Pisani, Mortality from cholera morbus at Malta

FAULTY HYGIÈNE

IN CONNECTION WITH THE

MORTALITY FROM CHOLERA MORBUS

AT MALTA

DURING THE EPIDEMIES OF 1837 AND 1850

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Epidemic cholera prevailed at Malta and Gozo during the summer of 1837 and 1850. Having passed the indian frontiers of Russia it travelled westwards towards Great-Britain. Arrived here, it split, so to speak, into two branches : the one continued its way across the Atlantic ocean, towards America; the other, turned towards France, Spain, Italy, and in june 1837 ultimately arrived at Malta. In this first visitation, cholera proved higly fatal in those islands. Several causes tended to favour the virulency and mortalilty of this epidemic distemper. I feel satisfied that faulty sanitary conditions had by far the greatest share. This would not be a new fact in the history of cholera. Everywhere faulty hygiène exercised a very sad influence on its character; and in tracing the connection of it with the mortality of this malady at Malta, I merely wish to add another fact to many of the same nature, which have been recorded by writers.

In the present paper, I intend briefly to show *where* and *how* hygiène was faulty at Malta previous to 1837, to mention its effects on the organism, and ultimately to compare the mortality in this its first visitation with that of its subsequent one, in order to point out the happy result that the improvement of sanitary conditions in those islands had in the second epidemic.

What I am about to state regards the lower class of the inhabitants of Malta : for amongst the other sections of the population hygiène is well attended to. I shall consider successively their mode of living, habitations and other similar circumstances.

That portion of the population, which constitutes the lower class, lives rather mise-

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rably, both as regards habitation and food. A great number of the families cannot afford to rent more than one room, very often on the floor ground, and sometimes a cellar. Such rooms are badly ventilated supplied with no other means of ventilation but the main door. Besides being small, they are frequently inhabited by several persons a whole family, accompanied often by domestic animals, such as poultry, etc. Further they are damp, situate generally in crowded and low localities of the town, in narrow, tortuous streets. Previous to 1837 even open sewers existed in these localities, into which many of the inhabitants of those streets were wont to throw night soil and all sorts of filthy matters, which accumulating at the surface evolved very offensive effluvia.

The ordinary food of the same class of people is not altogether of a very wholesome nature. The bread in town is generally good; but as regards other articles, their diet is not of the best kind. In winter they do not often eat meat. Some of them live entirely on a dish called *minestra* composed of vegetables, cabbages or cauliflowers or legumes with some kind of paste. Many are even deprived of this *minestra* or at least can not get it but occasionnally, and are compelled to live on dry food, bread and salt fish, or cheese, or oil and vinegar. In summer, on the other hand fruits and fish constitute the chief elements of their diet.

I may state, as a general rule, that, as regards bodily cleanliness, they are not particular. Consequently their skin is allowed to get coated with the matters of its own excretion, and can but incompletely exert its depurative function on the blood.

Many of them, after their daily work, cannot enjoy the benefit of a good night's rest for want of comfortable accomodations. In winter, many of the poor are exposed to the cold as they cannot provide themselves with good clothing. It is true that there is almost no winter at Malta, but the nights are chilly, and the poor, who are improvided with bed clothing, must necessarily suffer from the cold, more especially if they have not fully appeased their hunger.

I pass to the country people. In the country the ventilation of the dwellings is perhaps better than in the towns, though the same insufficiency exists in some of the casals that are thickly populated. There is another series of causes, undermining the health of the people. In general, they earn much less than their wants seem to require; and consequently they are compelled to live on food still worse than that used by the people in town. The chief article of their diet is bread, and this is very often of a bad kind. It is somewhat better when it is made at home; but a good many cannot afford home-made bread. They are in circumstances still worse if they happen to have any family. Therefore they are obliged to contrive in some way or other to supply what their wages do not provide them with. Thus, before

1837 it was a very extended practice in the country to collect filthy matters and let them undergo such decompositions as rendered them fit to be used as manure. For this purpose the little cots had dung-keeps either out of doors or in the cellar. The time necessary to accomplish the change of those matters into manure varied, and during all the process a continual evolution of putrid effluvia went on, empoisonning the atmosphere all around. It is obvious that the state of things grew worse in summer under the influence of the high degree of heat common at Malta. Poultry, rabbits, sheep, goats were universally kept, sometimes even in the very room where the owners lived. Not unfrequently there was to be found some more dirty animal than the above mentioned — a swine. The majority of the country people lead a very fatiguing life : from early in the morning till sunset they work almost constantly, with the exception of a couple of hours, allowed them for their meals and a short rest. They eat and rest themselves in the field itself where they happen to be working, and, fatigued and warm as they must be, they expose themselves to the wind, and of course run the sisk of having the excretion of the skin disturbed. The frequent repetition of this may be followed by a permanent diminution in the amount of effete matters excreted by the skin, which, as it will be shown hereafter, is not an insignificant result. Their daily toil being over, they get a short and unrefreshing sleep, for their accommodations are still worse, than those generally met with in town.

I now come to the action exercised on the organism by all the circumstances hitherto mentioned. Through different ways they all tend to contaminate and poison the blood; to diminish therefore the resistibility of the economy to diseases in general and to augment the liability to the attacks of epidemic diseases. It is in this way that faulty hygiène favours the mortality of cholera and of other diseases : by augmenting the number of their attacks and diminishing the resistibility of the organism. It exerts no direct influence. This was shown by Dr W. Carpenter, I may say to evidence, in a paper published in the Med. Chir. Review. Dr Carpenter stated that the said faulty sanitary conditions, by him comprehended under the name of " *Predisposing causes to zymotic diseases* " act in one of three ways : " 1st by introducing into the system decomposing matter that has been generated externally; 2dly by increasing the production of decomposing matter in the system; 3dly by obstructing the eliminution of decomposing matter normally or excessively generated in the system or abnormally introduced into it. " The same writer believes, further, that such decomposing matters infect the system in the manner imagined by Baron von Liebig, who avers that the decomposing movement of molecules is communicated by a force of contact from the putrescent substance to the analogous elements existing in the blood, so that this fluid

becomes overcharged with putrescent matter and unfit for the highly important offices it has to accomplish. Hence a peculiar state is generated, a susceptibility of the nervous centres to yield to the exciting cause of any epidemic disease. Now, I may remark, that some pathologists doubt whether the explanation of the chemist of München concerning the action of morbid poisons, be correct; since some microscopists have endeavoured to show that true fermentation is a different process from that supposed by von Liebig, and that it consists in a fungoid growth. Others have decidedly denied the existence of any anology whatever between true fermentation and the multiplication of morbid poisons in general. They aver, that in alcoholic fermentation there is multiplication of the yeast, employed as a ferment, for the simple reason that yeast is a organised vegetable production, and further that in all kinds of fermentation, but the alcoholic, there is no increase whatever of the ferment employed.

The above mentioned *predisposing causes* existed in Malta. By the imperfect ventilation and overcrowding of the dwellings of the poor at Malta, the objects of respiration were incompletely attained. The removal of a part of the effete matters resulting from the *tear* and *waste* of the tissues was obstructed. They remained within the body circulating with the blood, and being, organic matters in retrograde metamorphosis, contaminated this fluid, which was further rendered still more impure by the inspiration of putrid effluvia, floating in the atmosphere and arising from the open sewers, already mentioned, and other sources.

By the neglect of cleanliness, as regards the skin, it is obvious that the excretory function of this structure was highly impaired. The openings of the ducts of its excretory glands were obstructed, and no elimination of excretory matters took place. This structure instead of filtering, so to speak, the blood from its impurities, tended simply to increase them. Hence arose the same contamination of the circulating fluid as in impaired respiration. The hard work of many of the country people, and of the lower class in town is necessarily followed by a great production of effete matter. This, as Dr Carpenter has admirably shown, the system easily eliminates if the functions of excretion, and principally the pulmonary and the cutaneous, are increased in proportion. If, on the contrary, the functions of the skin are impaired, if respiration is not fully performed, and consequently if the changes occurring during this process are below the normal standard, the increased amount of excrementitious matter remains within the system. This was, and I am afraid is still, the case with the poor at Malta. Bad and unnourishing food, instead of cheking the elimination of effete matters, as the foregoing causes affords putrid substances to the absorbing vessels of the intestines,

which take them up, and carry them to the circulating mass of the blood. This fluid under their action, whatever this may be, is poisoned in the same way afore mentioned.

No sooner was it perceived, that cholera threatened Malta with a second visitation, that the local government, knowing how much the satisfactory state of public hygiène checked the progress of, and lowered the mortality from, cholera, enforced very strictly the improvement of the sanitary conditions of both islands in general, and more particularly of those localities where cholera had already proved extremely fatal. No animals whatever were any longer allowed to be kept by such people as lived in one room; wherever the state of the dwellings seemed to need it, the rooms were whitewashed; no dung-and dung-keeps were allowed in inhabited districts; all open sewers were closed and the necessary means for removing filthiness were established; no animals, such as poultry, pigs, sheep, etc. were permitted to wander loose about the streets, and many other improvements were introduced, which it would be useless to enumerate. The health of the inhabitants was thus so much improved, that cholera, when it subsequently invaded the islands, found a formidable antagonist in the improved public hygiène; and though its attacks were so violent as in 1837, their number was very much less, and the amount of mortality much smaller. This result, I believe, strongly proves the influence which hygiène can operate pro and contra cholera, and through analogy, I may add, other epidemic diseases in general; and I hope it will be an encouragement for the continuation of the wise measures the local government of Malta has adopted in order to ameliorate as much as possible, public hygiène and the state of health of the lower class of the inhabitants.

It is very natural that a doubt should arise in the mind of many, and the question be advanced : why there are at Malta no endemic or prevalent diseases known in other countries to depend on faulty hygiène? In answer to it I may be allowed to quote a few words of Dr Carpenter : " It is thus, " this distinguished writer says, " that in all climates and under all conditions of life the purity of the atmosphere, habitually respired, is essential to the maintenance of that power of resisting disease, which, even more than the habitual state of health, is a measure of the real vigour of the system. For owing to the extraordinary capability which the human organism possesses of accomodating itself to circumstances, it not unfrequently happens, that individuals continue for years to breathe a most unwholesome atmosphere, without apparently suffering from it; and thus, when they at last succomb to some epidemic disease, their death is attributed solely to the latter; the previous preparation of their bodies for the reception and development of the zynootic poison is altogether overlooked. " (Princ. of Human Phys., 4d ed., p. 555.)