

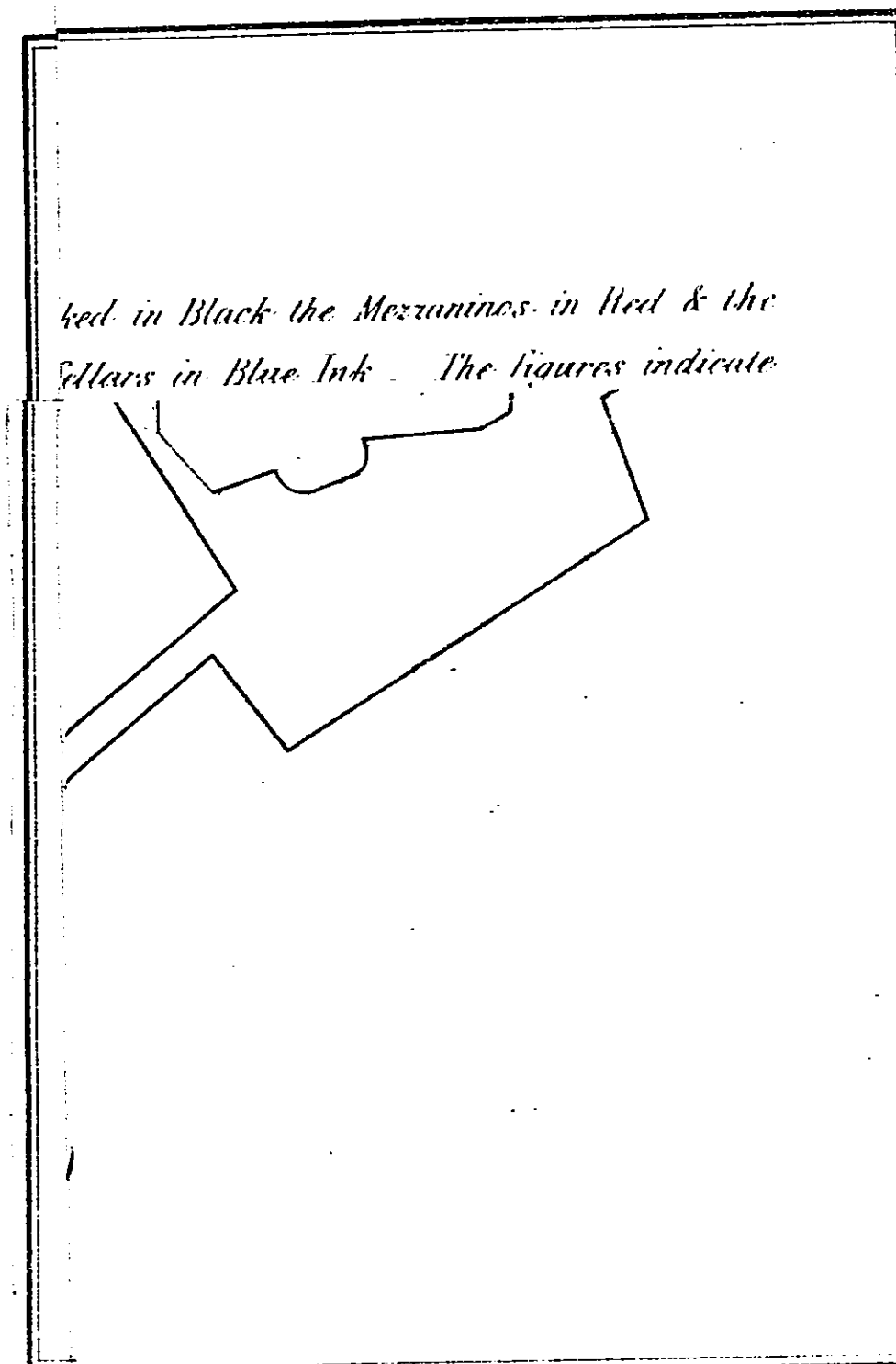
LOCAL CAUSES.—Valetta, as a whole, is a clean well ventilated town, and there are few localities in it, except the Mandraggio, that from outward appearances would be pointed out as the probable habitat of disease. On a closer examination, however, it will be found to be a mixture of palaces and hovels—Belgravia and St. Giles,—not only close to each other, but frequently in the same tenements. In the best streets, and forming parts of the best houses, there are cellars, small shops, and mezzonini or entresols, consisting often of a single room, containing a large family. The ground floor is, in many cases, over the water-tank, to which access is had by a small shaft; add to this a privy—and, in the absence of all ventilation, light, or outlet, except by the door, the accumulation of stagnant animal effluvia in these hovels is evident. To the stranger they are intolerable, and even the inmates desert them to sleep on the pavement in the summer months. These are the dwellings of the lower class of artizans—in which they carry on their trade, and lodge their families. I have frequently entered them, and found them very similar in size, darkness, filth, and wretchedness. They are often vaulted, and, in some, a floor of wood is placed about the spring of the arch, thus affording a dormitory, in which a numerous family pass the night. It was in such a hovel that Borg's family resided, having directly in front of it a church from sixty to seventy feet high.

These dark and ill-ventilated abodes furnish a large proportion of the glandular affections met with in the hospitals of Valetta.*

What are called mezzonini are inhabited by a better class, and have the advantage of a staircase and window, but these are small, and seldom placed in such a position as to afford a free current of air. In height they range from eight to ten feet, are small, dark, noisome, and have little advantage over the rooms underneath, except in being off the ground. The free passage of air through wide streets, placed at right angles, and the occupants' habit of sitting, or sleeping, during the hot months at their doors, can alone account for their comparative immunity from disease in ordinary seasons. But the pale cadaverous hue to be seen in many of them, especially the women, leaves little doubt of the injurious effects of these abodes.

The apartments of the proprietor, the entrance to which forms the middle door of the house, present a very striking contrast to those above described, for which he receives a large rent, the limited space of a fortified town leaving no choice. This portion of the building has generally a court, into which windows open, in addition to those towards the street, affording light and ventilation to every room. With filth and wretchedness on

* See note B at the end of this Report.



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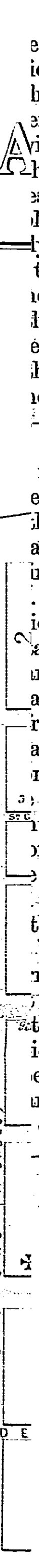
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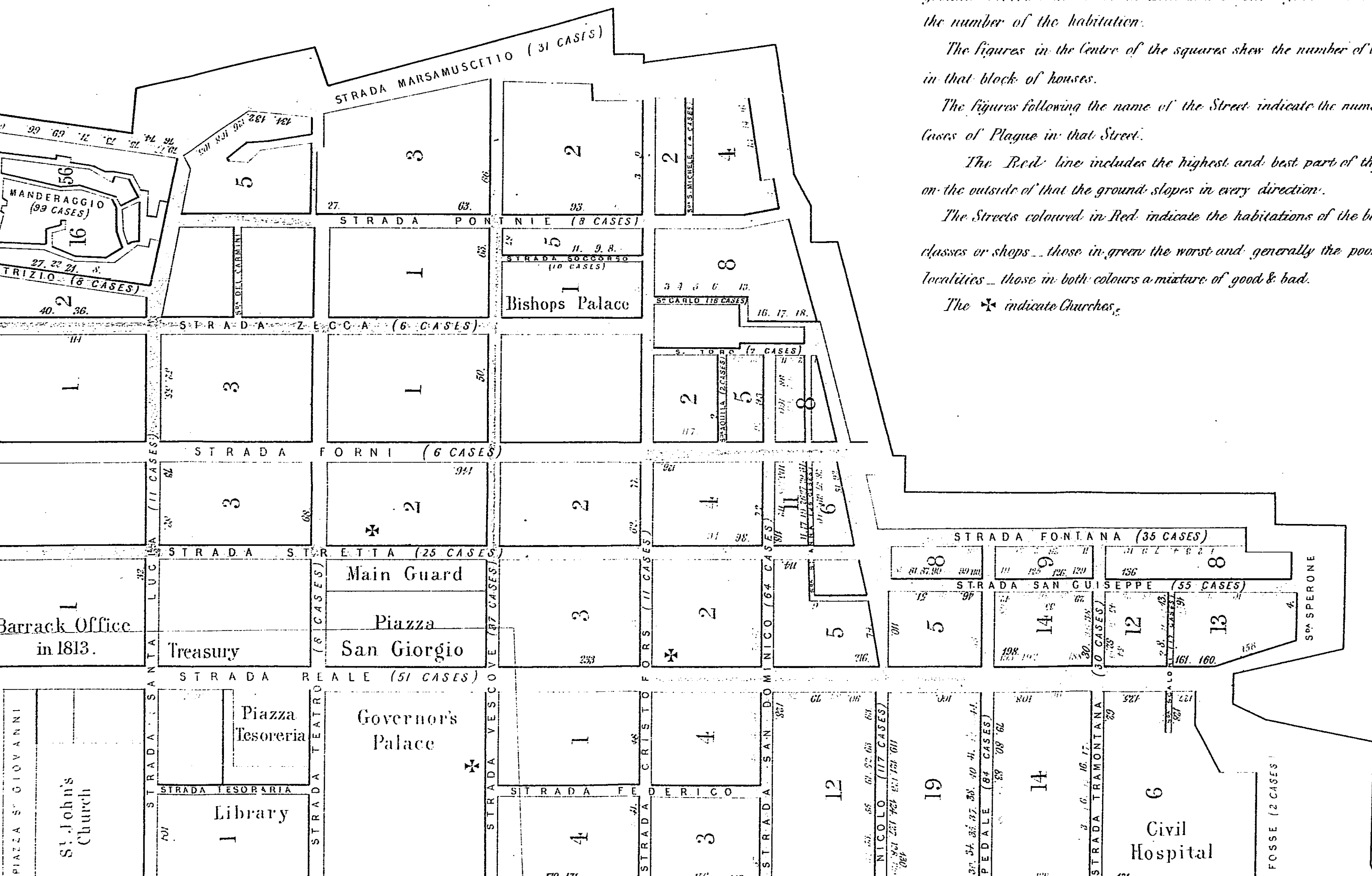
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* "Mandrachio, the inner port of a harbour," which it was originally. The block of houses, within which is the Mandraggio proper, covers about two and a half acres, and contains about 3,000 inhabitants, 1,600 of whom occupy the ground-floors and mezzonini of the interior.

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OF THE CITY OF VALLETTA.



The houses are marked in Black the Mezzaninos in Red & the ground floors and cellars in Blue Ink. The figures indicate the number of the habitation.

The figures in the Centre of the squares shew the number of Cases in that block of houses.

The figures following the name of the Street indicate the number of Cases of Plague in that Street.

The Red line includes the highest and best part of the town, on the outside of that the ground slopes in every direction.

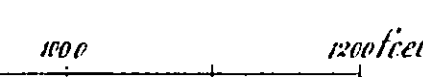
The Streets coloured in Red indicate the habitations of the better classes or shops — those in green the worst and generally the poorest localities — those in both colours a mixture of good & bad.

The ✕ indicate Churches.



*W. Lamb Arrowsmith, C. E.
Sup^t of Gov^t Works.*

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* See note B at the end of this Report.

either side of the entrance, a stranger would little expect to find so much space and elegance in the apartments of the higher classes in Valetta. Ascending by a spacious staircase to the third floor he enters rooms, large, lofty, and pure—the courts acting as ventilating shafts, in the benefit of which the poor underneath rarely participate.

Without these courts the houses, even of the better classes, would become intolerable in summer; for most of them being built back to back, nothing like ventilation could otherwise be had. In this predicament are the lower orders placed; having no counter-opening to the door, to relieve the stagnating atmosphere. The lower parts of the town at night, especially in sirocco winds, are very offensive; there being very few public privies or other depositories for nuisances of any kind. No town, probably, as regards the poor, is maintained in outward cleanliness at a greater sacrifice of internal comfort and purity.

It is difficult to imagine any town offering greater natural facilities for drainage than Valetta, sloping as it does in nearly every direction towards the sea. The construction of the drains I believe, is good, but the want of means for flushing in the dry months, from April to October, and the porous nature of the rock through which they are cut, must add to the unhealthiness. On entering several of the best shops in the hot months, I have been forced to make a rapid exit. Indeed, on entering many of the best houses, the smell of imperfect sewerage is immediately perceived. On the ground floors we may imagine that these things are much worse with the poor.

I will attempt to describe some of the localities most affected by plague. First on the list is the "Mandraggio"* which has been frequently alluded to by travellers as containing within a small space, a poor and wretched community. Lying in a hollow on the western side of the town, it receives little of the general traffic or thoroughfare; but is approached (except at one point) by small archways, leading under lofty houses, which nearly surround it on all sides, and so effectually inclose it, that one may perambulate Valetta for years without discovering the existence of such a place. Its lowest portion, next the quarantine harbour, terminates in a *cul de sac*, where is placed the opening of a large sewer, which receives the surface water of a great part of this quarter. Curiosity only can induce any respectable person to penetrate its mazy and narrow alleys, which run between lofty houses, where neither sun

* "Mandrachio, the inner port of a harbour," which it was originally. The block of houses, within which is the Mandraggio proper, covers about two and a half acres, and contains about 3,000 inhabitants, 1,600 of whom occupy the ground-floors and mezzonini of the interior.

nor air can penetrate. Here many of the poorest among the population reside; and squalor, filth, and wretchedness meet one at every step. Damp, dark, and cheerless, with an atmosphere at all times noxious and stagnant, here is every thing promotive of disease, and we can only attribute exemption at any time from mortal sickness, to that power of habit which enables the human constitution to resist such deleterious influences.

Similar to the "Mandraggio" in the lowness of its situation and the poverty of its population, is Strada Pozzi, which lies at the north-east angle of the city, and is considerably below the fortifications. One portion contains several ground-floor dwellings, running parallel within a few feet of each other, leaving a very narrow lane, shut in by lofty buildings on either side. Another consists of a row of hovels within a few feet of the wall of the prison, which completely obstructs ventilation. Here, as in the Mandraggio, the passage of superficial drains and under-ground moisture keep the air muggy and unwholesome, offering a striking contrast to the sunny, dry, and well-ventilated ramparts in the vicinity. Intersecting Strada Pozzi, is Strada San Nichola, also notorious for cases of plague, which, though on the ascent of the hill towards the better parts of the town, is a narrow street and suffers from want of ventilation. Here, also, are numerous ground-floors, and small mezzonini, inhabited by a poor population.

The number of habitations attacked on the higher ground being about as one to six of those on the lower, leaves no question as to the influence of elevation, the ratio of cases increasing in every direction as we descend.

Strada San Antonio, which fronts the harbour, presented a striking contrast with Strada Saluto, immediately behind it; for we find every habitation exempt till we arrive at No. 28, where the ventilation becomes obstructed by houses between it and the harbour.

Strada Saluto, a very narrow and filthy street, inhabited by the poorer class, furnished no less than fifty-five cases from the dwellings on both sides. On arriving at No. 31, however, and from this to No. 46, which space enjoys a similar open exposure with the lower parts of Strada San Antonio, there was not one case, although several of the habitations are more miserable than those where the ventilation is obstructed.

The habitations attacked in "Strada Irlandese," were ground-floors, ten or twelve feet below the level of the roadway, and having a dead wall within four or five feet of their doors. The upper floors of these tenements, inhabited by the same class, but rising above the wall, and therefore open to the harbour, seem to have been entirely exempt.

Two dwellings in "Strada Sperone," about ten yards from Fort St. Elmo, which rises forty or fifty feet above them, furnish the next cases. Close to this, but sunk from thirty to forty feet deeper, are Strada Fontana and St. Guiseppe; they are narrow, dark, and damp. The upper floors of the former rise above the sea ramparts, and enjoyed a remarkable exemption, compared with those underneath, and in Strada St. Guiseppe behind, which had cases on every floor.

Proceeding round the city, we find that wherever similar local conditions obtained, the cases were numerous. In the highest portion of the town, overlooking Floriana, we find only one tenement infected, though nearly all are occupied by a poor population; whilst Strada Torre and a very narrow lane leading off from Strada Regina in the immediate vicinity, had no less than sixteen dwellings infected.

The influence of habitation may be illustrated by a comparison of the streets "Mezzodi" and "San Nichola;" whilst the former, inhabited by the rich, shows not a single case, the latter, inhabited by the poor, yields no less than 117.

Again, in Strada Forni, one of the best streets in Valetta, the only cases were four in the few habitations, at its lowest part, which are occupied by the poor.

Finally, there was nearly a continuous exemption of about one-third of the town; and that not only the highest, but in every other respect, in striking contrast with the portion chiefly affected.

I have described these localities as I found them in 1851; in a very different condition as to cleanliness from the same places in 1813, when pigs, goats, rabbits, and poultry were to be found not only in the thoroughfares of the town, but the habitations of the poor. These abuses have been now nearly rooted out by a vigilant police, and to this, and to sanitary improvements of every kind, a sunny and dry climate, the regular and temperate habits of the people, their festivals, bathing, and other amusements which attract them from their hovels, Malta probably owes its long exemption from Plague.

I have to regret a want of military medical records to show the diseases among the troops in 1813; like many public documents of the time, they were probably suspected and destroyed.

I am informed, however, by Dr. Bardon, who was for several months in attendance at the Pest Hospital in Fort Manoel, that there were numerous febrile attacks among the richer class; that the disease, with great numbers who were sent into quarantine, did not present any symptom beyond that of common fever, and

appeared, from the numerous recoveries, to owe the arrest of its course to the change into better air.*

To prove the benefit of segregation in a disease extending by contact, and not by infection, Dr. Hennen adduces numerous cases which occurred immediately under the windows of a military hospital—now the residence of the English bishop—and in the cellars under the St. Augustine convent, without any of the inhabitants above being attacked. But in addition to there being no direct communication in either case, both present nearly as great a contrast, in a sanitary view, between the lower and upper portions as there is between the cellars and superstructure of Somerset House. The cellars under the bishop's house have a high wall within eight or ten feet of their doors, with no other means of light and ventilation—those under the convent are dark and damp, also without opening, except the doors, while the apartments above are spacious, dry, and well ventilated.† “We have seen, says the same author (page 528) “how rapidly the disease spread among all (?) classes, but it was in low, damp, ill-ventilated places, such as the Mandraggio, that it assumed its most violent and destructive form. The cellars and mezzonini seemed to be its favourite places of residence; and as an old resident practitioner remarked to me, in the course of professional conversation on the subject, it was a disease that seldom went upstairs.” Yet this remarkable and important fact could not suggest a doubt as to its propagation by contact.

* NUMBER of Patients attacked with Plague, treated by me in the Lazaretto Hospital, Fort Manoel, Valetta, in each month from June 1813 to February 1814 inclusive.

MONTHS.	Attacks.	Recoveries.	Deaths.
June - - -	292	78	214
July - - -	108	65	43
August - - -	273	207	66
September - - -	49	29	20
October - - -	137	120	17
November - - -	112	99	13
December - - -	28	24	4
January - - -	24	17	7
February - - -	15	12	3
Total - - -	1,033	651	387

Malta, 17th Sept. 1851.

(Signed) SALVATORE BARDON,
Med. Chirg.

† The two monks in this convent, mentioned by Dr. Hennen as having died, are returned in the bulletins as “Fratelli,” who perform menial work, and go to market;

At 69 Strada Mercanti, there is a very large corner house, inhabited, in 1813, by numerous poor families, amounting to about 100 individuals; fearing that if the plague entered here it would prove destructive to all, it was placed in strict quarantine and not a case occurred. What are the sanitary conditions of this tenement compared to those that were infested by the plague?—It is placed on high ground, has excellent drainage, and a large cortile or ventilating shaft which secures ventilation, light, and exemption from damp, whilst, though the inmates are crowded, none live on the ground floor; in fact, its construction differs little from the best houses.

The town of Floriana, situated about a quarter of a mile from Valetta, contains, if possible, a more dense and poorer population. The streets are narrower, and in several instances terminate in *culs de sac*, producing great stagnation of air. Good houses are here mixed up with ground floors and mezzonini. Until lately the sewerage was notoriously defective, and has been considered the cause of occasional bad fevers among the military and strangers residing there.

We have seen that the lowest and poorest localities of Valetta were among the first attacked; and here the usual concomitants, crowding and want of ventilation, existed to the greatest extent.

It appears by the following table that the villages which suffered first, longest, and to the greatest extent, were generally those on the lowest levels,* and the most densely populated, several of the highest and least populous places being entirely exempt;—thus taking the first twelve, the aggregate population of which amounts to 20,845, we find that two showed the disease as late as September and October, and that the number of deaths was only eighty-one, or 0.34 per cent.; while in the succeeding eleven villages, having a population of 31,363, the number of deaths was 1,721, or 5.48 per cent.; showing not only a remarkable exemption in the highest and least crowded, but at

indeed, one of them is termed a servant, and that he had contracted the disease by purchasing “some old clothes in the Mandraggio.” I have ascertained from Sacerdote Chappel that this was the case—that both were servants, and the first attacked (7th August) confessed to having gone out at night by the vaults of the church. The attack of the second, therefore (on the 10th), was probably contracted in the same place, and not from attending his comrade, as alleged by Dr. Hennen.

According to the Baron de Piro, a priest of this convent died, as early as the 25th April, under most suspicious symptoms, supposed to have been contracted at Sliema; yet there was no extension of the disease in the convent. His grave is one of those barred, and bears the above date.

* Zebbug and Rabbato appear to have been exceptions in point of elevation.

the same time suggesting every doubt of the alleged power of a few cases, under such advantages, to multiply the disease, as the restrictions were trifling.*

TABLE, showing the Casals or Villages of Malta, placed in the order of their relative Elevation, commencing with the highest above the Sea Level, with their respective Populations, Deaths by Plague, and the months in which these occurred.

CASALS OR VILLAGES.	Probable Amount of Population in 1813.	Deaths from Plague.	Proportion of Deaths per cent of Population.	Month in which it		Total Number of Months in each.	Aggregate per Centage of deaths to Population.
				Appeared.	Ceased.		
Notabile and Rabato .	4,542	44	0.96	May .	Nov. .	7	0.34
Gargur	1,139	None.	..	June .	July .	2	
Naxiario	2,965	8	0.27	June .	July .	2	
Dingli	624	1	0.16	October	October	1	
Zurricco	3,618	6	0.16	June .	July .	2	
Micabiba	814	7	0.86	May .	July .	3	
Crendi	1,052	None.	..	Sept. .	October	2	
Siggieni	3,373	9	0.26	..	..	..
Safi	227	None.	..	..	..	..
Chircop	315	None.	..	May .	August	4	
Gudia	1,040	6	0.57	5.48
Asciak	1,136	None.	..	..	..	..
Total	20,845	81	..	..	..	..
Zebbug	4,776	691	14.46	May .	October	6	
Luca	1,268	42	3.31	May .	August	4	
Zeitun	5,410	11	0.20	May .	August	4	
Tarxien	1,011	1	0.09	May .	July .	3	
Zabbar	3,537	44	1.24	May .	August	4	
Musta	3,369	32	0.95	June .	Sept. .	4	
Attard	907	2	0.22	May .	July .	3	
Isla	1,039	4	0.38	June .	July .	2	
Balzan	633	None.	4.99
Birchicara	5,253	280	5.33	May .	Nov. .	7	
Curmi	4,130	614	14.86	May .	Nov. .	7	
Total	31,363	1,721	..	..	..	..
TOWNS.							
Valetta	25,546	{ 1,223 }	8.29	{ April .	October	7	4.99
Floriana		{ 897 }		{ May .	October	6	
Senglea . . . . .	..	One.	..	..	..	..
Cospicua	18,649	{ 12 }	0.24	{ May .	July .	3	
Vittoriosa		{ 33 }		{ May .	August	4	
Total	44,195	2,165
Grand Total	96,403	3,697

N.B.—The deaths in Fort Manoel and Lazaretto, and in some small places, are here omitted.

* Dr. Hennen erred in stating that the village of Crendi "is on low ground:" for it not only stands higher than Zebbug, with which he contrasts it, but possesses that greater dispersion of the houses and other facilities for ventilation that seem to have been the source of exemption in other places.

Casal Curmi, so remarkable for the persistence of plague, is situated at the extremity of an extensive marshy flat, recovered from the grand harbour, and has always been notorious for severe autumnal fevers. It contains a very poor, filthy, and crowded population, many of whom keep pigs, which are frequently in the enclosure or even in the adjoining room with the family. The streets are narrow and tortuous, and so little intersected that strong winds would make little impression on any noxious atmosphere wafted hither from the adjoining low grounds, or arising in the noisome hovels of the inhabitants. Nearly surrounded by rising ground, except on the side of the marsh, which looks to the north, this village can derive little benefit from the S.E. winds, which usually prevail in the month of September; and to this, and the seclusion to which its inhabitants were subjected, rather than to the alleged thefts of infected articles, we may reasonably ascribe the persistence of plague in 1813. If a low sanitary condition of a population has any share in the maintenance and aggravation of epidemic disease, it is difficult to imagine any place more favourable than Casal Curmi.

The other villages are placed on higher ground, but differ little from "Casal Curmi" in the arrangement of their narrow streets; or in the construction of the houses, which are dark, small, seldom having more than one room, and that on the ground. It will be readily conceived why the larger of these villages, containing from 2,000 to 5,000 poor inhabitants, should have been among the first to be visited by the plague—for no houses could be more closely thrown together—more unlike rural habitations, or occupied by people more deficient in domestic cleanliness. It would appear that they did not escape in former visitations; for in that of 1592-3, described by Parisi, every part of the island seems to have suffered. The exemption of six places in 1813 implies probably improved condition rather than accident.

Dr. Luigi Gravagna, Dr. Hennen, and Sir Thomas Maitland state, as conclusive evidence of the spread of the disease by contact, that the inhabitants of Senglea remained exempt, having cut off all communication with other towns, while plague raged in Vittoriosa, only divided from it by about a fifth part of a mile of water,—and in Cospicua, only separated by a bastion.

Senglea is built on a narrow peninsula, not unlike that of Valetta; its principal street running along the ridge is equal in length and width to any in Valetta, and the greater part of the town stands considerably higher than Cospicua, and its ventilation is less obstructed by the fortifications than either that or Vittoriosa. Most of the narrower streets and lanes which branch off at right angles, are open to the harbour at both ends, affording excellent ventilation. On passing the bastion above mentioned,

the ground on which Cospicua is built falls abruptly about forty or fifty feet below Senglea, and a considerable part is not much above the level of the creek. Here is a large and densely crowded population closely hemmed in by high ramparts on one side and rising ground on the other, with narrow circuitous streets and alleys, the whole forming a great contrast to the town of Senglea. The town of Vittoriosa, though standing higher than Cospicua, is also much shut in by the dockyard buildings, Fort St. Angelo, and ramparts, and has few open spaces, or wide streets, admitting ventilation, being remarkable for narrow circuitous lanes, crowded by a low and miserable population. If a few places in Senglea be questionable in a sanitary view, taken as a whole no one would hesitate in pronouncing it to be in every respect superior to the neighbouring towns. But it is only the comparative exemption of Senglea that requires explanation; for in the bulletin of the 12th of June, there appears the following, under the head "fallen sick:"—"Senglea, No. 45, Strada Crocefisso, Maria Cassar;" and in that of the 14th, her death, at Fort Manoel, is announced.

Both Cospicua and Vittoriosa had very few deaths (45) compared with the numbers of their population (probably about 12,000) as if they had participated in some advantage similar to that so nearly exempting Senglea. Every locality, indeed, on this side of the harbour seems to have suffered far less than Valetta; and the military in this district, as far as the bulletins show, were entirely exempt, though occupying eight different barracks, two of them the worst in the Command, viz., Isola in Senglea, and San Francesco in Cospicua, the latter close to the streets that were chiefly affected.

I cannot find in the "Giornale" or other documents of the period, that Senglea was under different circumstances to Cospicua or Vittoriosa. In the proclamations relating to the prohibition of intercourse, it is always coupled with these cities, and even as late as the 13th of July, where it states that "communication be suspended with regard to the towns of Vittoriosa, Senglea, Cospicua, and Calcara of Vittoriosa, as well between each other respectively, as with all other parts of the island;" and Dr. Tully (p. 67) states that "the inhabitants of the three cities * * * had recourse to the bold step of cutting off all communication with the capital."

That communication was kept up with Senglea to the 12th of June, will appear from the following extract from the proclamation of that date: "1st. That no permission be held sufficient to authorize any one to pass over to Vittoriosa, Senglea, or Cospicua, or into the district of Calcara behind Vittoriosa, unless such as may be issued by Government, and to which the seal of the Government shall be affixed. 2d. That even such persons

"as may obtain regular permits, as also the respective boats, shall be prohibited from disembarking or approaching the shore, except at the places appointed by Government, where the civil guards are posted under tents, viz., at Vittoriosa, on the Marina Grande; at Senglea, near the Serena; at Cospicua, near the Convent of St. Teresa, and at Calcara, wherever the guard may be stationed."

The above is the first notice I can find as to prohibition of intercourse with any of the three cities, which up to this date appear to have been similarly circumstanced as to quarantine, and it would be safe to say that from 200 to 300 deaths had occurred previously in Valetta and other places. Nor does it appear by information which I have obtained from the Rev. Luigi Pisani, M.D., who was appointed physician to the Pest Hospital at Bighi for the three cities, that any difference existed subsequently: they were all in quarantine against Valetta and each other from the 13th July, and not before. Though the conviction of every one that the plague could only travel by intercourse, would very naturally suggest the inference that the exemption of Senglea could only be due to more complete restrictions; if the town was protected by no peculiar quarantine up to the height of the epidemic, or as far as can be discovered at any time, its exemption may be referred to other causes.

Among the advantages enjoyed by Senglea may be noticed less overcrowding, house-rent being cheaper, so as to enable greater numbers to live in better houses; a more free exposure to the sea; but above all, much less severe internal restrictions on the population; a relief which was also enjoyed by Cospicua and Vittoriosa. In Senglea the houses are superior, and are inhabited by more respectable people, and it has none of the small arched recesses in the fortifications to be found in Cospicua and Vittoriosa, inhabited by miserable squatters, 33 of whom appear in the bulletins.*

The exemption of the monasteries is also offered in support of segregation. The two institutions of this kind in Valetta, the

* In the plague of 1676, which appears to have been subjected to more severe restrictions than that of 1813, all communication was cut off, from the end of April, with Senglea, Cospicua, and Vittoriosa; and although this continued for forty days beyond the 9th of August, when the disease declined, yet the deaths in these cities amounted to 2,000, 1,500, and 1,800 respectively. The introduction of the plague in this year was attributed to English vessels from Tripoli. The first recognized case was in a girl, the daughter of a dealer in general merchandize; but, as in 1813, it seems to have excited no suspicion till after the occurrence of other cases. On this occasion, also, there appears to have been considerable and long continued difference of opinion among the physicians as to the nature of the disease, which would seem to show that cases at least simulating plague were not unfamiliar to some of those dissenting. — *Hist. dell. Sac. Religione.*