in the latter stage.

From this period (31st of October) to the 20th of November following, there were *only ten deaths* out of 735 patients, upon the returns of the general hospital. In one man there had been deep seated inflammation of the lungs; two had been long ill of chronic dysentery; one died in the

cold fit of intermittent, and the remaining six soldiers were carried off under the low type of the fever. But in some of these, there were considerable enlargements of the *liver and spleen*; and on examination after death, we discovered in all of them strong marks of previous inflammatory action.

Thus the total number of deaths in the general hospital at Colchester, from the 9th of October to the 20th of November 1809, amounted *only to sixteen*, including the two convalescents above mentioned, who died shortly after admission.

Ninety-four had been discharged cured during that period to join their regiments, and 117 had on that *day* (20th November) been examined, and found fit to be transferred to the convalescent and recovered divisions, in the manner that has already been described.

*An account of the general State of the Troops
who were employed in South Beveland.*

Previous to my enquiring into the nature and treatment of the disorder which prevailed amongst the troops at Colchester, it may be useful to shew what was the general state of health of the

men in those regiments, which formed a part of the reserve in South Beveland.

The first and second battalions of the 4th, 20th, 28th, and 43d regiments, (as they were afterwards quartered in Colchester barracks,) are particularly selected, as having belonged to the reserve, amounting to 7500 men, under the command of Lieutenant-General Sir John Hope.

The several corps landed in South Beveland on the 1st of August 1809, and the brigades to which they were attached, took up their different positions and remained in cantonments until the whole reembarked about the beginning of September.

As this division of the army was considered a corps of observation during the attack upon Walcheren, the men remained perfectly quiet, and underwent no fatigues, nor any of the usual hardships of active service; but this exemption from the extraordinary exertions and exposure to the vicissitudes attendant upon military duties, did not render them less liable to disease than the other troops, who were constantly engaged with the enemy; for they soon began to feel the effects of the damp and unwholesome exhalations peculiar to the country, at that season of the year, and about the third week in August sickness prevailed very generally in every regiment in South Beveland.

Both the first and second battalions of the 4th or King's own regiment of foot, were stationed in this island, but under different circumstances; the first battalion consisted of 1053 men at the time of embarkation; the greatest part of them had served during the campaigns of Portugal, and Spain, with Sir John Moore, and they had suffered severely from dysentery and typhus fever, from which many of the old soldiers, whose constitutions had been much impaired, were slowly recovering, when the regiment was ordered upon the expedition to the Scheldt.

This battalion was quartered in different parts of the Island, and latterly at the village of Waarden, near the fort of Batz, the most unhealthy spot in all Zealand.

The second battalion of the 4th regiment when it embarked, amounted to 1000 strong; the constitutions of the men were, generally speaking, good and unimpaired, as they had never been employed on any active service. This battalion was cantoned in various parts of the island, but principally near the oozy dykes of the East or West Scheldt. The country about was marshy in the extreme, (but more so at Kruningen where the cantonments were fixed for the last three weeks) owing to the dyke of the West Scheldt having given way exactly opposite to them, which had occasioned an inundation in that district for

nine months of the preceding year. The sickness broke out amongst the soldiers of this battalion towards the middle of the month of August, during which the weather was close and sultry.

The 20th regiment was stationed at Schore, about ten miles from Ter Goes, the capital of South Beveland. This fine corps embarked near 950 men, but of these, 400 of the old soldiers had been returned only a few months from the Mediterranean, where they had been actively employed for upwards of ten years.

In June, 1808, this regiment had been ordered to Portugal, and it afterwards served during the severe Spanish campaign until the action at Corunna. The constitutions of the men had also suffered from the Typhus fever with which the British troops were affected during the unfortunate retreat of the army under Sir John Moore ; the remaining part of the 20th regiment was chiefly composed of volunteers from the militia, mostly fine healthy young men.

The 28th regiment consisted of 700 men at the time of embarkation, and they were, generally speaking, fit for service ; but it must be observed that a considerable number of them had had their constitutions much shaken by the fatigues of the preceding winter's campaign, and by the dysentery and fever with which they had been

attacked in Spain, and which they brought with them on their return to England.

This corps remained in cantonments in South Beveland, but it was not confined to any particular part of the island, as the regiment occasionally changed its position. The men were accommodated in barns (the floors of which, although well covered with straw, were *damp underneath*); they were also supplied with every article of provision, except the rations of spirits, which by some accident were not issued until a late period. The discipline and good order of the regiment were attended to in every respect, and there was no possibility of any irregularity in the conduct of the men, for neither wine nor spirits were to be procured in the neighbourhood of their cantonments.

The battalion was generally exercised either in brigade or regimentally for *two or three* hours in the forenoon every second day, and the men were under arms every morning an hour before daylight. This part of the duty was however very properly left off when the sickness became so prevalent, and the mornings were *cold and jagggy*.

On the 16th of August, remitting and intermitting fevers first began to make their appearance amongst the men, and they afterwards went through the regiment with astonishing rapidity.

On the 18th there were eight cases of fever upon the hospital return; on the 25th the admissions were seventy-two; by the 30th of the month the number of sick had encreased to 150, and on the 3d of September the whole on the regimental sick lists amounted to 212.

These, with the exception of three soldiers who died during this period (viz. from the 18th) were embarked in transports and sent over to England. On the 4th of September the remainder of the regiment, apparently healthy, was also embarked, but owing to contrary winds and the unfavourable state of the weather, the transports did not arrive until the 16th. In that short interval, *two hundred of the* men were attacked with the prevailing disorder. On the 17th the regimental hospital was established at Colchester, and from that period until the 19th of November (although the disease continued to shew itself afterwards in several of the soldiers) only eight deaths had been returned.

The second battalion of the 43d regiment amounted to 662 men at the time of embarkation; of this number more than two-thirds had been transferred from the first battalion two months before, and the old soldiers had had their constitutions broken like those of the other corps above-mentioned, and from the same causes.

The surgeon of the 43d regiment, Mr. Jones, favoured me with some judicious remarks which are much to the purpose, and worthy of observation.

From the period of the embarkation of this corps on the 17th of July, 1809, to that of its landing in South Beveland, nothing material occurred in the health of the men. This small island was surrounded by an elevated embankment to prevent the influx of the tides; its surface is flat, very fertile, thinly intersected with dykes, and abundantly wooded. On the 9th of August the regiment commenced its march to Ter Goes, a distance of about ten English miles; the day was so intensely hot as to occasion a great number of the men to fall in the rear; and this kind of weather, although in somewhat less degree, continued during the stay of the corps in the island.

On the following day (the 10th) an order was given for the left wing to occupy the village of Kloctingo; this place, besides the dykes in common with the other parts of the island, had an extensive marsh near it and a large surface of stagnant water in its centre, which gave rise to the frequent observations of the men "of its being like a fine green pond."

The right wing, composed of the remaining five companies was ordered to occupy the village

of Graven Polder ; these companies were directed a few days afterwards to take possession of some farm-houses on the margin of the main road (which is somewhat elevated, leading to Kloc-tingo, and distant about a mile. The men were all comfortably quartered in large barns, with a sufficiency of good straw to lie upon, and the duty which they had to perform was comparatively easy.

Sickness first shewed itself in this corps on the 25th of August, in nine cases of fever in the left wing, and of two in the right ; their numbers became doubled every day, and in about the same proportion, viz., four in the left, to one in the right wing.

On the 31st of August, the whole of the sick, consisting of 109 cases of fever, chiefly of the remittent, with some few of a continued type, were put on board the transports : exclusive of this number, thirty-eight soldiers, who were upon the sick returns, joined their regiments for embarkation, as they were apparently convalescent. The disease, in these men only, had put on the perfect intermittent form.

On their arrival in England the whole of the sick were taken into the general hospital at Deal. In the mean time the surgeon of the regiment was ordered to Colchester, to prepare for the reception of those who afterwards arrived with

the corps, and who had been attacked with the disorder subsequent to their embarkation.

On referring to the returns of the sick that came under his charge to England, Mr. Jones informed me that he observed one company of the right wing bore no proportion to the others, having only *one* man ill ; and on enquiring into the cause of their exemption from disease, it was found that when the troops entered their cantonments, strict orders had been given to prevent their smoaking in any of the barns, from the fear of accidents from fire.

In consequence of this order, it was customary for the men in the evening, after they had thrown off their accoutrements, and many of them part of their dress, to take their pipes and sit under the trees, or rest themselves in other open and exposed situations, where they enjoyed the conversation of their comrades, in some instances probably to a late hour ; whilst the men belonging to the company alluded to, being quartered in rather a better description of house, were in the habit of smoaking their pipes in a *large kitchen*, with the servants of the Dutch family ; *here* they were *sheltered* from the *exhalations* so prejudicial to health in such climates and under such circumstances, when the constitution was more liable to be acted upon, viz. in a state of inactivity after fatigue or exercise.

The primary attack of the disease was similar in all, but varying in violence: the slightest cases becoming more readily intermittent, whilst the most violent assumed the continued form.

It was the opinion of the inhabitants that the disease was occasioned by the soldiers eating unripe fruit, of which there was great abundance; but they at the same time acknowledged that all the troops that had ever been quartered in the island suffered equally. *

Bark, and frequent mild purges, appeared to be the chief means employed by the Dutch practitioners in the cure of their endemic.

From this short history of the six battalions of infantry that were stationed in South Beveland, it will be readily understood why the disorder which prevailed so generally in those corps should have been more strongly marked, both in its character and symptoms than was observed in several other regiments belonging to the different divisions of the army.

* The natives themselves, are annually subject to similar disorders; it is calculated, that after the month of August, and particularly during the rainy season, upwards of two-thirds of the inhabitants are attacked with it, notwithstanding which the natives of Zealand have not much dread of the disease, termed by them the "Koorts."

The interesting observation communicated by the surgeon of the 43d, of the comparative healthy state of the company of the right wing over all the others in that regiment, is highly deserving of attention ; more real advantage may be derived from the knowledge of a single fact, so stated, than from volumes written expressly on the subject of military diseases : it shews how much depends on the attention of commanding and medical officers of regiments to all the minutiae connected with their interior œconomy.

It was to be regretted that the troops were taken out to exercise before sun-rise. The danger of allowing the men to be *under arms every morning an hour before daylight*, does not appear to have been considered, and it is extraordinary, that after all that had been written upon the subject of preserving the health of soldiers in such unwholesome climates, no precautions seem to have been taken to *guard* against the fatal consequences of exposure to the damp and noxious exhalations.*

* In all marshy countries, as well as in all those parts of Holland, this remark is equally applicable.

“The village of Dinther,” says Sir John Pringle, “lay low, and was surrounded with ditches and thick plantations. Mr. Tough, surgeon to the battalion, thus observed, “that the meadows were every evening *overspread with a fog, which continued till next morning after sun rise, and which had the of-*

Sir John Pringle, and every other writer on the diseases of the army, have cautioned us on this point; and Dr Lind, in his valuable Essay on European Diseases, has given most useful observations on the means of preserving health in like situations, and adverts particularly to the effects occasioned by exposure to a marshy soil in our own country.*

In the short description of the Autumnal fever of Great Britain which Lind has given us, par-

fensive smell of a foul ditch newly drained. That the men were commonly taken ill in the night time with a shuddering or sense of cold, which was soon followed by a violent head-ach, intense heat, and other feverish symptoms. That at this time the pulse was so small and depressed, that if a vein was opened, the blood at first would scarce run out, but that after some vent it flowed briskly, and then the pulse rose. That a profuse sweat succeeded the heat, and with that, a remission or intermission of the fever. That the paroxysms returned every evening, and if care were not soon taken to stop the fever, it was apt to change into a continued form with malignant symptoms," &c. P. 179. Obs. on Diseases of the Army.

* In order to avoid similar accidents, Lind recommends, that labourers and others, who are obliged to work in the open air, before the sun has dispersed the noxious vapours, should be allowed a *dram*, or what perhaps would be better, some *hot coffee*, which is the common practice of the Dutch people in all parts of Holland.

It is mentioned by Lind, as a proof of the fatal consequences of neglecting this caution, "*that the marines who were three times a week exercised early in the morning on*

ticularly as it appeared with so much violence in Hampshire in 1765, it is shewn how strongly the character of the disease was marked by the nature of the soil, whether under a continued remitting or intermitting form, and that it was the same kind of fever as that which prevailed amongst the troops in Zealand, is confirmed by the medical officers who served with the expedition, and by all the authors who have written on the diseases peculiar to that country.*

South-sea beach, (near Portsmouth) suffered much from the effect of the stagnant water of an adjoining morass; half a dozen of them at a time were frequently taken ill in their ranks, *when under arms*; some being seized with such giddiness in the head, that they could scarcely stand, others fell down speechless, and upon recovering their senses, complained of a violent head-ach.

“When such patients were received into the hospital, some few had a regular ague, but far the greatest number laboured under a remitting fever, in which, sometimes, indeed, there was no perceptible remission for several days; a constant pain and giddiness of the head, was the most inseparable and distressing symptoms of this disease. Some were delirious, and a few vomited a quantity of bile; *in all, the countenance was yellow.*

“A long continuance of the fever produced a dropsy or jaundice, or both; even a slight attack reduced the most robust constitution to a state of extreme debility; which, together with the giddiness, continued long after the fever.” Lind’s Essay on diseases incidental to Europeans, &c. part i. ch. i. p. 23.

* Dr. Lind, in his Essay quotes the following short but

As Sir John Pringle has given so full and accurate account of the air and diseases of the Low Countries, it is unnecessary to enlarge further

faithful account of the endemic of Zealand, by the Dutch physician, Dr. Wind :

“ At Middleburgh,” says he, “ the capital of West Zealand, a sickness *generally* reigns towards the latter end of August or beginning of September, which is always most violent after hot summers.

“ It makes its appearance after the rains, which generally fall in the latter end of July ; the sooner it begins, the longer it continues, being checked only by the coldness of the weather.

“ Towards the end of August and the beginning of September, it is a continual burning fever, attended with a vomiting of bile, which is called the gall-sickness ; this fever after continuing three or four days, intermits, assumes the form of a double tertian, and leaves the patient in a fortnight or perhaps sooner ; strangers, who have been accustomed to breathe a dry pure air, do not recover so quickly.

“ Foreigners in indigent circumstances, such as the Scotch and German soldiers, who are garrisoned in the adjacent places, *are apt, after those fevers, to have a swelling in their legs and a dropsy, of which many die.*”

“ Fluxes are frequent in September and October ; towards the latter end of which, indeed, the air becomes more healthy, and then few diseases prevail ; at this time, those who have laboured under the fever, sometimes suffer a relapse, but then it is into a simple tertian, which seldom confines the patient.”

Dr. Wind further observes, “ that *those diseases are the same with the double tertian fevers common between the tropics,*” and he adds, that “ such as are seized with the gall-sickness, have at first, some flushes and heat over the body, a

upon the subject, or to adduce any other authorities to shew the identity of the fever.

But although in the ordinary cases of the disorder which prevailed so generally in the late expedition to Holland, its leading features were similar to those which marked the complaint, (so well described in the works alluded to) there were however some *peculiar* symptoms that

loss of appetite, a white foul tongue, a yellow tinge in the eyes, and a pale colour of the lips," &c.

Sir John Pringle and Dr. Cleghorn have confirmed all that has been said by the Dutch physician in this short extract from the history of the endemic of Zealand. The former observes, "that the epidemic of autumn and prevailing distemper of this and other marshy countries, is a fever of an intermitting nature, commonly of a tertian form, but of a bad kind; which in the dampest places and worst seasons, appears a *double tertian*, a *remitting*, a *continued*, or even ardent fever; all which, however varying in their appearance, according to the difference of constitution or other circumstances, yet are of a *similar nature*." Chap. 1. p. 7.

And he adds this candid and useful remark, "that during the campaign of 1742, the great number of sick *and their want of experience* in the *cure of* diseases incident to a moist climate, was the reason that at that time, the fevers were perhaps less successfully treated than afterwards.

"Many of the remittents degenerated into continued fevers, which were often fatal and the *intermittents* by being *stopped* before the proper evacuations were made, or not secured against relapses, changed likewise into *continued fevers* or ended in dangerous obstructions of the viscera."

Pringle on Diseases of the Army, Part. i. ch. 9. p. 14.

arose during its progress amongst the men at Colchester, which excited our attention.

These peculiarities will be shewn to have been dependent on causes, not hitherto sufficiently explained.

The dissection of those who died, discovered to us a series of morbid appearances, of which we had no suspicion, and they enabled us to account for many of the phænomena of the complaint, and to form a more rational plan of treatment, than that which we had at first adopted.

It had been remarked, that in a great number of instances this proteiform fever, as Cleghorn calls it, had frequently returned again, after an interval of a month, six weeks, two, or even three months, during which, the men had been doing duty with their regiments apparently well.

Many of the soldiers so attacked, were suddenly seized with pain of the head, attended with giddiness; and on being brought into the hospital, they commonly threw themselves upon the bed, and soon after became comatose or lethargic, the pulse not indicating any fulness or increased action of the heart, and there being no external appearances to account for this symptom. In some of these patients, death took place within 24 and 48 hours from the

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30th of September, and he continued there under cure until the 7th, when he was discharged as fit for convalescent duty, and rejoined the corps in the barracks at Colchester.

On the 25th of November, this soldier was re-admitted into the hospital, with symptoms of dropsy that afterwards became general, and more particularly of the scrotum, which might have contained *two* quarts of fluid. By the use of diuretic and tonic medicines, he recovered of this new complaint, and on the 27th of December following he was again sent to join his regiment.

On the 11th of January 1810, King was a third time received into the hospital with symptoms of intermitting fever, which however were slight, and they were soon removed; he afterwards appeared so well, that on the 27th he was transferred to the convalescent division; he remained there in a progressive state of recovery until the 10th of February, when he complained of being unwell, and was immediately sent back to the hospital, where he died on the 13th.

This patient had been walking about the ward on the 11th, seemingly convalescent, and he asked for increase of diet; on the 12th he was seized with difficulty of breathing and great anxiety, and previous to his death, his pulse became quick, frequent, and intermitting.

As this was a very interesting case, and had excited particular attention, we determined, if possible, to ascertain the nature and extent of the mischief, which it was suspected had occasioned such different and repeated attacks; the body was accordingly opened, in the presence of most of the medical officers, and the following appearances presented themselves.

The *liver* was found greatly enlarged, and it weighed *seven pounds and a half*.

The *spleen* was also considerably enlarged, the substance was of a darker colour than usual; *the gall-bladder contained very dark coloured bile*, like treacle.

The heart adhered strongly to the pericardium, the cavity of which was entirely obliterated, and without the smallest quantity of fluid; the heart itself appeared more flaccid than natural.

It has been stated in the preceding observations, that in September 1809, there were 1400 sick in the regimental hospitals at Colchester, amongst whom the prevailing disorder appeared to be of a *more obstinate nature*, than in those soldiers who arrived from Holland, after the general hospital establishments were opened on the 9th of October

The circumstances under which the battalions were placed to which the men belonged, have been explained, and it will be shewn in the abstract returns, that a considerable number of them were afterwards taken ill, and admitted into the regimental hospitals, long after the arrival of the corps in *England*.

There were consequently more fatal terminations of the disorder in that division of the establishment, than in the general hospitals, which afforded us very ample opportunities of pursuing our anatomical researches, and of collecting some valuable specimens of the morbid changes that had taken place in those who died of the disorder. Amongst these, I have preserved a few preparations, for which I am indebted to the assiduity of Mr. Byrt, assistant surgeon of the 20th regiment, who was indefatigable in attention to his duties.

In one of these, the investing membrane of the spleen appears to have been converted into cartilage, nearly double the thickness of a dollar and of an irregular shape.*

* Dr. Baillie has observed, "that this diseased appearance of the spleen may be considered in a great measure, as peculiar to that organ; he has seen in some instances, small spots of cartilage over the whole surface of the spleen." He is of opinion that "this morbid state is slow in its

This was no uncommon appearance at Colchester, and I remember one case particularly in which the spleen was studded over as it were with white-coloured spots of different shape and size, not unlike suet, but on being cut into, they resembled the cartilage of the nose or ears.

We met with more instances of diseased spleens than of enlargements of the liver. The *largest spleen* I saw weighed *about four pounds*; it was that of a private of the 20th regiment, twenty-three years of age. He had been for some time in the convalescent division, taking bark, but on his complaining one morning that he felt unwell, he was removed to the regimental hospital, where he died shortly after, very suddenly.

On opening the abdomen a considerable quantity of serous fluid escaped. The stomach seemed raised up more than usual, and the gall bladder appeared projecting as if pressed between the liver and the spleen.*

progress, and he thinks it natural to suppose that it can hardly produce any impediment to the functions of the spleen; and is not, probably, marked by any peculiar feelings to the patient." Morbid Anat. P. 259.

* These visceral obstructions, as they are called, have been noticed by every writer; Dr. Munro, physician to the

Adhesions were discovered to have taken place between the spleen and the neighbouring parts. Inflammation had extended from its capsule, over which the peritoneum is reflected, to the great curvature of the stomach; and the membranes lining the diaphragm were covered with innumerable red spots.

The liver weighed nearly five pounds, and it exhibited strong marks of inflammatory action, or rather erosion of its exterior membrane.

The gall-bladder was full of a dark bottle-green fluid, of a ropy consistence.

The stomach, lungs, and other viscera were in their natural state.

I saw one of the cases that terminated fatally in which the spleen was found of a smaller size

army, tells us, "that of the invalids from Embden, some had obstructions formed in the liver, or spleen, or other viscera, and fell into a jaundice and dropsies, which carried them off. In the bodies of several who were opened, were found indurations of the liver, and spleen; in two of them suppurations of the liver, and in one who had the ague at Embden, and had long complained of those swellings towards the left side of the abdomen, called the ague cake, the spleen was so much enlarged, as to weigh above four pounds."

Observations on the means of preserving the health of soldiers. Sect. vii.

than usual, with a considerable portion of its peritoneal covering in a state of gangrene. The whole of the exterior surface had undergone extensive inflammation; the lower intestines were full of scybala and almost putrid, whilst the upper ones were empty and of a natural appearance. The gall bladder was full of bile of proper colour and consistence.

In several of the bodies which were examined the external membrane of the liver appeared to have been greatly inflamed, and its peritoneal covering was mostly found marked with an infinite number of minute red points.

In some of them adhesions were formed on the exterior surface of the liver, and the peritoneal covering of the muscles, in the cavity of the abdomen, had also partaken of the previous inflammation.

We observed a remarkable difference in the substance and size of the LIVER in almost all the bodies that were opened. In one a bright red-coloured line or stripe was seen to run obliquely across its exterior surface; in another the same appearance was confined to the lower edge of the posterior lobe.

I have among my preparations, a bottle of colourless bile, like the white of a raw egg,

which was taken from the gall-bladder of a soldier of the 20th regiment.

The patient had also laboured for some time under the prevailing disease, but unfortunately, as in the preceding cases, *no accurate* history of the symptoms could be obtained.

The *liver* was observed to be of a paler colour than usual, but my information on the state of the biliary ducts is defective.

Dr. Baillie, to whom I shewed these different specimens, soon after my return to town from Colchester, mentioned that he had seen but one similar example of this colourless bile.*

Another soldier of the 20th regiment who had been long ill of the prevailing disease, complained chiefly of his left side for some time previous to his death. There was neither hardness of the part nor any very extraordinary symptoms to account for the extent of the mischief that was afterwards discovered on examination of the body.

* In his work on Morbid Anatomy, p. 249, he remarks, "that this kind of substance is ascertained to form one of the constituent parts of the bile; and in the present instance, it would seem that the other parts were wanting; such an effect may be supposed to have depended upon a very imperfect action of the secretory structure of the liver."

The *spleen* was found full of little cells, not unlike a honey comb, and the whole substance was in a state of abscess.*

In several cases a great part of the peritoneal covering of the diaphragm was generally found to have partaken of the previous inflammation, and more particularly so towards the left side, where a similar affection of the exterior surface of the *spleen* was discovered.

The patient under these circumstances usually referred to the pit of the stomach, on which part he could scarcely bear the slightest pressure.†

No extraordinary morbid change was remarked in the brain of those patients who remained in a state of stupor previous to their death, or who died in the cold fit of the intermittent. The

* "It is very rare," says Dr. Baillie, "to find the substance of the spleen either in a state of inflammation or suppuration; but such cases have occasionally been observed, and related by authors." Instances have also been related, where the spleen had been observed to be mortified; but these are probably much more rare than the former. P. 255. Morbid Anatomy.

† Dr. Baillie observes, "that when inflammation attacks the coats of the spleen, it is attended with the same symptoms as an inflammation of that portion of the peritoneum which lies in the left hypochondrium; there is pain in that region which is more or less acute, according to the degree of inflammation; and this pain is increased upon pressure. If the inflammation be considerable, it is accompanied with symptomatic fever." Morbid Anatomy, P. 263.

vessels were however found collapsed, rather than distended with blood.

The Cure.

From the appearances which were observed in these dissections we were led to draw the following conclusions; that the original disorder was of an inflammatory nature, inducing a considerable vascular excitement and determination to particular organs, especially to the liver and spleen, and that the derangements in their functions occasioned those *relapses* or subsequent returns of fever which took place at distant periods and at lengthened intervals, from the original or primary attack.

In fact we found that no radical or perfect cure could be obtained until the congestions which had been formed in those important organs were either *lessened* or removed; and by keeping in view the connexion that subsists between the bilious remittents of warm climates, and the remitting and intermitting fevers of our own latitudes, in which derangements in the bilious secretions are so remarkable, a correspondent plan of cure was adopted, and was attended with the happiest result.

The two battalions of the 4th regiment, that had been stationed in the island of South Beveland

are therefore selected from the other corps, to shew the effect of the disorder upon two classes of soldiers, in the first of which the constitutions of the men had suffered from previous service, and in the other were the individuals composing the second battalion, who, as it has been already stated, were perfectly healthy at the time of embarkation upon the expedition to the Scheldt, and had never had their constitutions impaired by the hardships of a military life.

In a great proportion of the sick belonging to the first battalion, the fever appeared in a remitting form, and generally obstinate, and difficult to manage. In almost all of them there were *evident* enlargements of the *liver or spleen*; and several of the cases which terminated fatally, were attended with a singular affection of the head, or stupor, for some time previous to their death.

Symptoms of strangury were frequently complained of, accompanied by pain shooting across the the ureters of the left or right kidney, and a peculiar uneasy sensation about the pit of the stomach.

In one instance *only* I observed an appearance of the eyes, so remarkable in the *pestilential* fever of Spain, viz. the glassy look, as if occasioned by exposure to the smoke of green wood, and which in the progress of *that* fatal disorder assumes the

dullness of a dead fish's eye. Added to this, a yellow hue of the skin was perceptible. The patient in whom these symptoms were observed was a private in the first battalion of the 4th, and he recovered under the skilful management of Dr. Roberts.

The general plan of treatment at first, was to open the body by means of five or six grains of the submuriate of mercury, with an equal quantity of c. ext. of colocynth followed up by the senna infusion, and sulphate of magnesia, after which the submuriate and antimonial fluid were given every three or four hours in small doses, and continued, either with or without mercurial friction upon the side, according to the state of the patient and the period of the disorder, or until the mouth became *slightly* affected.

The warm bath, fomentations, and blisters to the side were also employed, together with an anodyne draught, and occasionally the camphorated mixture, with acetate of ammonia, &c.

In the *most obstinate cases*, it was found necessary to push the mercurial friction to some length, so as to induce ptyalism; and when there was appearance of remission, the *bark* was given, and *not till then*, in the form of decoction, with an aromatic; *wine* was also allowed in small quantities according to the strength of the patient.

This was the usual method we followed throughout the month of September; but in October and November we had occasion sometimes to use the lancet; and in the cases of *relapse* particularly, the best effects seemed to follow the loss of blood.

As we had reason to suspect that these attacks of fever were connected with abdominal inflammation, cupping glasses were employed in preference, and after fomenting the parts, they were applied either to the region of the stomach, liver, or spleen, where the pain was most complained of, and great relief invariably followed from this topical bleeding.

The two following cases are given, out of a considerable number of instances that occurred, of soldiers, who having returned from Zealand in September, apparently recovered, and who had been doing garrison duty with their regiment in Colchester barracks, were suddenly attacked in the month of November, with all the symptoms of the primary disease.*

* Sir John Pringle, in his account of the campaign of 1747, in Dutch Brabant, has shewn what was the nature of the air in Zealand, and its effects in producing remitting and intermitting fevers. The British troops, partly in camp and partly in cantonments, lay in South Beveland and in the island of Walcheren, two districts of that province, and both in the field and in quarters, were so very sickly, that

Case 1st. — Moses Griffiths, private in the first battalion of the 4th regiment, was admitted into the hospital on the 26th of November 1809; he had been ill with the prevailing fever in South Beveland in September, and returned with the rest of the sick to Colchester. On his being discharged from the regimental hospital, he was sent to the convalescent division for about three weeks, and had taken large doses of bark, but was thought cured. On being attacked again, he complained of a violent pain of his right side, which was encreased on pressure; his cough was short and troublesome; the countenance appeared sallow, with a hectic colour of the cheeks; the eyes were dull, and tinged with bile, and the skin felt dry and parched; his pulse was small and contracted; the tongue was covered with white mucus, but the bowels were regular.

In this state the patient was ordered to be bled, and sixteen ounces were taken from the arm; after which the purging infusion of senna was given, and the side was fomented. In the evening he seemed to have been relieved;

at the height of the epidemic, some of the corps had but 100 men fit for duty, which was less than the seventh part of a complete battalion." P. 57. *Obs. on the Diseases of the Army.*

the blood drawn was buffy and cupped; the mixture had operated thrice; a bolus of submuriate of mercury and antimonial powder (a gr. ij) was taken every third hour, and his legs were bathed in warm water.

On the 27th the pain of the side was less, the patient had passed a tolerable night, but the *skin* was still hot, the *pulse fuller*, and the tongue more loaded; his water was high coloured; the bolus was continued. On the morning of the 28th the patient complained more of pain in his side, which was greatly increased on pressure; the cough had prevented his sleeping; his skin was hot, the face flushed, with the tongue still furred, and the pulse *full and strong*: the bowels were open.

In this state he was put into a warm bath, after which cupping glasses were applied to the region of the liver, the discharge of blood being promoted by fomentation.

In the evening a drachm of strong mercurial ointment was rubbed in, and a blister was laid over the part cupped, the bolus was repeated, and a mucilaginous mixture given for the cough.

On the 29th the pain was less, the patient had slept well, his tongue appeared moist and clean, the skin cool, and the pulse softer; had had two motions; water still high coloured; continued medicines.

30th. Considerably better. He expressed an inclination to eat; the pain of side nearly gone: continued medicines.

On the 1st of December the patient left his bed, and was walking about the ward; he still coughed, but without pain of the side: continued medicines. On the 3d he complained of a dull pain on his right side, higher up than before, with little or no cough; tongue *clean and moist*, pulse regular. *The gums began to be affected*, the bolus was given only every sixth hour, and the ung. hydrar. omitted; a blister was applied to the part affected, and he took an anodyne at night.

On the 4th he was free from pain and cough, his gums were very sore, and he began the decoction of bark with diluted sulphuric acid. On the 6th he was convalescent, but he was not allowed to be discharged to his regiment, until he was thoroughly cured; he was so on the 23d of December.

2d Case. — Thomas Morris, a private in the same battalion, had been ill of the disorder prevailing in South Beveland, of which he was so far recovered as to be thought fit for garrison duty with his regiment, and he continued with it, apparently in good health, for upwards of

six weeks after he had been dismissed from the hospital.

On the 29th of November he was taken ill, and immediately put upon the sick list. When I first saw the patient he was lying upon his back, stretched out upon the bed, and he complained chiefly of pain between his shoulders. There was a marked expression of distress and anxiety upon his countenance, and he seemed to feel great uneasiness ; he could not bear the slightest pressure on the pit of the stomach ; on his left side there was a little hardness, and evidently an enlargement of the spleen.

The pulse was neither quick nor full ; it was such, that a practitioner, unacquainted with the disease would not perhaps have thought it necessary to order blood to be drawn, and indeed, the regimental surgeon under whose care the patient was placed, although well informed and very attentive, expressed fear that the cupping glasses which were proposed could not be applied without occasioning much inconvenience to the patient.

He had already taken six grains of the submuriate with the purging mixture, and although with effect, the case appeared to require something more ; the cupping glasses were therefore applied without further hesitation to the region of the spleen, and eight or ten ounces of blood

were drawn off without difficulty. The patient was then put into a warm bath for fifteen minutes, after which the calomel and antimonial powder bolus was ordered to be given every two hours. In the evening he was again visited by Dr. Roberts and myself; he appeared to be much relieved. On the following morning, the 28th, the pain about the pit of the stomach returned after a severe fit of coughing, and there was fever, with slight inclination to nausea, the skin felt hot and dry, and the pulse thready at ninety-six; the tongue was covered with yellow mucus, and the bowels were free; under these circumstances it was recommended that bleeding at the arm should be employed, if the symptoms were not relieved towards night, and the bolus was desired to be continued every third hour.

On the morning of the 29th we found the patient still complaining of his left side, and *the fæces were very dark coloured, and in small quantity.* He had not been bled, through the apprehensions of the assistant of inducing debility.

The urgency of the case was too apparent to allow this evacuation to be omitted; a vein was therefore opened in our presence, and blood was taken away to the amount of fifteen or sixteen ounces; it was buffy. The patient was again put into a warm bath, and a diaphoretic mixture

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It has been observed that there were frequent admissions into the hospital, of soldiers who were suddenly attacked with the complaint, in whom the most remarkable symptom was a stupor, sometimes preceded by a slight rigor or convulsive fit.

One of the earliest cases of this kind occurred soon after my arrival at Colchester, in which a soldier of a stout and athletic form was seized in this manner without any manifest cause : he was insensible when admitted into the hospital, and he lay upon the bed on his back, foaming at the mouth, and breathing with great difficulty : there was so great a fullness about the neck and head that I was induced to direct the assistant to open the temporal artery ; the blood continued to flow freely ; the patient seemed to be much relieved, and we began to entertain strong hopes of his recovery ; but in the course of a few hours afterwards, he relapsed again into the same lethargic state ; and notwithstanding all our attention, he remained insensible until his death, which took place during the night. The body of this man was not opened. At this early period we had not determined upon the plan which was subsequently adopted, of examining the diseased parts after death ; but this case was so far instructive, that it taught us to consider these comatose affections as not

arising from determinations of blood to the brain, as it was at first imagined; and in all similar attacks we abstained from bleeding altogether, substituting the strongest sinapisms to the feet, fomentations to the legs, and other stimulant applications.

A great proportion of the *dropsies* that we met with appeared to be dependant on affections of the *liver and spleen*, and consequent on an imperfect cure of the original disease.

In these cases we employed a combination of mercury and squills, and in the convalescent state, the bitter infusion with sulphate of iron, joined to the blue pill, and a small quantity of gamboge with an aromatic.

The emplastrum litharg. hydrarg. was applied to the side affected; flannel bandages as recommended by Pringle, were rolled round the body in all dropsical and general swellings, and they were compressed according as the water was discharged, or as the swellings diminished.

The Sp. Teribinth. rect. in the proportion of half an ounce to one of olive oil was often rubbed warm upon the abdomen, and with advantage.

By this mode of managing the dropsies (anasarca and tympanites) we so far succeeded that out of 200 cases that were under treatment

in the hospitals at Colchester, we lost but ten patients.

In the employment of mercury in general we succeeded best by introducing it into the system very gradually, either in the form of submuriate or the blue pill; and as soon as its action on the constitution was established by the appearance of a slight affection of the mouth, two grains of the dry squills were given three times a day, the dose being increased daily even to eight grains.

The discharge of water commonly followed to an astonishing amount, and then the mercurial pill was discontinued, or only given occasionally.

The squills were taken as long as any water remained, and after each dose two ounces of the bitter infusion with a scruple of the acetate of pot-ash were administered with the happiest effect. At this time porter or a little gin and water were also allowed.

If diarrhæa supervened from the internal use of the mercury; inunction was substituted on the abdomen, and the diuretics were only repeated at intervals.

Out of the many cases of anasarca which came under my observation, one terminated unfavourably, in consequence of the legs and scrotum having been unfortunately punctured. A private of the 35th regiment was admitted on the

10th of October, with symptoms of intermittent fever, accompanied with general swellings of the body. On the 17th the surgeon under whose care he was placed, conceiving from the great distension that the water might be drawn off without danger, scarified the skin in different parts; the fluid soon escaped and the swelling subsided; but gangrene succeeded, the testes were left entirely bare, hanging to the spermatic cords, and the left leg was also bare to the tendons, with several holes in the dorsum of the ileum.

This case was tedious and long doubtful, but on the 24th of November, when I last saw the patient the testes were nearly covered with new and healthy granulations, and the wounds on the leg and foot appeared to be healing rapidly. I heard however some time after my departure from Colchester that the case terminated fatally.

The remitting fever, under which the soldiers of the 2d battalion laboured, appeared to be of a much milder character, and it shewed an earlier tendency to put on the intermittent form.

In the first instance the general plan of emptying the bowels was followed, after which the pills of submuriate of mercury and antimonial powder, composed of two grains of each, were

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patient and to the credit of the Physician, that it cannot be too strongly enforced. Soldiers require constant watching and medical control, but if left to themselves, or to the care of the nurse or orderly man only, they will evade the intention of the physician, and often willingly protract their own recovery. The practice of joining mercury with the bark in substance, in intermittents, was common in Spain when I first visited that country, after the termination of the pestilential fever at Gibraltar, in 1804, and in my subsequent travels and residence in Spain, I found that in the very obstinate remitting and intermitting fevers which prevail very generally in some low districts, in the interior, the combination of these medicines was attended with more permanent advantage, than the bark alone, and it was the favorite remedy of the native practitioners in this complaint. *

It should be observed, that in those cases in which there was the slightest suspicion of recent inflammation, or if there was any *appearance of hardness* upon the region of the *liver* or *spleen* (which was generally to be discovered by uneasiness induced by pressure) or if a painful sensation was complained of at the pit of the

* Colombier in his Med. Milit. tom.i. ch.2. p.451. and Don Thomas de Salazar, in his Tratado del uso de la Quina, Madrid, 1781, have written very fully on this subject.

stomach, the use of *bark and wine* was improper, nor could either be given with safety, as long as the feverish heat continued, or the discharge from the bowels appeared of a *dark colour*.

The calomel and antimonial pills alone were repeated under such circumstances for some time in small doses, and their action on the bowels was kept up by the mild purging infusion, notwithstanding any *apparent lowness of the pulse, and the supposed debility of the system*.*

In this manner we proceeded for several days, before *bark, wine*, or any of the stimulating class of medicines were allowed; and when the *colour of the fæces* was becoming natural, and the heat of the body lowered, the pulse usually rose and the patient felt stronger.

This observation is highly important, and is applicable to most of the acute disorders in military hospitals.

* Great attention to the diet of the patient was requisite at this time; tea, weak broths, eggs, and puddings were allowed. When the intermissions were fairly established, the quantities of the different articles of diet were increased according to the state of the patient's digestive powers, and *not of his appetite*, nor did I ever see any advantage from the advice given by Dr. Cullen, who recommends "a good deal of exercise, and as full a diet as the condition of the patient's appetite and digestion may allow of during the time of intermission." See Cullen's Practice of Physic, p. 252.

Mischief has often arisen from the evacuating plan, by purgatives especially, not having been sufficiently followed up in the feverish complaints of soldiers, from a mistaken notion of prevailing debility, and the evil has been increased by the too early and liberal use of bark and wine, as an old army physician, Sir Clifton Wintringham has well expressed. *

There is often a remarkably low pulse in the common disorders of soldiers, but not soft, and it conveys a sensation as if the blood could not be propelled with freedom from the heart; it is difficult to describe, but every experienced physician must have noticed it, although the young surgeon might be misled; upon a judicious discrimination, however, every thing depends; a timely bleeding, or a smart purgative quickly administered, will generally in such cases raise the pulse, relieve the whole circulating system, and probably cut short the fever at once.

In many of the soldiers attacked with the prevailing disorder at Colchester, it was remarked, that notwithstanding repeated purga-

* *Hæc omnia parvâ quidem copiâ, et brevibus intervallis cautè exhibere oportet, ne inde ebrii fiant ægroti quod mihi videre aliquando contigit. Eheu! operâ nimio vehementi nunc nutricis, nunc tyronis medicamentarii. Commentarii 507. C. Wintringham.*

tives, and even when the fæces appeared of a natural colour, a degree of irritation and fever was kept up, which we could not account for.

My colleague, Dr. Roberts, whose great experience and judgment in the treatment of the sick were so eminently displayed, had very early a case under his care, in which the circumstance alluded to was particularly striking, and it afforded us an opportunity of noticing a fact, which was of singular use to us in our practice afterwards.

The patient was a soldier, to whom the usual purgatives had been administered, which brought away a bilious discharge in some quantity; natural evacuations followed, and still the irritation of fever was kept up without any manifest cause; after an interval of two or three days, the calomel and purging mixture were again repeated, and produced a copious discharge of a *black colour and viscid*.

Immediately after this dark coloured matter passed off, the patient felt relieved, and the feverish symptoms seemed to yield very readily.

From the state in which we so often found the gall bladder of the men who died of the prevailing complaint, *full of black bile of the consistence and colour of pitch, sometimes as viscous as bird-lime, and at others as fluid as treacle*, and in several of whom there had been evident inflam-

mation of the *liver and spleen*, we concluded that this morbid bile had contributed to keep up the irritation of the system, and that it was a principal cause of the phænomena which were observed in this fever.

There could be no doubt that bile in this diseased state, when confined within the gall bladder, would irritate its coats to a considerable degree; and it has been shewn by Dr. Baillie, that inflammation may be excited there, so as sometimes to advance to suppuration, and that even an ulcer of the gall bladder has been met with, which appeared to have been produced by this cause.*

* "Inflammation of the coats of the gall-bladder is not known to be distinguished by any peculiar symptoms, they are probably much the same with the symptoms which attend inflammation of the membranous covering of the liver.

"An obliteration of the hepatic duct, or of the ductus communis cholidicus, must produce a jaundice which is permanent, because it depends upon a cause not liable to change. This will be extremely difficult to distinguish in practice from jaundice produced by a hardened or tuberculated state of the liver, for this cause of jaundice may likewise be said to be generally permanent.

"When the ductus cysticus only is obliterated, there will be no jaundice, and little inconvenience will probably be felt, unless the *bile confined* in the gall bladder should at length irritate its coats: in this case inflammation may be excited, which may advance to suppuration. I have seen an ulcer of the gall-bladder, which appeared to be produced by this cause." Baillie's Morbid Anatomy, p. 252.

It was important therefore to employ such medicines, as would effectually dislodge this glutinous cystic bile; this the calomel appeared to do better than any other, and the purgative mixture afterwards, by quickening the operation, forced it through the common duct into the intestines, together with the hepatic bile.

In many of the patients who complained of violent pain across the loins, and who were affected with symptoms of strangury, we suspected that the sensations which they described as running along the ureter of the right kidney, proceeded from inflammation communicated to its membrane by some affection of the great lobe of the liver, under which the right kidney, being lower than the left, more immediately lies, and that a similar effect might be produced, when pain was felt in the ureter of the left kidney, which lies under the spleen. Or perhaps that both sides might have been affected from the connection with the great sympathetic nerve and the plexus hepaticus and splenicus.

It is however certain, that however these symptoms were occasioned, they soon yielded to small doses of mercury, and to simple diluting mucilaginous draughts to which were added the acetate of ammonia, nitrous spirit of æther, and occasionally the acetate of pot-ash.

I might here have concluded this report with quotations from various writers* who have mentioned the accidental or occasional use of mercury in the treatment of remittent and intermittent fevers; where, especially in *some obstinate cases* of the last form of the disease, extraordinarily good effects have followed its application. But my object has been rather to state the facts that I have observed, than to extol any particular remedy, or to support a favorite theory. It may however be remarked, that in taking a review of the general practice† in intermittent fevers, the means usually adopted appear to have had no other view than to lessen the inconvenience of the paroxysms, and that they have not always been sufficiently active to put a stop to the disease, in a way that was satisfactory to the patient or to the practitioner.

* See Sylvius de Leboe, and Fred. Hoffman. op. omn. p. 31. Praxeos Medicæ, lib. i. Willis de febribus, ch. vi. p. 67. c. xxxi. p. 251. Sydenham. Van Swieten Com. on Boerhaave, § 539. p. 539. Mead, Med. Precep. Langrish Th. and Pract. p. 411. Med. Trans. vols. 2 & 3. Sir G. Baker, &c.

† There is perhaps no other disease for which so many cures are daily recommended, as for an intermitting fever. Lind has about three pages of his book full of all kinds of empirical remedies; but he has well observed, "that patients are equally subject to relapses, whether cured by the bark or by other medicines."

When Sydenham complained that he knew of no successful method of treating intermittents, as the *bark* which had always had the appellation of a specific, rather checked their progress than moved the cause of the disease; those congestions were not suspected which have been shewn to exist to a great degree in consequence of the strong determinations to the viscera, which very early take place; and it was not likely that the disorder could be radically cured, until the irritation which they occasion in the system was entirely removed.

It is not however by *throwing in mercury*, and *pouring in the bark*, that this effect is to be produced; these are terms to be met with in some late writers, and they are not less improper than the indiscriminate and empirical manner in which those invaluable medicines have been employed.

The smallest quantity of mercury will often (as it is well known) affect some constitutions so speedily, that it is impossible to lay down any rule for its administration in these fevers.

I have generally found great advantage to result from its being introduced gradually into the habit, and its action to be rendered more certain by being given in small doses, and at distant intervals.

In the preceding observations it has been shewn from the appearances of diseased struc-

ture of parts, that the disorder which prevailed amongst our troops in Holland, was originally of an inflammatory nature, first inducing considerable vascular excitements and determinations to particular organs, and it is probable that these organic affections, and the consequent derangement in their functions, became an additional exciting cause of the recurrence of the paroxysms, and of *the frequent relapses*.

Perhaps the bile too, in its redundant state, and rendered morbid by the same poison which generated the fever, may have become a secondary cause of irritation, and thus have kept up the diseased action.

I am aware that this opinion of the probable cause of relapse is very opposite to that of Sir John Pringle, who makes the following remark: "Frequent relapses," says he, "brought on visceral obstructions which made the intermittents more obstinate and irregular, and terminate in dropsy and jaundice."

"In this bad state of the viscera," continues Pringle, "a hard tumour was frequently felt on the *left side of the belly*, lower than the false ribs, called by the common men the ague cake; *but as none* of those who died with this humour *were opened*, the part affected could not be ascertained; he however *conjectured it* to be the spleen."

And he adds, "it was often accompanied with swelled legs, a distension of the whole belly, or with some other hydropical symptoms; and whilst *it remained*, the fits *could not be safely stopped* by the bark." He likewise met with a few cases of the tympanites, a distemper which he *suspected* to be "chiefly owing to a premature use of the bark."*

Having been ordered upon another service, I left Dr. Roberts, physician to the army, in the superintendence of the sick in the military hospital at Colchester.

The following extracts of three letters, which I afterwards received from that experienced physician, confirm the utility of the plan of treatment that had been recommended.

In his first letter, dated Colchester, December 17, 1809, he says, "with respect to the disease, daily experience *convinces* me and the surgeons of the regimental hospitals of its original and even recent inflammatory nature, and of the expediency of late depletion, (unfortunately sometimes too late) as well as the advantages of the mercurial treatment.

"Abdominal inflammation, since you left us, has been most manifest, and the lancet and cup-

* *Observations on Diseases of the Army.*

ping have succeeded admirably when urged to a proper extent."

In a subsequent letter, dated Colchester 23d of January 1810, Dr. Roberts wrote to me in answer to some questions relative to the state of the hospitals as follows :

"With regard to your query how we go on here, I shall observe that I have not deviated from my original plan ; the disease has, for some time past, put on the intermittent form, and that of dropsy ; in curing which, mercury and squills, and in many cases elaterium, have been most successful ; the fatal cases were all attended with thoracic effusion : the intermittent has yielded generally to sulphate of zinc, where bark and other remedies had failed.

"The arsenic solution did not answer its character, though pushed to a great extent by some.

"I have had no occasion to give mercury in recent intermittents, which have been uncommonly rare. The lancet and cupping, in the supervening inflammation of the abdominal viscera, have been productive of every good effect I could desire. Not one man has hitherto died under their use. I had many instances since you left us."

In the last letter of the 31st January 1810, Dr. Roberts observes,

" The sickness now consists in teasing intermittents combined with dropsy, and likewise dysentery, which mostly yields to mercury.

" *All* the dissections demonstrate the original inflammatory nature of the disease ; from all I can gather, our labours, in investigating the subject have been here (Colchester) attended with the most gratifying success."

Expedition to the Scheldt.

Return, shewing the effective strength of the army which embarked for service in the Scheldt, in the month of July, 1809; the casualties which occurred; the number of officers and men who returned to England, and the number reported sick according to the latest returns, (with the exception of the 59th regiment, from which corps a proper return has not yet been received.)

Adjutant General's Office, Feb. 1, 1810.

	Officers.	Serjeants, Trumpeters, Drummers, and Rank & File.
Embarked for Service.....	1,738	37,481
	Rank and Officers. File.	
Killed.....	7	99
Died { On Service.....	40	2,041
{ Since sent Home....	20	1,859
Deserted.....		84
Discharged.....		25
Total Officers and men who returned, who are now borne on the strength of their respective corps.....	1,671	33,373
Of which number are reported sick.....	217	11,296

(Signed)

HARRY CALVERT, Adjutant-General.

Abstract Return of Soldiers admitted, discharged, dead, and remaining in the various Hospitals in the Eastern District, from the Army in Walcheren, up to the 1st February 1810.

	Admitted.	Dis- charged.	Dead.	Re- main- ing.
<i>General Hospitals.</i>				
Colchester - -	1441	1089	37	315
Harwich - -	1410	1023	269	118
Norwich - -	101	91	10	—
Yarmouth - -	457	306	58	93
Ipswich - -	2437	2249	188	—
Woodbridge - -	859	649	41	169
	6705	5407	603	695
<i>Regimental Hospitals.</i>				
2d Light Dragoons K.G.L.	650	588	2	60
Royal, 3d Battalion -	209	103	—	106
2d, or Queen's -	151	73	8	68
4th Regiment, 1st Batt. -	1677	1120	82	475
2d ditto 2d ditto -	861	835	26	—
11th ditto 2d ditto -	540	513	11	16
20th ditto - -	1055	776	55	224
28th ditto - -	469	451	18	—
43d ditto 2d ditto -	1135	926	39	170
59th ditto 2d ditto -	512	502	3	7
63d ditto 2d ditto -	460	420	3	37
76th ditto - -	424	266	7	151
79th ditto 1st ditto -	477	435	8	34
84th ditto 2d ditto -	243	111	6	126
92d ditto 1st ditto -	1866	1673	35	158
23d ditto detachment -	102	96	6	—
	10831	8888	311	1632
	17536	14295	914	2327

Eastern District.

From the first arrival of the sick from Holland in September, 1809, to the 1st of February, 1810, the proportion of deaths is as follows:—

Taking the full number of admissions into the different hospitals at 17,536, and the deaths at 914, the proportion will therefore be only one in nineteen; but if we deduct about four thousand from the general return, as supposed readmitted cases or relapses, and patients transferred from the different hospitals, then the proportion of deaths will be nearly one in fifteen.

In the general hospitals in the eastern district, the numbers admitted were 6,705, and 603 deaths.

Hospitals, where established.		Admitted.	Died.
1st Class, or worst cases	Harwich	1410	269 about 1 in 5
	Yarmouth	457	58 1 in 8 nearly
2d Class	Ipswich	2437	188 1 in $12\frac{1}{2}$
	Norwich	101	10 1 in 10
3d Class	Colchester	1441	37 1 in 39
	Woodbridge	859	41 1 in 21
		6705	603

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strengthened by scientific objections, they acquire additional force, and are in consequence doubly mischievous. It has been shewn that this fatality has invariably attended the discussions of the Spanish Authorities on the breaking out of each epidemic, and that notwithstanding the frequency of this calamity, no advantage appears to have been derived from experience.

The truth of this observation is strongly exemplified in the report of the year 1813, where it has been stated that the arguments of the orator Mexia, in his speech to the Cortes, occasioned a most delusive calm ; for the people, ever too prone to embrace a doctrine soothing to their indolence, and assuasive of their fears, remained satisfied under the assurance that the disorder which was beginning to prevail in the town, was not of a contagious nature, and that they were consequently exempted from any troublesome measures of precaution.

How many victims might have been spared, if the salutary lessons of experience had been attended to in the first instance, and if a wise and vigilant apprehension had taken place of that pernicious security which was so soon to subside into general panic and alarm !

Although every temptation to indulge in speculative opinions has been avoided in these reports, yet the enquiries and results which they

contain, will, it is hoped, be of some service to the future investigation of this interesting subject.

It may however be proper to add a few remarks respecting the contagious nature of the disorder, its peculiarities, the general mode of treatment, and the means most applicable for its prevention.

The terms contagion and infection have had a meaning far more extensive than precise, and they have been variously applied and distinguished; the most satisfactory discrimination on the subject is to be found in the Second Report of the Board of Health in London to the Privy Council, which as it accords with my views of the question of the utility of mineral acid gases in destroying infection, I shall cite in this place.

“Such is the subtle nature of all the poisons generated in animal bodies, that we are totally ignorant upon what their properties and powers depend, and cannot, upon general principles, apply to one of those poisons, what we have learned of another. We are led to make these observations, because the language commonly used on this subject, may lead to error. Contagion and infection are supposed to be applied to sound persons; but by a common figure in language, they are often used to express the poison itself, and such poisons go by the name of

contagions and infections ; and what destroys contagion in one case, it has been inferred, would destroy it in another ; but there is no foundation for this broad conclusion ; for example's sake, we will suppose it proved that the acid of nitre, or of common salt, would destroy the poison of the gaol-fever, we cannot from thence infer that it would destroy that of the measles, small-pox, or the plague ;" nor, I would add, of the pestilential fever of Spain.

The observations made in that country, during the later epidemics, prove beyond all doubt, the inefficacy of the boasted virtues of the mineral acid gases. The completest trial was made of them by the Professor of Chemistry, Dr. Arejula, after the termination of the fever in 1800. He wrote a dissertation on the subject of the acid fumigations, which was published by order of the Spanish Government ; and his plan (borrowed as he asserts from him by Guiton Morveau) was afterwards generally adopted in most of the principal towns of Andalusia.

In 1803 the pestilential fever, (as it has been shewn,) broke out again in Malaga, and not in Cadiz as some have pretended, and Arejula endeavoured to ascertain by the most careful and accurate experiments, how far the acid gases were effectual in preventing the spreading of the infectious miasms.

Two physicians of the Spanish Navy, Don Mateo Perez, and Don José Maria Salamanca, assisted him on these several occasions, but after the most careful observation they did not perceive any difference between the houses which were all day filled with the fumes of the acid gases, and those in which they had not been employed ; for the disorder prevailed with equal fatality in both, and attacked individuals in the different buildings whether they were fumigated or not.

On the termination of the sickness in Malaga (1803) which did not extend beyond the city and the bay, the houses in the town as far as it was practicable, were thoroughly fumigated, and notwithstanding the attention and exactness with which they were submitted to this process, the disorder reappeared with redoubled violence in the year following, as it has been already mentioned. Professor Arejula has since ingenuously renounced his former opinion of the utility of the acid gases in destroying the contagion of this disease, and he acknowledged to me, that he had no confidence in them whatever.

There is certainly then no foundation for M. Guiton Morveau's assuming to himself the *whole merit of suppressing* the epidemical fever that ravaged some parts of Spain and *Italy* in the year 1800. That ingenious chemist, published a second edition of his book in 1802, in which was inserted a report

or relation of the Spanish physicians, respecting the use of mineral acid gases in the epidemical fever of Andalusia, and which Dr. Smith observes "may *with great justice be called the Currus Triumphalis* of the nitrous fumigation*.

When the melancholy tables of mortality in Spain shall be read, the most enthusiastic advocates for the employment of fumigations will have but little cause to triumph.

The laws by which infectious fevers are propagated, can only be ascertained by repeated accurate experiments and by a faithful record of numerous facts. Much has been done towards the advancement of our knowledge in this curious enquiry by Dr. Haygarth, who has endeavoured to shew to what a short distance infectious vapours or miasms issuing from the variolous poison, do generally extend; he has proved by the strongest evidence, that the small-pox, probably the most infectious of all distempers, does not contaminate the open air, to the distance of half a yard, and he believes, that the infection of typhus is limited to a much narrower sphere, and that it is seldom caught by visitors, or even nurses, in the patient's own chamber, if large, *airy*, and *clean*, and if thoroughly and

* See his remarks on the report of M. Chaptal, &c. by James Carmichael Smith, M.D. 1805.

constantly ventilated.* How far the pestilential poison extends in a warm stagnant air, has not been sufficiently well ascertained, and although the greatest attention has been paid to the subject, I confess myself unable to determine the question.

The disorder in Cadiz in 1800, was propagated amongst the inhabitants in consequence of the processions which took place during a period when the atmosphere was as it were stagnant from the extreme warmth of the weather. The narrow streets were crowded with thousands of persons, all labouring under the depressing passions, and predisposed to disease; and considering all the circumstances as they have been related, it would be difficult, if not impossible to ascertain how far the vitiated atmosphere, or infectious miasms did really extend.

When the disorder broke out in 1804, and 1810, the same obstacles presented themselves to any enquiry, but our want of accurate information on this subject, did not render the general measure of prevention less proper. I recommended to the Board of Health of Cadiz, that as many of the lower classes of the people, inhabiting the Barrio de Santa Maria as could

* See his letter to Dr. Percival.

be provided for, should be encamped outside the city, and that upon the doors of every house within it, a printed paper might be affixed, containing a certain number of short rules and regulations, which every individual might understand *. These rules were similar to those printed for bettering the condition of the poor

* The Board of Health, anxious to prevent the fatal consequences of neglecting precautionary measures, inform the inhabitants of Cadiz, that the prevailing disorder may be avoided, by not going into the houses or apartments of the sick, and by having no personal communication with them ; but where such intercourse is unavoidable, it is recommended that the following rules should be observed, as being the most likely to prevent the spreading of the disorder in a family, and every individual is called upon to exert himself, to see them carried into effect.

1st. It is to be observed, that the air of a sick-room has a more infectious quality in some parts of it than others, and particularly if *small*, close, and *dirty* ; but in a large, *airy*, and *clean* apartment, the poisonous vapour being more diluted with fresh air, is rendered less noxious.

2d. As safety from danger greatly depends on personal cleanliness and fresh air, the room door of a patient ill of the fever should never be shut, and a window in it ought to be frequently opened during the day, and even at night.

3d. All dirty linen, clothes, &c. should be frequently changed, and immediately immersed in water ; and all discharges from the sick person, should be removed without delay.

4th. Visitors and attendants should avoid the current of the patient's breath, and the vapour which ascends from his body, as well as from all evacuations.

in England, which had been transmitted to me when at Gibraltar, by Dr. Haygarth, as being applicable with a trifling alteration, to Spain, or any other country.

The object was to prevent the unnecessary vexation and distress to which whole families were subjected, from exaggerated terror, and to give to the inhabitants that degree of confidence, which would enable them to assist themselves and their friends, in a season of public calamity.

Had the rules here suggested been properly attended to, the best effects might have been expected from them in Spanish towns, in which the natives have a strong prejudice against the admission of air into their apartments after sun-set, and especially during the night; the same vulgar error also prevails amongst them, as it does with the inhabitants of some other countries, that the frequent change of linen, on

But if the duties of the attendant require his being placed in such a situation of danger, infection may be often prevented by a temporary suspension of respiration.

5th. Visitors should not go into an infected chamber with an empty stomach: on coming out, they should blow from the nose and spit from the mouth, any infectious poison which may have been drawn in by the breath, and may adhere to those passages.

a person under fever, is as dangerous, as the ablution of the patient's body with cold or tepid water.

Until these and similar prejudices shall be overcome by the reasoning and example of the clergy, and by persons in authority, it will be in vain to expect any advantage from precautionary rules, or to hope that the progress of the pestilential disorder can be prevented, whenever it breaks out in Spain.

The formation of an encampment, or the erecting of huts outside the towns for the numerous poor inhabitants, and for such as could not be taken care of in their own houses, would always be a judicious measure; it has been shewn, that individuals who had fled from infected places to the open fields, or who lived in huts or under canvass, continued free from the disorder, and that even in those villages in which it appeared, and where precautions were taken, the progress of contagion was altogether prevented.

The subject of quarantine establishments, is of too important a nature to admit of discussion within the limits to which I wish to confine this work. At some future period I hope to take an extensive view of the question; for the quarantine laws in foreign countries are extremely defective, and even in our own, there

appear to be many harrassing and useless restrictions, which cannot be grounded on any reasonable principle. The apprehension of government however, lest the pestilential fever should be imported, was both justifiable and proper, but it is to be hoped, that in future it will subside into a confidence that the disease is not likely to be propagated in this country.

The facts recorded in the preceding reports, shew that it was highly contagious in Spain, but this property seemed to depend on a certain temperature which is necessary to the existence of the disorder, and a combination of circumstances, connected with individual predisposition and the climate, which although difficult to define, may be comprehended by those who have resided in that country, and who have studied the character, habits, and mode of life of the inhabitants.

The violence and fatality of this fever, the indistinctness in the remissions, the rapidity of its course, and the peculiar debility which often came on very early, accompanied by a constant propensity to vomit, constituted the striking difference from the bilious remittent, common to that country during the autumnal months. This peculiarity was never more observable than in the last epidemic of 1813, at Cadiz; whilst it prevailed there, the inhabitants at the Isla

de Leon, and several of our soldiers quartered at that station, were attacked with the common symptoms of bilious fever, but without shewing any of those so strongly indicative of the pestilential character.

The authors who have written expressly on the subject of fevers in warm climates, in describing their varieties, have attempted to assign as many different causes, and hence has arisen that diversity of opinions so generally observable. As far as my experience goes, I should be induced to believe, that human contagion, having acquired a concentrated virulence from a combination of peculiar circumstances, joined to the epidemic tendency of the bilious remittent of the country, gave rise to the pestilential disorder in Spain. It is possible that persons coming from Vera Cruz, or the Havanna, and carrying with them the seeds of disease, admitted to be endemic in those places, might, during their passage in a crowded ship, undergo such a change of constitution, as to produce the disorder, with the additional property of generating it in others highly predisposed. But the appearance of the fever in the Canary islands in 1813, and at Malaga in 1803, was attributed, in the former instance, to the infection conveyed by the French prisoners from Cadiz, and in the latter, to the French ships *Dessaix*

and Union from Marseilles; so that if these facts be admitted, the source of the pestilential disorder may very reasonably be traced to the causes already suggested.

The circumstances which have been mentioned relative to the origin of the fever at Cadiz in 1800, are stated in the First Report on the authority of persons who were there at the time, and the fact of the *semilla* of contagion having been imported in the Dolphin, as well as the inferences to be drawn from it, must rest upon the testimonies adduced.

The term pestilential has been used here (in the sense adopted by Sydenham and Huxham) as being applicable to a disorder partaking in a very striking manner of some of the most prominent characters of the plague, so fully described by Russel and other writers; and although the buboes peculiar to that disease, did not, as far as I know, appear in the fever of Andalusia, yet carbuncles, blotches, and other symptoms were observed, such as the *muddy dull eye* mixed with something not very intelligible of *lustre*, and also an appearance of the tongue, &c. which are all said to be peculiarities in the plague.

With respect to the treatment of the fever it may be remarked, that the general plan of cure consisted in early evacuating the stomach and

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Porter was always grateful, and was particularly beneficial in the convalescent state.

In most cases in which the calomel was given in this manner, and even without the antimonial, it produced a lax state of the bowels, and a moisture on the skin, with immediate relief of the pain of the head, and frequently with a diminution of the other febrile symptoms.

I never saw any advantage from the large quantities of mercury recommended to be employed in this disorder. I am however persuaded that, with proper management, it is of all others the most powerful and useful remedy in fevers, whether arising from human contagion or marsh miasmata; and that if properly followed up by injections in the beginning, especially of the pestilential disorder, many of the most formidable symptoms of the succeeding periods might be mitigated, if not entirely prevented.

Amongst the various means that have been occasionally used in the cure of this complaint, bleeding, emetics, sudorifics, blisters, &c. have had their advocates, and in the hands of some practitioners, they have all doubtless been employed with success; but in the application of these, as of all other remedies, the judgment, skill, and experience of the physician can alone direct him.

As far as my information extends, the practice of bleeding has been of late entirely laid aside in Spain in the treatment of this fever, and although I had seen some patients recover in the few instances in which it had been followed, it did not appear to be necessary or proper; more advantage having generally been obtained by active purgatives and injections, when early employed and steadily persevered in.

Although emetics might appear to have been indicated, they were at all times to be used with caution. Spontaneous vomiting of bile was certainly to be encouraged, and the chamomile infusion was often sufficient to assist nature in the expulsion of it; but in those cases where a complete evacuation did not take place and give relief, emetics of the mildest and shortest operation might be proper. A tea-spoonful of flower of mustard in warm water would produce the effect, without leaving the stomach in that irritable state of nausea, which tartarised antimony and ipecacuanha always occasion. In general small doses of calomel, assisted by the acetate of ammonia, made palatable as effervescing draughts, brought on the moisture of the skin so desirable, for gentle perspiration was always more salutary than a forced sweat.

Sinapisms to the feet, of mustard, vinegar, and soft bread were of superior use, and generally

preferable to blisters which only harrassed and distressed the patient. In the latter periods of the disorder, when the symptoms rapidly crowded on each other, and the constitution appeared unable to resist the struggle, these applications were seldom of any use.

From all the observations that I had an opportunity of making in this disorder, and from which any practical inferences could be drawn, it appeared to me, that on the application of the poison to the stomach, which I apprehend to be the organ most directly affected, a morbid change took place in the gastric and other juices, which by their particular stimulus on the nerves of the stomach and bowels, occasioned many of the febrile phænomena, and that the bile was the fluid principally acted upon. A consequent derangement in the ordinary secretion of the liver generally succeeded to a considerable extent, and thus the irritability of the system becoming increased, tended to keep up the fever.

“ Unquestionably,” says Huxham, “ the bilious principle is too greatly predominant in all putrid, pestilential, and malignant fevers; the gall-bladder and biliary ducts are always found full of black or green bile, in those that die of pestilential diseases, and so is the stomach,

duodenum," &c. and he adds, "putrid bile is little less pernicious than an actual poison."

That such an effect is produced on the bile by poisons, human contagion, or marsh miasmata, will I think be admitted; and I have shewn that in the treatment of the pestilential fever of Spain, and the bilious remittent of Holland, this predominance was strongly marked, and a correspondent principle of cure was adopted and constantly kept in view.

APPENDIX.

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It is not, however, to be supposed that the bile is the only channel by which poisons are conveyed to the system. The blood is a more extensive medium, and it is by this that the poison is carried to the various organs of the body. The bile is a secondary channel, and it is only in cases where the poison is conveyed to the system by this channel, that the treatment of the bile is of any importance.

In the treatment of cholera, the bile is the only channel by which the poison is conveyed to the system. The blood is a more extensive medium, and it is by this that the poison is carried to the various organs of the body. The bile is a secondary channel, and it is only in cases where the poison is conveyed to the system by this channel, that the treatment of the bile is of any importance.

APPENDIX A.

(Report E.)

Abstract of the Meteorological Observations
made by Professor A. Aguirre at Calua, in the
years 1899, 1900, and 1901.

APPENDIX.

Months.		Degrees of the Thermometer.
1899		
January	Greatest elevation Least ditto	73 47
February	Greatest elevation Least ditto	70 57
March	Greatest elevation Least ditto	67 56
April	Greatest elevation Least ditto	64 54
May	Greatest elevation Least ditto	62 53
June	Greatest elevation Least ditto	60 52
July	Greatest elevation Least ditto	58 51
August	Greatest elevation Least ditto	57 50
September	Greatest elevation Least ditto	56 49

APPENDIX.

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Months.		Degrees of the Thermometer.	Days of the Month.
1803.			
January	{ Greatest elevation -	58	17th
	{ Least ditto -	46	31st
February	{ Greatest elevation -	61	28th
	{ Least ditto -	45	12 and 13
March	{ Greatest elevation -	62	2d
	{ Least ditto -	45	15th
April	{ Greatest elevation -	70	21st
	{ Least ditto -	52	9 and 10
May	{ Greatest elevation -	73	30th
	{ Least ditto -	61½	22d
June	{ Greatest elevation -	85	19th
	{ Least ditto -	66	5th
July	{ Greatest elevation -	89	7th
	{ Least ditto -	73	9th
August	{ Greatest elevation -	88	11th
	{ Least ditto -	71	26th
September	{ Greatest elevation -	81	19th
	{ Least ditto -	68	30th
October	{ Greatest elevation -	74	5th
	{ Least ditto -	66	10th

Abstract of Meteorological Observations made
in the Royal Observatory at Cadiz, in the
following years :

1789.

	Degrees of the Thermometer.	
Greatest heat.....	87.07	2d August.
Variation { in the first 15 days.....	11.00	
{ in the last 15 days.....	11.00	

1790.

	Degrees of the Thermometer.	
Greatest heat	90.00	27th July.
Variation { in the first 15 days.....	13.00	
{ in the last 15 days.....	11.05	

1791.

Greatest heat.....	86.00	1st August.
Variation { in the first 15 days.....	8.00	
{ in the last 15 days.....	6.00	

1792.

Greatest heat.....	86.05	10th August.
Variation { in the first 15 days.....	7.00	
{ in the last 15 days.....	5.05	

1793.

Missing.

1794.

Greatest heat.....	85.00	22d August.
Variation { in the first 15 days.....	10.08	
{ in the last 15 days.....	8.06	

Abstract of Meteorological Observations made in the Observatory of the Isla de Leon.

1799.

	Degrees of the Thermometer.	
Greatest heat.....	82.07	20th July.
Variation { in the first 15 days.....	6.09	
{ in the last 15 days.....	6.03	

1800.

Degrees of the
Thermometer.

Greatest heat.....87.07 19th August.

Variation { in the first 15 days..... 6.00
 { in the last 15 days.....14.07

1803.

Greatest elevation.....89.00 7th July.

Variation { in the first 15 days.....15.05
 { in the last 15 days.....13.04

*The following remarks are subjoined by Professor
Arejula to the preceding observations.*

It appears from these general results, that the year 1800 was not the hottest of those in which meteorological observations were made; for it is evident, that in the year 1790 the thermometer rose to 90 degrees which is 2 or 3 more than its greatest elevation in the calamitous season of 1800.

The year 1789 was exactly equal to 1800.

The year 1792 was 1 or 2 degrees less than 1800.

The year 1791 was less than 1800 by 1.07 degrees.

1794 varies 2.07 degrees less than 1800.

E E

In 1799, a year in which the mercury in the thermometer was uniformly lower, there is a difference of 5 degrees less than in 1800.

And lastly, in the year 1803, the mercury rose in July 1.03 degrees more than in 1800; and in August .03 more than the day in which it was highest in the year 1800, thus it is clear that in 1803 the temperature was higher in Cadiz than in 1800.

From the whole of this abstract it appears, that if the high temperature of the year 1800 had been the cause of the epidemic, it would have produced a more powerful and injurious effect in 1790, in which year the quicksilver in the thermometer rose considerably higher. We should likewise have experienced it more in 1803, when the mercury rose still higher, and the heat was more constant.

The epidemic would have prevailed equally in the year 1789, in which the degree of temperature was the same as in 1800; and it might have been, by the same rule, repeated in 1791, 1792, and 1794, in which years the same degree of temperature was observed with very little difference as in 1800.

It is therefore an unsatisfactory conclusion to attribute the disorder which broke out in Cadiz, to the height of the temperature, when we find

from these several statements, that the year 1800 was not the hottest.

By a royal decree of the 5th of September 1800, the municipality of Cadiz was required to send in to the Supreme Council of Cadiz, a return of the mortality occasioned by the disorder then prevailing, and the vicars of the several parishes were accordingly called upon to furnish separate lists, specifying in each the distinction of sexes and ages.

The following was the result of this enquiry. The population of Cadiz, according to the general register made on the 31st of December 1786, consisted of 71,499 souls, of these there were 37,233 males, and 34,266 females.

During this interval there must doubtless have been a period in which there was an increase of 4 or 5000 in the number of inhabitants, but the reverses in the commercial world subsequently occasioned a diminution, and consequently at the time of the epidemic fever of 1800, the population of Cadiz was much reduced. On this supposition, and on the difficulty of ascertaining the number of persons who emigrated, and only calculating this number at random, it appears that the decrease might be estimated at 14,000, so that the population of the city and suburbs of Cadiz at the time the fever broke out amounted to 57,499.

Assuming that this was the number in 1800, and that 48,520 persons were attacked with the disorder, as the official returns shew, it results that 8979 escaped; 7387 died in Cadiz, of which number 5810 were males, and 1577 females, which is in the proportion of $78\frac{1}{2}$ out of 100 of the first class, and of $21\frac{3}{8}$ of the second class.

The same average being taken with respect to the distinction of the ages of each sex, it appears that of the males of

Classes.

1. 10 years old there were 8 deaths in 100.
2. From 11 to 20 years of age $11\frac{1}{2}$ in do.
3. From 21 to 30 do. - - 27 in do.
4. From 31 to 40 do. - - 30 in do.
5. From 41 to 50 do. - - $11\frac{1}{6}$ in do.
6. From 51 to 60 do. - - $4\frac{5}{8}$ in do.
7. From 61 to 70 do. - - $3\frac{1}{2}$ in do.
8. From 71 to 80 do. - - $1\frac{7}{8}$ in do.
9. From 81 to 90 do. - - $\frac{1}{2}$ in do.
10. From 91 to 100 do. - - $\frac{1}{18\frac{1}{8}}$ in do.

The average deaths of females }
of the first class or age was } 19 in 100.

Do. of the second class or age 15 in do.

Do. of the third do. - - 14 $\frac{1}{2}$ in do.

Do. of the fourth do. - - 18 in do.

Do. of the fifth do. - - 10 in do.

Do. of the sixth do. - - 9 in do.

Do. of the seventh do. - - 5 $\frac{1}{2}$ in do.

The average deaths of females }
 of the eighth class or age was } $4\frac{7}{8}$ in 100.
 Do. of the ninth do. - - - $1\frac{1}{2}$ in do.
 Do. of the tenth do. - - - 5 in do.

From which it follows that the greatest mortality in the first class of males, was confined to the ages from 21 to 40, and in that of females from the first year to the tenth.

The population of Seville in the year 1800, and before the fever, as appears from the official statement, amounted to 80,568.

76,488 were attacked with the prevailing fever.

61,718 recovered

14,685 died.*

* Died during the nine days from the 23d of

August 1800	-	-	165
-	-	thirty days of September	2,106
-	-	thirty-one days of October	9,236
-	-	thirty days of November	1,223

12,730

In the different convents }
 (the days not specified) } 1,955

Total number of deaths 14,685

Hence it appears, that in the city of Seville alone, containing a population of 80,568, a sixth part of the inhabitants fell victims to this destructive malady. In this number are reckoned 38,105 males, and 42,463 females, including the different religious orders, viz. 1,625 friars, 912 nuns, 157 *beatas* or devotees, 906 clergy.

APPENDIX B.

In reference to Report I. P. 37.

Remarks on Dr. Bancroft's observations on the Epidemic of Cadiz, 1800, published in his Essay on the disease, called Yellow Fever.

In p. 447 of this work, Dr. Bancroft observes, that "in looking for adequate causes of this Epidemic, we shall readily find them in the situations and local circumstances of Cadiz, and the other towns of Andalusia in which it prevailed;" and he gives an account of the local circumstances of Cadiz, which will be found on comparison with the short description of that city given in the first of these Reports to differ from it most materially; for I have shewn that there is *no swamp* near Cadiz, and that "the part of the town to *the eastward*" is not "placed on very low damp ground," and that it is not "*contiguous to marshes.*"

According to Dr. Bancroft's view of the subject it might indeed have been expected, that from their low situations the towns of *Puerta*

Real, Puerta Santa Maria, and the town of Isla de Leon would have partaken of the epidemic at the same time as Cadiz, but the very contrary has been proved by the statements in the present report, and confirmed by all the Spanish physicians who have written on the subject. It is also shewn in the Report of 1810, that whilst the disorder prevailed in Cadiz, no case of it appeared in any of those towns, or in Malaga, or in any of the villages upon the Spanish coast, owing to the precautions which were taken by the generals of the French army that had possession of the whole of Andalusia.

It is also shewn, in the Report of the last epidemic of 1813, that the towns of Puerta Real, Rota, St. Lucar, Chiclana, &c. all of them in the neighbourhood of marshes, and the town of Xeres escaped; and even the Isla de Leon and Puerta de Santa Maria remained healthy until the arrival of many thousand inhabitants who fled from Cadiz to those places.

“When the physicians at Cadiz,” says Dr. Bancroft, (p. 453-4) “had mistaken the effects of miasmata for those of personal contagion (a mistake which, in that crowded city, and with its numerous processions, &c. it might have been difficult to avoid) the next step was to ascertain its origin.” “I do not find,” continues Dr. B. “that on any former appearance of Yellow fever

in that city, its introduction from any part of America had ever been suspected.

“In the summer of 1800, the government as well as the inhabitants of Cadiz, appear to have adopted the belief of an importation of the supposed contagion from America, and a ship, called the Dolphin, belonging to Baltimore, was generally and decidedly selected and accused as having been the *vehicle* of this mischief, and reports were fabricated, by which three persons were stated to have died of Yellow fever on board the Dolphin, during her passage, and what had been supposed to be the first cases of the fever at Cadiz, were declared to have occurred in different individuals, who had all *directly* communicated with the Dolphin, or some of her crew, and other sailors belonging to the same ship were said to have found their way up the Guadalquivir, through St. Lugar (in which town however the disease did not appear until the middle of September), and by lodging in the suburb of Triana, at Seville, to have produced the Yellow fever there, *some days before its appearance at Cadiz.* These stories,” continues Dr. Bancroft, “were circulated generally and with great confidence, so that Don Pablo Valiente, intendant of Cuba, who had chartered the Dolphin, to bring himself and his family to Spain, was

notwithstanding his rank and connections, arrested upon a *criminal* charge, tried before the royal Audiencia at Seville, and after a full investigation, and *eleven months' imprisonment, fully and honourably acquitted* of having introduced the Yellow fever at Cadiz, and he was, probably, as a compensation for the injustice he had suffered, afterwards *promoted by the government*. In the course of this prosecution, it was juridically proved, that the Yellow fever had not appeared at the Havanna, whence the Dolphin sailed in May, 1800, until some time after her departure, and though she touched at Charleston on the 2d of June, and sailed thence on the 10th of that month, it was (in consequence of an application from the Spanish government) certified unanimously at an extraordinary meeting of the medical society of South Carolina on the 5th of April, 1801, (twenty-two respectable physicians being present) that 'to the best of their knowledge, no Yellow fever had existed in that town, or in the port of Charleston, prior to the 20th of June, in the year 1800.' They also declared on the ground of specified facts, their conviction that the disease in question *had never been propagated by contagion*. It was also proved and particularly by the testimony of Don José Caro, a Spanish physician, who had returned as a passenger on board the Dolphin,

and was examined, on oath, by the judges at Seville, that the diseases of which the *three* sailors* had died on board of that ship, were *not of the nature of Yellow Fever*, but different diseases, of which an account was given.

“It was moreover proved, that no symptoms of the Yellow Fever had appeared in any person on board the Dolphin, and consequently, that the disease could not have been introduced by that ship.” “Dr. Arejula has therefore,” continues Dr. Bancroft, ‘*deemed it proper to reject the stories* concerning the Dolphin, and to confess that it was impossible to ascertain whence the epidemic was derived.’ He, however represents it as having been spread by contagion from Cadiz, to the other places where it prevailed, and as having been exactly similar to the Yellow Fever of America, in which his opinion agrees with that of Professor Berthe, Dr. Gonzales, and other Spanish physicians, by most of whom it is now called, ‘*La Fiebre Amarilla*,’ or the Yellow Fever.”

“I shall doubtless be thought to have done enough,” adds Dr. Bancroft (p. 458) “if, avail-

* In a note Dr. Bancroft says, “professor Berthe at p. 340. of his volume, has multiplied three deaths to three times three or nine.” This is one of the numerous instances of the inaccuracy of the French report, from which Dr. B. has principally collected his information on the subject of the fever in Andalusia.

ing myself of the facts asserted or admitted (for other purposes) by those who represent the disease as being contagious, I demonstrate the *contrary* from these very facts."

This account of the supposed origin of the fever in Cadiz in 1800, appears to have been taken from the "Precis Historique," published by Professor Berthe, of Montpellier, who was sent by the French government, with two other physicians, Monsieurs Lafaborie and Broussouet, into Spain, to ascertain facts and collect information respecting the fatal epidemic of Andalusia in 1800.

Dr. Bancroft also quotes the authority of a Dr. Pascalis (whose account of that fever was published in the New York Medical Repository) and he refers to a pamphlet written by Don Rodriguez Armesto, an officer in the Spanish navy, entitled, "Reflexiones sobre la Epidemia padecida en Cadiz."

I made particular inquiries amongst the Spanish physicians, how far those different accounts were to be credited, and the report they gave was this; that with regard to the French commission not one of its members ever saw the disorder which the "Precis Historique" professed to particularize, for those gentlemen remained quietly at Madrid until the fever had subsided; they then undertook the journey, and during their progress through Andalusia they were

indefatigable in collecting from individuals all the remarkable stories and popular accounts of the fever, which formed the substance of their report. M. Berthe, the chief of the commission remained at Malaga twenty-four hours. It must however be acknowledged, that several of the facts stated in that work were confirmed to me by the Spanish authorities.

The respectable physicians in Cadiz and Malaga could give me very little information of Dr. Pascalis; they recollected a person of that name who had come into Spain from Pennsylvania with a set of queries, to which it was not always easy to give immediate answers, and as he had been personally known to but few of them, they could give no account of him. It was believed that, dissatisfied with his reception, and the imperfect information he had obtained, the doctor returned to America in disgust, and afterwards wrote an account of the fever which *he had not seen*, from which Dr. Bancroft has quoted several circumstances that are positively contradicted by Dr. Arejula, and all the other respectable Spanish physicians. With respect to Don Rodriguez Armesto, all are agreed that he was a man of science; he had the superintendence of the royal observatory at the Isla de Leon, and published his meteorological observations, or "Reflexiones sobre la Epidemia," in which he

endeavoured to demonstrate on philosophical principles that the disorder originated from the state of the atmosphere, and from local causes.*

* "Don Rodriguez Armesto," says Dr. B. in note to p. 464. considers the Mediterranean fever as resembling that of Cadiz, and says, "the same epidemical constitution of the atmosphere extended along the Mediterranean as far as Leghorn and Genoa, adding, that in the latter, where 150 persons died every day of yellow fever, no American vessel could be accused of importing it, as Genoa was, long before, closely besieged by land and blockaded by sea."

If Dr. Bancroft had read Palloni's account of the disease at Leghorn in 1804, he would have perceived that it was not like the common remittent fever of the Mediterranean; I believe there is no doubt of a vessel from Malaga having introduced it into *Leghorn*; but it did *not* appear at Genoa as far as I know.

How the same epidemical constitution of the atmosphere should have extended along the Mediterranean and affect Leghorn only, and no other intermediate or neighbouring place, I do not understand; nor should I conceive that the naval captain Don Rodriguez Armesto, could account for this fact, by his mode of reasoning, more satisfactorily, than he could describe the resemblance between the Mediterranean fever, and that of Cadiz.

I have stated in the introduction to my Second Report, p. 100. that the Peñon de Velez, a rock in the Mediterranean, not far from the Barbary shore, where the Spaniards had an establishment for their convicts, was visited by this pestilential fever, not through the medium of *this* epidemical constitution of the atmosphere, but *from the communication* which was constantly kept up with Malaga during the prevalence of the fever in that city. This is a fact well known.

This ingenious officer was the personal friend of Admiral Massaredo, whose fortunes he followed when the former espoused the French party under Joseph Bonaparte; and he probably retired into France after that Usurper had been driven out of Spain.

Don Rodriguez Armesto was *not* banished from Spain for writing "The Pamphlet," (one of which is in my possession) nor was he ever "*arrested*" for having "diffused false, dangerous, and seditious opinions," neither was he "compelled to subscribe a formal recantation of them," as Dr. Bancroft, on the authority of this Dr. Pascalis, has seriously told us, (P. 444.)

Dr. Bancroft says, in a note, (P. 459.) "Dr. Pascalis asserts that the epidemic first broke out on the 23d of July in the suburb of Triana in Seville, a *little before* it was noticed at Cadiz."

The contrary to this has been stated and proved by all the Spanish practitioners. The disorder having certainly first appeared in Cadiz.

On referring to professor Arejula's work, (P. 251.) I found the following account of three vessels that were particularly remarked, as having arrived about the period when the fever broke out in Cadiz in 1800.

On the 30th of June 1800, six days previous to the arrival of the Dolphin Corvette in the harbour of Cadiz, a vessel, called the Aguila,

belonging to the late Don Juan Segales, merchant in Cadiz, arrived at St. Lucar de Barrameda; she left the Havanna about the 22d or 23d of May; and, "I know," says Arejula, (P. 253.) "that she lost five men during the voyage: this vessel took in a fresh crew at St. Lucar to navigate her round to Cadiz, in consequence of all her people having got on shore, and made their escape the moment she anchored, a practice very frequent in all the merchant vessels coming from Spanish America, which cannot be prevented until the Government take more effectual means to remedy so serious an abuse."

Dr. Arejula also informed me (and it is mentioned in his work) that he had a conversation with the captain of a merchant polacre, called the Jupiter, which left Vera Cruz on the 4th February 1800, and arrived at Cadiz on the 28th of March following. The captain, Don José Murrietta, told him, that a few days after he had sailed from Vera Cruz, the second mate was taken ill, was delirious on the third day of his illness, vomited up something like coffee-grounds, (the true character of the black vomit) and died on the fifth day. The captain also declared to Arejula, that another stout young man of eighteen years of age was taken ill about the same time, that he shewed all the symptoms which were observed in the mate until his death,

and that all the passengers and crew were attacked with the disorder, whence it was doubtful whether they should return to the Havanna, or pursue the voyage; but one or two of the people becoming better, it was decided that the vessel should proceed on her voyage. As soon as she had passed the straits of Bahama, and had reached a colder temperature, the whole ship's company rapidly recovered.

He begins his answer to the second problem, "who introduced it?" (i.e. the disorder in Cadiz,) in this manner:

"El segundo problema? Quien la introduxó? lo creo en un todo imposible de aclarar."

'I believe it to be impossible to explain clearly;'

"Me precisa sin embargo, con harto sentimiento mio, el apuntar la historia de una embarcacion, *tan desgraciada* como linda á la vista, y es como *sigue*." 'It is however absolutely incumbent upon me, although with extreme regret, to relate the history of a vessel, *as unfortunate* as she was good-looking, and it is as follows:'

"It was the subject of conversation; and it was said at the time, that the cause of the contagion was attributed to an American corvette, called the Dolphin (newly built at Baltimore) which arrived at the Havanna, where she remained in harbour several months on sale, in charge of

two or three men who were put on board ; until she was taken up by the house of Santa Maria and Co. merchants in the Havanna.

“ Don Josef Pablo Valiente, member of the Supreme Council in South America, having determined to return to Spain, agreed with the house of Santa Maria and Co. to take his passage in that vessel, and she was fitted up accordingly with every thing necessary for the voyage. The command of the Dolphin was given to William Jaskel, and a master with six or seven sailors were engaged to navigate her ; she sailed from the Havanna on the 27th of May 1800, having on board Don Pablo Valiente, five servants and fifteen other passengers, twelve of whom were Spaniards, and the remaining three natives of Havanna. The corvette directed her course to Charleston (for the purpose of being covered by an American flag, Spain being then at war with Great Britain) where she arrived on the 31st of the same month, and having taken on board three or four American seamen to assist in navigating the vessel to Cadiz, she sailed on the 11th of June, and arrived in Cadiz bay in the evening of the 6th of July following, after a passage of 25 days from the port of Charleston.

“ During the voyage, she lost three of her crew ; the first, as Dr. Don Josef Caro (a native

of Havanna, and a practitioner there, of reputation) informed Arejula, died of an inflammatory affection of the side, for which he was bled, &c. the second died of a putrid fever, having refused to take any kind of medicine, and the third of Syphilis. This Physician, who was one of the passengers, assured Arejula that all three fell a sacrifice to their own obstinacy, rather than to the severity of their complaints.

“Immediately upon the arrival of this corvette in Cadiz bay, the Junta de Sanidad, according to custom, made the necessary enquiries respecting the health of the passengers and crew, and on examining the log book kept by the Spanish American Captain, it was discovered that the three sailors above mentioned, were inserted as having died of *the yellow fever*. *

* “Luego que llegó este buque a Cadiz tomó la junta de Sanidad conocimiento del estado de la salud de los pasajeros y equipage, y recogió, como se hace siempre, el diario de la navegacion del capitan Americano, en el qual se encontraba la muerte de los tres expresados marineros, atribuyendola este á *fiebre Amarilla*.”

“Este capitan aseguró en su declaracion que los tres que murieron, perecieron con las mismas sintomas que habia él notado en otros atacados de dicha calentura.” Arejula ut. sup.

This captain made a declaration that the three men who died, expired with the same symptoms which he had observed in others attacked with that fever.

“ On this account the Board of Health took every possible means to ascertain the fact and to get at the truth, *and the result was*, that they ordered all those who came in the vessel, to remain on board without communication; guards were placed in her, and in boats at some distance, and the Health Officers went along-side daily, to enquire into the health of the passengers and crew; at the expiration of twenty days, (reckoning from the day on which the last death took place on board, and ten from the day on which she anchored) the Board of Health being then satisfied as to her healthy state, she was admitted to pratique and to free intercourse.” Such is the fact related by Dr. Arejula, with his wonted candour and simplicity, and I can no where find in the work referred to by Dr. Bancroft, that the Professor, *deemed it proper to reject the stories concerning the Dolphin.*

On my first arrival at Cadiz in 1806, I heard from every person with whom I conversed on this subject, that there was no doubt of the truth of the circumstances mentioned concerning that ship. Dr. Arejula did not hesitate to tell me, *that he himself believed them*, and there were reasons at the time why other persons who were equally well informed, did not publicly say all they knew of the transaction.

The positive assertion which had been made by the Havanna Physician, Don Josef Caro, was however so materially different from the declaration of the Captain, to which Dr. Arejula has adverted in the note already quoted, that I was unable to reconcile this seeming inconsistency; and it must be confessed, that the difficulties I encountered in my endeavours to investigate the truth on this interesting subject, had nearly discouraged me from prosecuting my enquiries.

At length it was communicated to me, that the Captain who had given in his declaration of what happened on board the Dolphin in 1800, was then in Cadiz, and on the 15th of March 1806, I applied to the British Vice-Consul, Mr. Archdekin, who was so obliging as to accompany me to the Barrio de Santa Maria, where I had been informed that Don Sebastian Lasso de la Vega, the Spanish Captain of the Dolphin corvette resided.

After several enquiries we found him ill in bed, in the upper story of a house in the Boquete; he seemed surprised at the unexpected visit of two strangers, but upon being told, that our only object was to satisfy our curiosity respecting the arrival of the Dolphin in Cadiz, in 1800, he candidly communicated

the following particulars, which I noted down in Mr. Archdekin's presence.

"The Dolphin corvette," he stated, "was pierced for 18 guns; she left the Havanna about the latter end of May 1800, and sailed for Charleston, where she remained a few days to get her papers changed, and she took on board five men from the Boston packet, as part of her crew.

"This vessel arrived at Cadiz in 22 days; on her coming to an anchor she was put under quarantine for ten days; after the expiration of the term, the Intendente, Don Pablo Valiente, came on shore, and afterwards went to Seville by water.

"She had lost three sailors during the passage; the Captain had noted their deaths on the log-book as of the yellow fever; but Don Josef Caro who was chief Physician of the hospital at the Havanna, and who came home with the Intendente, insisted upon it, when the noise was made on the subject, that those men had died of indigestion and simple complaints, and not of the yellow fever as the Captain had said.

"The Captain replied that he knew nothing about the distinction of disorders, but that he noted down on the log-book, the deaths of the sailors as of yellow fever, because all those whom he had seen die in America of that

disorder, had the same symptoms of black vomit, discharge of blood, yellowness of the skin, &c."

The Captain also told us that 15 days after their arrival at Cadiz, he paid off the crew, and that he sent the American Captain back to America, in a vessel belonging to the United States; they had been on shore but a very short time, but he thought it possible and probable enough that there might have been smuggling amongst them as well as the boat-men belonging to the Health Boats; he further stated that it was true, that on the day of the arrival of the Dolphin in Cadiz bay, a Custom House Officer, and a person from the Health Office, were put on board, and remained there the whole time, and that both were very ill.

This was the substance of the information I received from the Captain of the Dolphin, referred to by Dr. Arejula, p. 252.

I shewed this Memorandum to Mr. Archdekin, at Cadiz, on the 14th of June, 1814; he recollected every circumstance here stated, and particularly well, as he dictated to me in English, the conversation which passed between him and the South American Captain, in Spanish.

In adducing these facts, it is not my purpose to offer any decided opinion as to the origin of

the epidemic at Cadiz in 1800, but merely to record them as illustrating the prevailing opinion in that city on the subject.

Observations made at Xeres, with reference to p. 47.

The town of Xeres de la Frontera is about thirty miles from Cadiz by land, but in crossing over the bay to Port St. Mary's the distance is trifling, being about three leagues only from thence to Xeres. This place, so celebrated for its wines, is situated upon a hill, and being well ventilated and surrounded by a fine dry soil in the highest state of cultivation, is perhaps as healthy a spot as any in Europe; and yet the pestilential disorder prevailed here to a very great extent in 1800 and 1804.

During my visit to the hospitable house of Mr. James Gordon at Xeres in April, 1806, I became acquainted with Dr. Ferran, a physician of great reputation in that part of the country; he informed me in Mr. Gordon's presence, that he was decidedly of opinion the disease did not originate in Spain, but he admitted that some peculiarity in the constitution of the air might have aggravated its symptoms. He had practised in that town and its neighbourhood upwards

of thirty years, and he had frequent opportunities of observing the prevailing disorders of the country, but he never saw any fever like the destructive one of 1800. The worst fevers of this neighbourhood were the putrid bilious remittents described by Huxham, accompanied with petechiæ. The black vomit, hæmorrhages, pains over the eyes and forehead, calves of the legs, &c. were the principal symptoms which characterized the disorder of 1800 and 1804, and which he believed to be of foreign origin, and not belonging to that climate, not only from his own experience but from the most positive proofs of its introduction into Cadiz. The population of Xeres in 1800, was estimated at more than 35,000, and Mr. Gordon informed me, that upon the nearest calculation, between 8 and 9000 were carried off by the fever. General Morla told me that he believed there were upwards of 10,000 deaths, but that it was extremely difficult to ascertain what the real population was, as a considerable number of persons live in the neighbourhood, who were not enrolled in the lists at Xeres.

To the eastward of the town there was an extensive tan-yard, about sixty yards by fifty, and at least forty distant from any building; it stood on an open area outside the town, and well ventilated. On the 3d of April, 1806, I

visited this place with Mr. John Mousley*, who had resided in Xeres fourteen or fifteen years, and was then connected with the house of my respectable friends Messrs. Dowel and Tucker of Cadiz. One of the chief workmen of the establishment who had been employed in it for more than nine years informed us, that during the fever of 1800, there were thirty-eight persons men and women, including nine children, daily employed about the tan vats; that two of the men were sent every morning to market to provide for the rest of the party, whilst the disorder was carrying off from 180 to 250 a day in the town, yet neither the two workmen nor any of the others, or their families within the building, ever had the slightest symptom of the disease. The same exemption was observed during the epidemic of 1804. As this tan-yard was situated

* This respectable gentleman has now a very extensive wine establishment at Xeres and Port St. Mary's.

He is generally known and esteemed as a friendly hospitable character; and it is remarkable, that he never had the fever, and has invariably enjoyed the most perfect health during the four epidemics, although all his acquaintances were attacked, and many were carried off by the disorder. He often assured me, that the only precaution he took was to go into the country, whenever it was reported that the fever existed in Cadiz or in Port St. Mary's, and he always remained there until the cool season set in. This is a fact well known in Cadiz, and it is fortunate that he had the means to escape the danger.

to the eastward of the town, did the east winds which were said to prevail, and blowing in that direction towards the town contribute to its salubrity, or was it owing to the people living within the building being constantly surrounded by the tan vats? *

* Dr. Valentine in his traité de la fièvre jaune d'Amérique, p. 91. has the following passage, "On a observé que les bouchers, les corroyeurs, les tanneurs, les fabricans de savon et de chandelles, ont été beaucoup plus épargnés par la maladie, et qu' à New York, aucun boucher ni corroyeur, ni ceux qui manient et inspectent la potasse et la soude, n'en ont été atteints. Il faut cependant en excepter l'épidémie de 1798, car parmi les inspecteurs de potasse et les savoniers, on a compté plusieurs victimes." (The Medical Repository, vol. ii. p. 200.)

When I was at Malaga in 1806, I frequently visited the extensive soap manufactory, of the respectable house of Maury and Co., and I was assured, that the workmen who were employed there during the fever of 1804, were equally obnoxious to the disease, and that there were proportionably as many deaths amongst them as in every other establishment.

The butchers were not less exempt, nor were frictions of oil of the least service in preserving those who had recourse to it, notwithstanding the recommendation of Mr. Baldwin, and the assertion of its efficacy, which Valentine quotes in his "Observations sur la Nouvelle York," p. 242. "Les hommes qui travaillent à la graisse et à l'huile, soit végétale, soit animale, qui s'en servent à l'extérieur et à l'intérieur, ne sont point sujets à la peste, à la fièvre jaune ni à aucune maladie qui leur ressemble."

Upon the subject of frictions with oil, Professor Arejula, p. 224, makes the following observation; —

That it more probably arose from the latter cause appears from this fact, that the nearest building to the tan-yard, about forty yards in the rear was a barrack, in which a part of the regiment of Spanish carabineers were quartered at the same time, and several of the soldiers were taken ill there and sent to the hospital at the other end of the town.

Don Vincente Osorio, the colonel commandant of the regiment, at whose house I met with great hospitality, told me this, and added

“ Much has been said of friction with oil, either alone or mixed with lemon juice, and it was observed as a positive fact, in the Madrid Gazette of 1804, that all the individuals of General Reding's Swiss regiment saved themselves in the epidemic of 1803, at Malaga, by the external use of oil.

“ From the official return of that regiment, signed by the colonel and the adjutant, it appears that the corps consisted of 977, including officers, of whom 418 were attacked by the disorder, 263 recovered, and 155 died, besides the surgeon and chaplain, and three women, and a boy belonging to the regiment.

“ After this statement, it will appear how readily the government was deceived, in the anxiety which was shewn to publish a fact as certain, which was entirely false; and which, from its appearing to be true on such authority, was as prejudicial to humanity as to medical science.

“ Several physicians in Spain as eagerly published their observations, affirming that they had cured hundreds of persons by the use of this remedy; but without saying a word of the many individuals who died under its use, and whilst quietly submitting to the friction, neglected other more efficacious means for their recovery.”

that there were detachments at the Isla de Leon, Rota, Port St. Mary's, &c. in all of which there was sick, and that out of 600 men he lost 200.

A detachment of this regiment, consisting of 100 men was stationed at Scipiona, which town although it lies between Rota and Port St. Mary's was not visited by the fever, whilst the two latter places were suffering from its effects. The officer commanding the detachment, had so rigorously prevented every kind of intercourse with the neighbourhood, that when the public service required a dragoon to be sent with dispatches to Rota, the soldier on his return was taken ill, and he was sent back to the hospital of that place.

This fact was confirmed by the late captain general of the province of Andalusia, Don Thomas de Morla, who was living in retirement at Port St. Mary's, when I arrived there in April, 1806; having invited me to dinner, we entered into conversation on the subject of the fever. His excellency informed me, that it had extended along the coast in 1800 as far as Ayamonte, and that it certainly never appeared across the Guadiana, owing to the precautions taken by the Portuguese governor on the other side of the river. He mentioned also another curious fact, that the town of Moger which lies between Rota and Ayamonte was never visited by the disorder, from the timely interruption of

communication with those places, and that the instances of *Scipiona* and *Moger**, although in the neighbourhood as it were of the disorder, were strong proofs of the utility of early precautions in checking its progress. I shall merely add, that the description of the dreadful fever of Charleston, South Carolina, which so frequently raged like the plague in the southern parts of America, is admirably detailed by Dr. Lining of Charleston, in a letter to Professor Whytt of Edinburgh, in the year 1753. The symptoms of the disease, as it appeared in that town in 1748 agree with those which were observed in former years, when a similar malady visited Charleston; and we shall find on comparing

* Dr. Bancroft, p. 461. tells us that Professor Berthe, "mentions the small town of *Scipiona*, as one in which the fever did not appear, though but a few miles from San Lucar, where a sixth part of the inhabitants died of it; and Dr. B. maintaining his preconceived opinion, accounts for this by saying that "*Scipiona* had, however, the advantage of being higher, and at a greater distance from the low grounds adjoining the river."

Although I do not place much reliance on the authority of the French commission for the reasons already stated, it ought to have been observed, that M. Berthe, after the above passage, expressly states, "that the inhabitants of *Scipiona* had the precaution to seclude themselves entirely from any communication with their neighbours, and that the admission of strangers was most rigorously prohibited."

In this M. Berthe is correct.

them with the symptoms of the Andalusian fever, not only a striking resemblance but sufficient evidence to establish their identity. — See a description of the American yellow fever in a letter from Dr. John Lining, physician at Charleston, South Carolina, to Dr. Robert Whytt, Professor of Medicine in the university of Edinburgh.—*Essays Physical and Literary, Edin.*

APPENDIX C.

(Report II. Part I.)

IN page 473 of his Essay, Dr. Bancroft begins his account of Gibraltar, by “expressing his regret that in describing the situation and *local peculiarities* of this interesting spot, *he* is in regard to many circumstances, compelled to rely on his own observations made at times, when, not foreseeing their connection with this subject, *his* examination and enquiries were not so minute and particular as they would otherwise have been.”

After this candid admission, it is to be lamented that Dr. B. should have stated so many extraordinary circumstances relative to the soil, *climate*, &c. and to the origin of the disorder in that Fortress, in 1804. Such of my readers as have been at Gibraltar will readily perceive the inaccuracy of his account; I shall only therefore advert to some of the passages in it which require a particular notice from me.

In page 478 Dr. Bancroft quotes the late Dr. Donald Monro in his observations on the means

of preserving the health of soldiers vol. i. p. 23, who says 'at this place (Gibraltar) June, July, August, and September, are constantly hot, and 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*.' " This statement by Dr. Monro," he adds, " having been shewn by me to Sir James Fellowes, on the 3d of June 1806, was by him confirmed on the ground of his own experience at Gibraltar, in the preceding year, and also on that of documents which he had collected there respecting the state of health of the garrison in former years."

From this paragraph, following the one respecting " marsh fever at Gibraltar," &c. it would appear that my opinion coincided with Dr. Bancroft's on the nature of the disorder of the preceding year, (1804) but it would have been more candid in the author to have added, that although I admitted the truth of Dr. Monro's remark, *I had expressly stated to Dr. Bancroft* at the time he reminded me of the passage alluded to, that the fever of 1804, was *materially different* in its symptoms and character from the simply *bilious disorders* which annually prevail at Gibraltar, as mentioned by Monro.

Return of deaths in the Garrison of Gibraltar,
from the 1st of September 1804, to the 31st
of December, inclusive.

Corps.	Died.
Royal Artillery - - -	201
Engineers - - -	123
Barrack Military Artificers	15
2d or Queen's Regiment of Foot	131
10th do. - - -	22
13th do. - - -	130
54th do. - - -	100
De Roll's do. - - -	187
Officers - - -	54
Women and Children of the } Military - - -	164
Civil Inhabitants - - -	4,864
Total	<u>5,991</u>

Of the above number 45 died of casualties
and other complaints, leaving the total number
of deaths of the prevailing fever 5,946.

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attacked with the disorder, not one of whom died.

Several of the officers of this regiment who never had been in India, were also attacked with the fever, and of these *five* died.

This therefore is a curious fact, and it may serve to shew that by a long residence in the climate of India or Egypt, a certain change in the constitution must have taken place, to render those individuals less obnoxious to the impression of the morbid cause; or perhaps the circumstance of the regiment being constantly under canvas, when the disorder broke out, and during its prevalence in the garrison, may have contributed materially to have weakened the virulence of the disorder, and may thus account for the little mortality amongst the men.

The following is given as a statement of the enormous population of Gibraltar, before the 8th of September 1813.

Civilians estimated at	15,000
Garrison, soldiers wives and children	5,501
Total	<u>20,501</u>

Present civil population.

British Settlers	- - -	882
Natives of Gibraltar	- - -	1699
British and Native Jews	- - -	555
Foreign	- - -	325
Spaniards	- - -	1378
Portuguese	- - -	747
Genoese	- - -	1398
Sardinians	- - -	182
French	- - -	61
Germans	- - -	116
Moors	- - -	27
		—
	Total	7370

November 13, 1813.

Dr. Gilpin stated to me in his letter from Gibraltar of December 22d 1813, that above 8000 people were turned out of the place and encamped upon the neutral ground, on the breaking out of the fever in that year; and that between the 8th of September and the 3d of December, 2847 persons were attacked, of those who remained in the garrison; of whom 904 died, and of these 460 were of the military.

A more particular account of the epidemic of 1813 at Gibraltar, may be found in the fifth

volume of the Medical and Chirurgical Society of London.

To shew the importance of encamping the inhabitants of a crowded town where it is practicable, during the prevalence of fever, it may be observed, that among the above 8000 people no disease appeared, and that they continued healthy until the 4th of December following, when clean bills of health were issued.

It must however be obvious, that so long as such an excessive population is permitted at Gibraltar, circumscribed as the spot is, it can scarcely be expected that the recurrence of the disease can be entirely prevented; and the troops in garrison will consequently be always exposed to danger, notwithstanding every effort on the part of the Board of Health to avert it. The policy therefore of limiting the number of settlers in Gibraltar, appears to be a question worthy the serious attention of government.

APPENDIX B.

(Report II. p. 117.)

(COPY.)

*Secretary's Office,**Gibraltar, 9th March 1805.*

MR. PRATT, Master Cooper in the Naval Victual-
ling Yard at *Gibraltar*, deposes, that he left this
garrison about the 30th July 1804, with a pass-
port from General Sir Thomas Trigge, with an in-
tention of going to Cadiz. He went in a boat to
Algeciras, and from thence by land. He arrived at
Cadiz the 3d or 4th of August. He did not un-
derstand that the town was unusually unhealthy.
He lodged at the tavern Del Sol, in the street Hon-
dillo, where he remained about fifteen or sixteen
days, when he was taken ill; having continued
so for eight days, he had symptoms of black or
bloody vomiting; at this he was much alarmed, and
fearing lest he should be sent to the public hos-
pital, he removed to another quarter of the town
and ultimately recovered. He had however a
very yellow look, which prevented the master of
a vessel from taking him on board and bringing
him to *Gibraltar*, lest it might be the means of
putting the vessel in quarantine.

Mr. Pratt further deposes, that he and the Cap-
tain of his Privateer went into a barber's shop to be

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Young *Santos*, the person mentioned in the above deposition, was then sent for and confronted with Mr. Pratt, whose examination being read to him, as also his own former statement, he was desired to declare how far he acknowledged what Mr. Pratt had stated to be true or not. Being thus questioned, he confessed, not without some confusion, that he had lived for about three weeks in the same house with Mr. Pratt and the Captain of the Privateer; and that he had also been three times in company with the Captain whilst he was ill of the fever, a short time before he left Cadiz for Gibraltar; but he said he did not recollect Mr. Pratt's being ill at the time he was in the house with him, and which indeed is possible, as Pratt said he endeavoured to conceal his illness as much as he could, to avoid being sent to the public hospital.*

* On the 15th March, 1806, Mr. Archdekin, the British Vice-consul at Cadiz, was so obliging as to accompany me to the Calle Hondillo, and the tavern alluded to by Pratt, but we could obtain no information.

APPENDIX E.

(Alluded to in p. 105.)

In the month of April 1806, I returned to England in His Majesty's Ship *Britannia*, commanded by Captain Charles Bullen, R.N.

Mr. Bresciano, a respectable inhabitant of Gibraltar, having obtained a passage on board, was requested by me to repeat the conversation which had passed between us on a former occasion respecting the fever, and the arrival of the smugglers from Malaga, and he accordingly made the following statement, in the presence of

Charles Bullen, Esq. *Captain.*

Lieut. Col. Keane, 13th regiment of foot.

Major George Middlemore, 48th regt.

Honourable Captain Duncan, R. N.

Captain White, 48th regt.

Mr. Bresciano's Declaration.

About the 10th or 12th of August 1804, whilst Don Francisco Hoyera, vicar of the Spanish church at Gibraltar, was sitting at dinner with Mr. Bresciano and his family, a Spaniard called at his house and enquired for the priest, who, on going out to speak to him, was informed by the

stranger, that a countryman of theirs was very ill, and he requested an order for his admission into the public hospital, which is at the back of the church, and was appropriated for the Roman Catholic poor. The priest made an objection to this, as the proper certificate required from some town practitioner had not been previously applied for. He however offered to give the sick man the sacrament if necessary, observing to the Spaniard at the same time, that *he and his* countrymen, *meaning the smugglers*, would be the ruin of the garrison.

The priest Hoyera accompanied the man to the garden of the public library, where his sick companion was found lying under a fig-tree, and apparently in a dying state. In his confession, he acknowledged, that he had come from Malaga in a felucca, with two others, and that his disorder was *like that* which prevailed at Malaga when they left it but a few days before.

On the priest's return to Bresciano's, he mentioned what he had seen; but at the time he only expressed his fears that some day or other those *smugglers* would occasion much mischief to the garrison, as so little attention was paid to the admission of persons of this description.

Some time after this event took place Bresciano questioned his friend Hoyera upon the subject

of their conversation, which had surprised him so much, when the priest told him confidentially, that the man whom he had confessed in the library garden, and who *afterwards died and was buried there*, had all the symptoms upon him of the disorder which he had seen at Lebrija, a small town in the neighbourhood of Seville in 1800, where it had been very fatal.

Neither Bresciano nor the priest Hoyera divulged this fact at the time, for they were unwilling to alarm the garrison, and it was not until *Santos's* illness, and when the disease began to appear about Boyd's buildings, that they both expressed publicly, their suspicions of the nature of the fever in Gibraltar. The Priest called at the Secretary's office, and communicated to Captain Dodd the facts here stated, and he entreated him to inform the Lieutenant Governor, that the disorder in the garrison was of a very destructive nature, and that it was like that which he had seen in Spain in 1800.

Both Captains Dodd and Wright of the Royal Artillery, immediately waited on Sir Thomas Trigge, and they told him of the solemn declaration which had been made to them by the Spanish priest.

Mr. Bresciano further informed us, that the Spaniard who called at his house to speak to the

priest, and who assisted his companion, and afterwards buried him in the library garden, was also taken ill, but recovered, and he is probably now living in Gibraltar, as he kept a small shop, and was connected with the smugglers. What became of the third man, Mr. Bresciano could not tell, but it was certain, that when the three men came from Malaga, they lived in the library garden, or in some of the sheds near it, which were in every direction about Boyd's buildings and *Santos's* house.

It had been said that there were some sick in that part of the town, and even one or two deaths previous to the alarm, which *Santos's* illness occasioned, but they were attributed to the warmth of the season, and even after the disorder appeared at *Santos's* house, no attempts were made to trace it to any other source; as the circumstances of his arrival from Cadiz, his sickness immediately afterwards, and the progress of the disease in his family, were sufficiently well ascertained to account for all the mischief which ensued.

The facts here stated, were very satisfactory to my own mind, especially as they corresponded with other circumstantial accounts, and as they agreed with the information which I obtained at Cadiz and Malaga respecting the existence of the disorder in both those places.

As the three smugglers from Malaga lived in the library garden, and as the one who died was buried there, it is reasonable to conclude that the disorder did not spread from him, which it might otherwise have done had he lived in a confined or crowded house, as was the case with *Santos*.

Explanation of the Plan referred to in p. 103.

The accompanying outline is designed to shew the origin and progress of the disorder in Gibraltar, as proved by the depositions of Santos; the French practitioner M. Jay, Mr. Kenning, Assistant Surgeon of the Royal Artillery, and Mr. Coelhos, a Clerk in the Secretary's office at Gibraltar.

No. 1. Here Santos was taken ill on the 26th of August 1804, and was visited by M. Jay on the 27th. Santos's mother, two aunts, one brother, and two sisters were attacked with fever in a few days afterwards. His mother and two aunts died before the 15th of September.

2. One of the small dwellings within this building was inhabited by the wife of bombardier Fenton, of the royal artillery, and of Captain Wright's company. She was taken ill on the 6th of September, and Fenton himself on the 8th. They both died here on the 12th.

Mr. Boyd, the owner of these buildings, died on the 15th, and his wife Mrs. Boyd on the 20th. Mrs. Spinola, her son and daughter, who also inhabited one of the small tenements adjoining, were attacked much about the same time, and fell victims to the disease, together with *Keusch*,

the master tailor of De Roll's regiment who lived in a room near them. He was taken ill, as it has been stated in the Report, on the 18th, and died on the 20th. Fourteen people belonging to the families residing in No. 2. were carried off by this fever before the 24th of September.

3. A canteen belonging to De Roll's regiment. A girl was taken ill here on the 9th, and died on the 15th September.

4. Here the family of Coelhos, consisting of eleven persons, were first attacked with the disorder on the 9th, but all of them recovered.

5. Bertholoso's nephew, an inhabitant, was taken ill here on the 10th, and died on the 17th. The uncle was himself seized on the 14th, and died on the 20th; and there were many others in the immediate neighbourhood of Boyd's buildings, (No. 2.) about this period.

6. Scarnichi's house, (see p. 124 and 135.) in the upper room of which the tailors of De Roll's regiment worked.

7. Barracks in which two companies of royal artillery were quartered on the 8th September, 1804, as mentioned p. 120. viz.

Captain Wright's company 88 men.

Captain Dodd's do. - 90 men.

One third of Wright's company were ill here on the 14th September, at which time no other corps except De Roll's was affected by the disease.

8. The Blue barracks where De Roll's regiment was quartered.

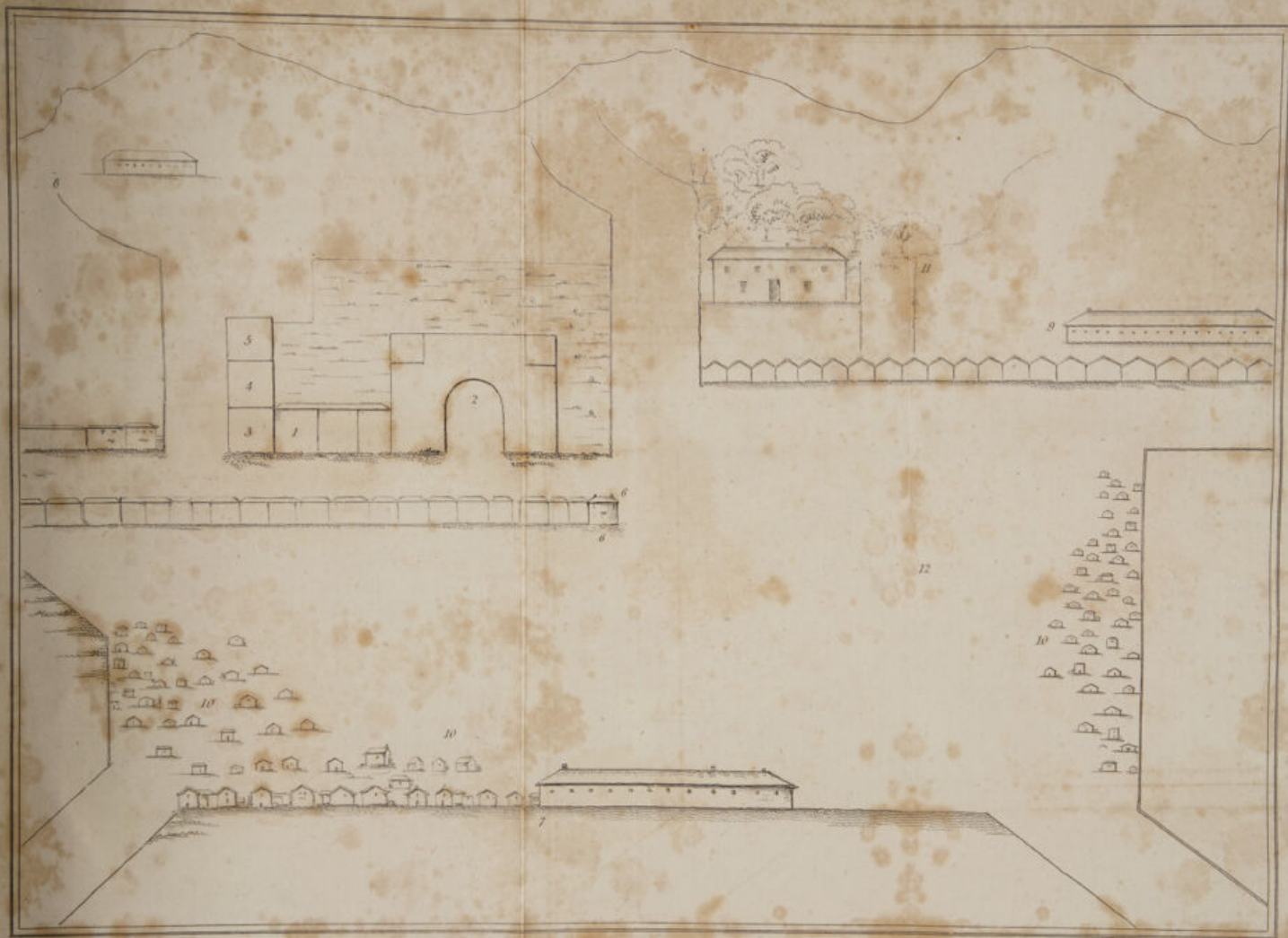
9. Barracks of the 54th regiment, distant from Boyd's buildings and Santos's house about 100 yards.

10. Sheds, in which the married people and chiefly the lower orders of foreigners and inhabitants lived. The whole of these were afterwards cleared away and destroyed, at the recommendation of the Board of Health which was established at Gibraltar.

11. New library and garden, in which the smuggler from Malaga was buried, as stated in Bresciano's declaration.

12. Gunner's parade, an open space seventy yards by fifty, a well ventilated, dry, and healthy spot.

From the annexed sketch, those who have been at Gibraltar will readily understand the description I have attempted to give of the progress of the disorder; and to those who have not visited that curious rock, some idea may thus be conveyed of the circumscribed space to which the fever was at first confined.





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The prevailing Winds in the Summer Months of the Years 1802, 3, and 4, were as follows :

	1802.		1803.		1804.	
	E.	W.	E.	W.	E.	W.
June - -	13	17	20	10	24	6
July - -	23	8	20	11	8	23
August -	27	4	12	19	19	12
September	22	8	18	12	24	6
No. of days	85	8	70	52	75	47

Meteorological Observations taken from a Journal of the Weather in Gibraltar, during the Months of May, June, July, August, September, October, November, and December 1805, kept by the Author.

The Month of May began with drizzling rain, and westerly winds ; on the 10th the east wind set in with cloudy weather, or what is called a *black Levanter*, attended with rain ; the morning was unusually close, and oppressive until the rain fell* ; Fahr. therm. 76°.

* The dark vapour which rises with the east wind, always occasioned a disagreeable sensation of heat and a clammy feel ; as soon as the condensation of this vapour took place, from the separation of caloric by the rain, the air became cool and pleasant.

On the 12th the wind came round from the westward, and the weather became cool and pleasant; westerly and north-west winds prevailed throughout the month, and from the 22d to the 26th, we had heavy rains at intervals.

The medium height of the thermometer was 73°.

June

Began with a *black Levanter*, ther. 73°, at 2 p.m. the weather continued close until the 5th, when the wind shifted to the north-west, ther. at 77, warm but not close.

On the 8th at 7 a.m. wind easterly, with distant thunder, followed by heavy showers of rain; 18 days of easterly winds prevailed during this month, with alternate west or north-west breezes.

July.

On the 1st of July the weather was cool, with the wind at south-west.

On the 2d, at 7 in the morning it blew from the eastward, the therm. was at 72°, the day was warm and close, and the weather cloudy with rain.

On the 4th, the wind changed from the westward, and the thermometer at 2 p.m. was at 80°, but the air cool and pleasant, and it continued from the north-west for several days.

The north-west and easterly winds prevailed alternately, and the difference in the sensation

was remarkably great on the coming on of the close and relaxing east wind.

The 19th was the hottest day, the thermometer being at 83° , with an easterly wind. *

During the three last days of this month, the weather was very cool. In the evenings the sky was streaked, as is often perceived in northern climates, and the western breezes which prevailed, rendered the air cool and refreshing.

August.

This month began favourably with the wind from the westward, and the thermometer at 6 in the morning, not higher than 66° ; the air was cool and refreshing, and the sky clear.

On the 3d, the east winds set in, and (with the exception of westerly breezes on the 7th, 12th, 13th, 15th, 20th, and 21st) prevailed until the end of the month. On the 29th, the thermometer rose to 87° , the weather was calm and warm, but it was not unpleasantly hot, although this was the highest degree of heat exhibited by the thermometer this year.

* On this day the weather was very hot; I paid a visit to Lord Nelson on board the Victory, and the officers who accompanied me in Captain Mouatt's boat, remarked the great heat, and the disagreeable sensation which the wind occasioned.

September

Began with strong breezes from the west quarter, which continued till the 8th; the easterly wind set in on the 8th, and continued until the 26th. On the 16th, slight showers with wind at east; 17th, the night close, dark, and cloudy, with distant thunder and vivid lightning; thermometer 73° .

Throughout this month the weather was temperate and cool.

In October

The rains were frequent and heavy, with intervals of fine clear weather, and the wind blew principally from the west and north-west quarter; on the 21st, the day of Lord Nelson's battle off Trafalgar, it was remarkably fine, with light breeze from the westward; on the following morning (22d) heavy gales of wind with rain succeeded and continued for several days; the weather afterwards cleared up, and remained fine to the end of the month.

November

Began with an easterly wind, and slight showers, the morning was close, and the rock was enveloped in a *black* cloudy atmosphere; towards

evening more rain fell with thunder and lightning; thermometer 68° .

On the 2d the weather cleared up with the wind at west, and in the morning the thermometer fell to 60° .

On the 4th it blew from the eastward, thermometer 65° in the morning,—the sky was clear throughout the day.

Rain fell on the 9th, 11th, 14th, and 15th, the mornings cool, thermometer as low as 51° , with wind at north; in the evening of the 15th there was a heavy shower of rain and hail, with much thunder and lightning.

16th to the 25th, heavy rain with wind from E. N. E. thermometer 55° .

26th, the weather cleared up, thermometer 60° to 65° . 30th, S. W. fine clear day, at 8 A. M. thermometer 60° .

December.

1st, The west and N. westerly winds continued to the 3d. The weather clear and fine; at eight in the morning the thermometer was at 60° ; at five P. M., evening mild—sat with windows open. On the 4th the wind shifted to the eastward, and the morning was raw, with thermometer at 58° .

10th, westerly wind with slight showers, but warm; thermometer 68° , at two P. M.

16th, easterly, fine cool weather, thermometer at eight A. M. 48° at two P. M. 64° . cold night.

17th, wind N. W. thermometer 54° at two P. M. during the preceding night there was ice in the south.

18th, at eight A. M. 38° cold, but fine day, at night *very* cold.

19th, east wind, the morning cold and dark, hail storm at nine A. M. thermometer 40° , at two P. M. 52° .

20th and 21st, weather cold, wind S. W. thermometer 48° , morning fine and clear; during the last week the weather had been uncommonly cold, and not unlike what is often felt in December in England.

22d, warm, with sleet and rain, heavy swell from S. W. it continued fine to Christmas day the 25th at eight A. M. thermometer 48° , a clear calm morning.

26th, heavy rain at night, pleasant cool weather.

29th, the easterly wind set in, and continued to the end of the month, during which the climate was mild and remarkably healthy.

On the 4th the wind shifted to the eastward, and the morning was raw, with ther-

monometer at 28° , but soon rose to 32° at five P. M. evening mild—at with windows open. On the 4th the wind shifted to the eastward, and the morning was raw, with thermometer at 28° , but soon rose to 32° at five P. M. evening mild—at with windows open. On the 4th the wind shifted to the eastward, and the morning was raw, with thermometer at 28° , but soon rose to 32° at five P. M. evening mild—at with windows open.

APPENDIX G.

(The following notes refer to Part V. p. 197.)

“During the epidemic of 1804, (says Arejula, p. 226.) particular receipts and secret nostrums poured in upon us from all parts to cure this disorder, either in the form of powders or in a liquid shape. Some small bottles were sent to us from London, filled with a peculiar liquor, which was to preserve, as well as cure us of the yellow fever. But the most remarkable circumstance was, that no physician of reputation either from abroad or in Spain had attempted to lay down a plan of cure for this cruel malady. Those who interested themselves most about us, were a few priests and foreign practitioners, that offered to exchange their secrets for money or for the good wine of the country, without regarding the contagion; and it is a singular fact, that those very persons declared they were not actuated by any selfish views in making this exchange, but by pure motives of humanity.” *

* “An Italian arrived at Cadiz in 1804, ‘with a certain remedy,’ he said, ‘as a preservative against the yellow fever;’ but whilst he and his companion were soliciting a licence from the government to sell it, they were both taken ill and died of the disorder.”

I found the Spaniards both at Cadiz and at Malaga† indignant at the ungenerous conduct of an *English physician*, who had taken them in so completely, by sending them his specific, as it was called, for the yellow fever.

† Don Josef Mendoza, in his "*Historia de las epidemias padecidas in Malaga en los años de 1803 y 1804*," p. 114, gives the following account of the imposition put upon them by Willich and Co. in that town, and expresses the indignation which it excited amongst the Spaniards. "El Doctor Willich *medico Ingles*, remitió á España en el año 1805, unas botellitas metidas en unas caxas de hoja de lata, con un paquetito de polvos debaxo, todo lo qual tenía la virtud de curar y preservar de la fiebre amarilla.

"Analizado todo de orden de nuestro Gobierno, sacamos en limpio que el frasquito contendrá unas tres onzas de agua destilada con un poco de aroma y almizcle, y la cantidad de sosa necesaria para disolverlo.

"Los quatro papelillos contienen cada uno 26 granos de mala quina, y dos de ellos un grano del tartrito antimonial de potassa (tártaro emético).

"Al primero golpe de vista se conoce la falsedad de este remedio y la charlataneria del Doctor Willich, porque como es dable que este remedio posea virtud alguna, quando no se ha hecho caso de él para la curacion de la epidemia de Gibraltar en 1804? El autor no nos dice haberle usado, en parte alguna, ni nos cita la menor observacion, ni menos el Gobierno Ingles es capaz de despreciar un invento de tanta utilidad en sus colonias de América, ni permitir que el autor lo ofreciese á nacion alguna sin haber sido premiado justamente. La sed del oro de España, y no el bien de la humanidad es lo que movió al Doctor Willich á mandarnos la cortedad de 30 mil bottellas que nos quería vender al moderado precio de 80 reales de vellon, siendo así que su costo no puede llegar á 10."

On further enquiry, I found that Doctor Willich was the person who had puffed off the Yellow fever remedy; and as he lived in London, from whence he wrote a pamphlet on the subject, it was concluded that he was an established physician.

I therefore took every opportunity to explain to the Spaniards that this impudent quack had been permitted unfortunately, like too many others in this country, to set up a shop for the sale of nostrums, which, if their indecent advertisements were to be believed, would cure His Majesty's subjects of all the disorders incident to the human species; and that he was not an Englishman, neither was he known as a regular practitioner, nor acknowledged as such by the College of Physicians in London. The following anecdote of this said doctor, and of the famous yellow fever remedy (which was sold in the same shop at Charing Cross, where the *anti-attrition paste* is now advertised for sale) may afford some idea of the extent to which the imposition was carried.

Willich wrote a letter for the proprietor of the Yellow fever remedy at Charing Cross to the late Dr. Baillie, Inspector of military hospitals, and to Mr. Muttlebury, Deputy Inspector, both at that time in the West Indies, in which he offered to those officers a very handsome per-

centage on all *the Yellow Fever remedy* which should be consumed by the troops, or which might be sent out to that station by their requisition or recommendation.

Those medical officers rejected with indignation so shameful a proposal, and I have reason to believe, that the original letter was delivered at my suggestion to Mr. Weir, the Director General of the army medical board, in consequence of the conversation which passed between Dr. Baillie and myself on this subject, in the presence of Dr. Jackson, Inspector of hospitals, and Mr. Lind, Deputy Inspector, at the house of the latter, in the month of October, 1811.

It is impossible to conceive a more gross imposition on the public than this boasted specific for the Yellow fever. When I was at Malaga the late Mr. Power, a respectable merchant, informed me, that he had obtained a licence from the Prince of Peace at Madrid, to import from England as much of this famous remedy as amounted to the enormous sum of 5,000*l*.

It need scarcely be added that he gained nothing by his speculation. The Spanish physicians were not quite so ignorant as some have supposed, for on analyzing the composition, the ingredients were found to be merely harmless, and consequently not to be trusted either to cure or to prevent the disorder.

This *famous remedy* was sent out in little tin cases each containing a bottle and four small papers with powders; the first contained about three ounces of distilled water, a little musk, with some aromatic, and a small quantity of alkali. In each of the papers there were twenty-six grains of bad bark and half a grain of tartarised antimony. But enough has been said, I trust, of this boasted remedy for the Yellow fever, to shew the credulity of mankind both at home and abroad.

Names of the Kingdoms in which the epidemic prevailed.	Times which were marked by the Epidemic Fever.	Inhabitants in each town.	Day of Month.
Granada	Alcala	30,000	20th June
	Alcalá de Guadix	14,000	2d August
	Veles Malaga	12,000	2d August
	Granada	24,000	25th August
	Yeri	4,000	20th Sept.
Valencia	Alcaniz	12,000	9th August
	San Juan (University)	3,000	17th Sept.
	Ponente	100	18th Sept.
	Guardamar	2,000	21st Sept.
	Monilla	4,000	11th August
Cordoba	Ranbla, la	6,000	22d August
	Espejo	4,000	27th August
	Cordoba	40,000	28th Sept.
	Arca	9,000	14th August
	Cadix	24,000	18th August
Seville	Palacio de la Ribera	1,100	30th August
	Maron	1,000	17th Sept.
	Reyes de la Frontera	35,000	23d Sept.
	Espejo	2,000	25th Sept.
	Villanueva	1,800	27th Oct.
Murcia	Beja	40,000	8th October
	Jimenes de la Frontera	7,000	27th October
	Cartagena de Levante	33,000	25th Sept.

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(REPORT II. PART V.)

ABSTRACT,

doms of Spain, in which the Pestilential Fever pre-
each ; the day on which it was believed that the
there was the greatest number of deaths, with
females, and the total number during the epi-

The greatest number of deaths observed on the Day of Month.	Proportion of deaths between		Total deaths during the epidemic.	The towns declared healthy on the Day of Month.
	Males.	Females.		
7th September	6,435	5,029	11,464	28th Nov.
10th October	1,850	1,090	2,940	6th November.
24th Sept.	3,496	1,749	5,245	4th December.
10th October	185	121	306	28th October.
30th November	111	97	208	4th January.
9th October	1,552	920	2,472	13th Dec.
15th October	136	83	219	17th Dec.
2d October	9	5	14	15th Nov.
12th November	8	6	14	16th Nov.
15th October	616	451	1,067	15th Dec.
11th October	22	15	37	15th Nov.
30th October	100	168	329	25th Nov.
15th October	180	220	400	14th Nov.
25th Nov.	113	71	184	3d December.
9th October	2,692	200	2,892	5th November.
15th October	72	45	117	8th December.
15th October	1,300	700	2,000	12th Dec.
14th, 15th Oct.	63	8	71	1st December.
20th October	280	159	445	3d December.
15th Nov.	93	75	168	25th Dec.
31st October	1,380	2,422	3,802	20th Dec.
1st, 30th Nov.	29	21	50	30th Dec.
25th October	7,630	3,815	11,445	23d January

"It appears," says Professor Arejula, in a note to the foregoing Abstract, "that if the disorder had not been contagious, it could not have attacked particular towns, and spared those which were situated between the infected places, and especially when *it is ascertained* who the persons were that conveyed and introduced the disorder, and in what manner it was propagated in several of them. This, he adds, is the more apparent, if it be observed, that in all those places from whence the sick were removed to lazarettos, the fever was limited to particular points, and that it neither became general, nor did it occasion the ravages which were remarked in those stations, where it was allowed to spread, and where no precautions were taken to *separate* the sick from the well.

"Exclusive of the towns specified in this Abstract, in Churriana and Alaurinego, there were persons who had arrived from Malaga with the *disease* upon *them*, but it was not propagated in either of those villages for the reasons already mentioned, (p. 184.) whereas in Palo and Borge, villages similarly situated, the disorder spread amongst the inhabitants owing to the want of precautionary measures."

Don Diego Alvarez de la Fuente * was one of the inhabitants of Malaga, who most distinguished himself in the service of his country

* See Part IV. p. 168.

during the Epidemic which afflicted that city in the years 1803 and 1804. The following account of this worthy man's conduct was published in Malaga on the 15th of December, 1804, by order of Villegas, Alcalde mayor.

“ In the beginning of October, 1803, he was appointed by the governor, Don Pedro Truxillo to superintend the three districts of the Barrio de Perchel, where the disorder had broken out and was making great ravages, and had carried off the Alcaldes who presided over that suburb. On entering upon his office, his first care was to attend to the burying of the dead, — to the burning of bedding and cloaths used by the infected sick, and to other duties in the lazaretto which gained him the approbation of the magistrates.”

“ On the 15th of November, having ascertained that a quantity of infected cotton goods was concealed in a certain house in the Barrio de Perchel, he gave information to the governor and to the junta of health, who afforded him the necessary authority. He proceeded to the house, in the stable of which a box was found buried, containing several parcels of cotton and cotton goods, plain and coloured muslins, carpets, &c. The removing of these goods occasioned the death of the custom house officer, Don José Malat, of his three assistants, and of two galley slaves who were employed to dig them out, so that all the persons who assisted the Alcalde, includ-

ing the family that lived in the house, fell victims to the activity of the putrid miasms. This statement is as it appeared in the Madrid Gazette of the 6th of December, 1803, which also relates that on the 21st of November, of that year, The Alcalde was employed in removing thirty-six dead bodies from the lazaretto, several of which had been lying in a putrid and corrupted state upwards of four days.

“ By his extraordinary resolution he encouraged the assistants, who were horror-struck and overcome by the intolerable stench, placing himself at their head, and entering first into the apartment; nothing could exceed the surprise of the Alcalde, when on touching with the end of his stick one of the corpses, apparently putrid, and with a view to its being removed the first, the point sank as if into paste, and on attempting to raise the body from the ground the flesh, &c. separated from it and remained in the hands of the grave diggers!! The carts having at length been filled, he accompanied them to the burying grounds outside the town, and perceiving that even then it was difficult to persuade the persons employed to bury the bodies properly, the Alcalde returned to exhort them to perform this last duty, and faced the danger once more by descending himself with three men into the pits, and standing over them until the bodies were regularly placed and covered with lime.

"But in a few days, this dreadful service cost the lives of *seven* of the grave-diggers; and the Alcalde, although he had passed through the disorder, suffered so much from the pestilential miasms, that his mouth and lips became ulcerated in a manner that prevented his taking any thing but liquids for eight days; after which by the application of proper remedies the parts recovered. After performing this eminent service the Alcalde was most usefully engaged until the termination of the fever in 1803, and upon its breaking out again in the month of August, 1804, this excellent man was again distinguished by indefatigable exertions in the cause of humanity and by numberless acts of benevolence without pay or reward."

I have before stated (p. 168.) that when at Malaga, I was accompanied by Don Diego Alvarez in my daily visit to the Barrio de Perchel; upon one occasion passing by his house he related to me the following fact:

A galley slave, a Piedmontese by birth, of the name of Juan Bernet was taken to the lazaretto, where he died on the fifth day, — his wife, a native of Catalonia, was brought to the same hospital at four in the evening very ill and almost speechless; she bore in her arms a child of ten months old, which the unhappy mother could not be prevailed upon to give up to the assistant. The physician ordered her some medicine which

was administered that night, but on the following morning, when the Alcalde, who being controller of the lazaretto, was passing through the fever wards, approached the bed of the poor woman, he found her dead, and the little infant sucking at the breast. This worthy man took the child away from this scene of wretchedness, and immediately carried it home to his wife, who to her honour adopted it as her own, and had her christened by the name of Maria Dolores. I saw this interesting child which appeared remarkably healthy, and I afterwards repeatedly visited the house of the Alcalde, during my stay in Malaga.*

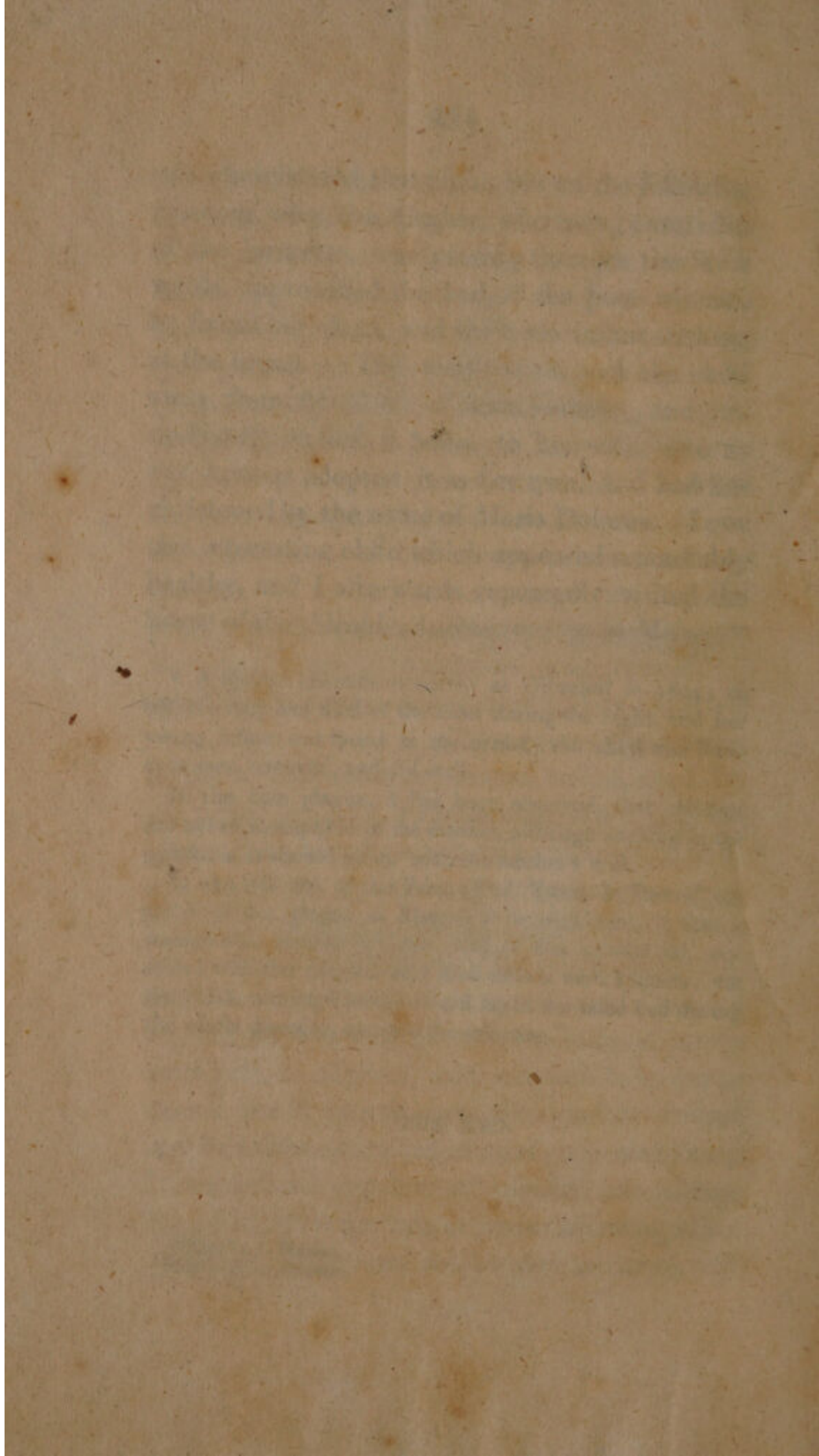
* A similar instance occurred at Gibraltar in 1804; an officer's lady had died of the fever during the night, and her young infant was found at the breast; the child was however soon removed, and did well.

In the true plague, it has been observed, that children are not so susceptible of the disease, although sucking in the poison, as it should seem, with the mother's milk.

In the lviii. vol. of the Essays Phil. Trans. in Dawes' account of the plague at Aleppo, it is mentioned, "that a woman who suckled her own child of five months old, was seized with the plague, and died after a week's illness; yet the child, although it sucked and lay in the same bed during the whole disorder, escaped the infection."

THE END.







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