

primarily, as alcohol, yet its elements ultimately become separated—its carbon and hydrogen are given off as carbonic water and acid; for Liebig could not detect, either in the expired air, or in the perspiration, or in the urine, any trace of alcohol after indulgence in spirituous liquors. By the use, therefore, of alcohol, a limit must be put to the change of matter in certain parts of the body; for the oxygen of the arterial blood becomes venous, without the substance of the muscles, &c., having taken any share in the transformation. Thus, we perceive, without the manifestation of a corresponding amount of mechanical force, the heat of the body increases after the use of wine. We have here some explanation offered to account for the dark, venous, bloated countenance of the man who lives freely; and we may contrast it with the florid, arterial hue, so characteristic of the phthisical patient. In the former case, we have the system surcharged with carbon—in the latter, the arterial blood becomes too highly oxidated. It is not then fair to conclude that alcohol acts in the first place, by preventing quick oxidation of the tissues, and then becoming decomposed, it supplies carbon? And if this be so, would it be attempting to carry out a principle too far, supposing that the peculiar acuteness, if not vigour of intellect, which is strongly observable in the phthisical patient might depend upon hyper-oxygenation of the blood circulating in the brain? just as we know of a temporary exhilaration of the spirits seems to be caused by the inhalation of oxygen gas. On the other hand, it is equally well known that a sluggishness both of mind and body is a necessary attendant on the beer-drinker, which most probably may be accounted for by the too carbonized state of his blood. It has been found in prisons that men are admitted, apparently in good health, and remain so for some months—that they then become dyspeptic, fall off in good health, and die of tubercular consumption, running through all its stages in a few months, and even, in some cases, in a few weeks. And I believe I am not wrong in stating that four-fifths of the deaths in prisons are the result of tubercular disease.*

It may be observed that, as regards diet, cleanliness, regular habits, and an equalized temperature, the greater part of them were infinitely better off than before conviction. The only cause likely to be detrimental to health, would be the effect produced on the mind by restricted liberty and prison discipline. Now, I may state that, with scarcely a single exception, these men have been more or less drinkers. The prison fare, however, does not permit the smallest allowance of alcoholic stimulus, unless specially ordered by the medical officer. Here it will be interesting to enquire, whether the loss of this agent has anything to do in producing the tubercular diathesis? I might also state as a remarkable circumstance, that the *post mortem* examinations of the convicts during the last five years which I have attended, every body examined, no matter how death had occurred, had tubercular deposits, on one or more organs, with the exception of one man who died of epilepsy. Again no class of men, on an average, take more stimulants than inn-keepers, or the old-fashioned but now almost obsolete coachmen. To this number I might add butchers, who, besides consuming large quantities of animal food, generally also drink freely; as well as men employed at breweries. Whether statistical evidence may prove or disprove the fact, I am strongly inclined to believe, from a recollection of cases, as well as from their general appearance, which is familiar to all people, that they are not liable, but rather the reverse, to tubercular diseases. If the inference be correct, from these and other similar illustrations which might be quoted, it would appear that alcohol, although most injurious and destructive, by producing multitudinous diseases, yet may it not in this instance act as a kind of preservative, by protecting the organism from the action of oxygen, which we believe we have known to be the immediate cause of the disposition of tubercle? If this be so, could not some chemical agent be discovered, which would have protecting, but not otherwise destructive, agency? For instance—I merely propose it as a theoretical suggestion—would tannic acid, combined with some highly carbonized substance, and a moderate

*Mr. Milner, Surgeon to the Wakefield Convict Prison, authorized the above observation.