Remarks on Hygiene

A very sensible and serious account of the benefits of taste are, of course, experience.
I have been guided in the choice of Hygiene as a subject for a brief dissertation, by the consideration that few branches of science offer a better ground for the application of a moderate amount of chemical and medical knowledge. It is my intention to speak chiefly of topics like ventilation, drinking water, and light, and to consider these, more in relation to private families than public institutions. Architecture will be scarcely referred to, for I shall rather look at things as they are and try how to make the best of them.

And first air — and I might almost say and last — air: for it is not only the Alpha and Omega of our existence here but plenty of fresh air granted, food, clothing, and personal cleanliness become secondary matters. It is this that causes the difference in health between the comparatively highly paid, well fed, shoemakers and tailors of large towns and the poorly paid, badly fed and housed; agricultural labourer. How though no one would say that the air of a large town like London was as pure as the
air in Ben Comond still persons in London engaged in outdoor pursuits as light portage or cab-driving enjoy very fair health and even those engaged in indoor occupations do not suffer if the building be only well ventilated. The problem then is how to furnish persons in small apartments with a sufficient amount of fresh air without draught or without greatly diminishing the temperature of the rooms.

How many maintain that for ventilation and artificial warmth to be properly carried out, there is nothing equal to a large room with a big fire in it, and though this opinion certainly accords with my own limited experience, expense alone would prevent the carrying out of this idea. How then are small rooms to be made the best of? To this I answer in the first place we can often make them larger by the removal of all extraneous matter. The solitary window in the single room of a poor family is too often blocked up with flowers that intercept the passage both of light and air. These, if they must be retained should at once be removed to the ledge outside.
The window for though Dumas' generalization as to plants elaborating oxygen for animals may be perfectly true, still during the night they may reverse the process and the halitus from their soil especially if manure has been added further assist to vitiate the air. Curtains should either to the bed or the window be dispensed with as much as possible. They not only occupy a certain space in the apartment and thus decrease its size but prevent the free circulation of the air in the room. Among very poor people all is now cleaned out that can be, and there is little else to do but persuade them occasionally to open their windows. Where it can be afforded some of the simpler forms of artificial ventilation may be used. The raising hammer valve is cheap and often very efficient. By this arrangement the air passes from the outside of the house through a perforated brick or iron plate and on entering the valve is directed upwards by its jet means and is distributed to the apartment. But the valve may become an outlet for the air instead of an inlet under such circum-
Stipes as a high wind or cross draughts and when it can be closed by means of a balanced weight. Window panes have also been composed of small slips of glass placed at such an angle to the vertical plane that the air is directed upwards in the first instance towards the ceiling of the room. Plates of perforated zinc are also useful as they finely divide the air and if the perforations be made very small the entrance of "blacks" is prevented. But in this latter instance the plates require to be cleaned frequently or the apertures are blocked up and the apparatus rendered useless. But the conditions affecting the ventilation of particular apartments are very various and require special modifications to meet them. As in the treatment of "smoky chimneys" we have often to proceed empirically so is it also here, and what cures the chimney may often perfect the ventilation. Three things are of paramount importance. First, that the air be drawn from a pure source; secondly, that it be admitted without great draught; thirdly, that it does not too much diminish the temperature of the room.
The state of ventilation in an apartment may be estimated qualitatively in a rough way by the sense of smell. The observer passing at once from the fresh air into that of the rooms for the olfactory nerves soon become insensible to a continued stimulus, and smell is not regained until the exciting cause has been some time removed.

A few words as to dormitories may not be out of place here. During sleep the power of the body to resist disease is much lowered. Persons may pass through malarial districts unharmless if they sleep in them are almost certain to be attacked by ague. It is practically known also that sleep to be refreshing must be in a moderately pure atmosphere. Hence the reason that bed curtains should be dispensed with and the air allowed to freely circulate around the bed. The windows even during the night may be partially opened. The cool air having a positively tonic effect upon the sleeper, the danger of taking cold by such a measure being much exaggerated. The mattress should be of horse hair, which
admits of being thoroughly aired from time to time or in case of infectious disease may be placed in an oven and readily disinfected its outer covering being of course removed for this purpose. Iron is a far better material than wood for the bedstead. It does not harbour vermin, and is impermeable to secretions and altogether in its lightness and absence of huge frame work for bed-hangings offers a most favourable contrast to the old four poster.

The windows of bed rooms should be opened during the whole of the day and the sheets and blankets freely exposed to the air before the bed is again made up. If cross ventilation can be set up by means of opposite windows, so much the better, for there is no more powerful agent than the wind for changing air. In the morning all blinds should be drawn up in every apartment so that light may be freely admitted, for light is most undoubtedly an important hygienic agent. Its action in maintaining the uniform composition of the atmosphere is readily explained by what is known to occur when plants are
submitted to, or deprived of its influence. But the exact manner in which it operates on human bodies has not yet been made out. Miss Nightingale has observed, though, that patients thrust into dark corners of the wards have not made so good a recovery as those whose beds were opposite the windows; and Dr. Pirrie of Aberdeen states that in the cure of scrofula, light is only second in importance to air. "Surely a pleasant thing it is for the eyes to behold the sun," is a very old saying, and doubtless the cheering effect of light has much to do with its hygienic action. But it follows that good light and air are at all times desirable and, speaking generally, they are best to be procured in the country rather than in the town. In rural districts also we have that sober cheerfulness of nature which soothes the harassed, careworn spirit better than all the draughts of lethe. How nature produces her effect is thus described by Coleridge:

With tender ministrations, Mun., O Nature, healest thy wandering and distracted child.
Those sweetest on him thy soft influences,
thy sunny hues, fair forms, and breathing sweet,
the melody of woods, and winds, and waters.
Till he relent, and can no more endure
To be a jarring and a dissonant thing
Amidst the general voice and minstrelsy.
But bursting into tears wins back his way,
His angry spirit healed and harmonized
By the benignant touch of love and mercy.

I now proceed to the subject of drinking water.
In all cases I consider it the duty of a medical man to acquaint himself both with the mode of supply and the character of the water of the town in which he may reside. The importance of pure water during the prevalence of epidemics cannot be exaggerated, for water itself may hold matters in solution capable of producing various diseases, ranging from constipation up to dysentery and typhoid fever, while Miss Nightingale observes that in India our soldiers often literally drink cholera with their water.

As to the mode of supply, spring water
and river water are much more on a par with regard to purity than is generally supposed, though rivers are usually more contaminated with organic matter, but on the other hand contain less carbonate of lime than springs. The water from a shallow well has many matters drained into it from the surrounding land, and if the well be placed near dwelling houses the water should be carefully examined from time to time in order that the absence of sewage matter may be ascertained. If however no pure source of supply can be found we have then to render the water as innocuous as possible by seeking to remove its contained impurities and I may here mention a few of the simple methods for this purpose, that if applied to as a medical practitioner I should be inclined to recommend. First, boiling, would dissipate of course all volatile impurities and fix the albuminuous organic matter if then filtered through charcoal nearly all insoluble matter and other impurities are removed. Secondly, Condly's fluid is very useful in
Destroying organic matter and Hofmann says that it acts almost instantaneously.
If the water cannot be filtered through charcoal yet the inside of casks may be charred and small pieces of charcoal immersed in the fluid but the charcoal soon loses its power and requires to be renewed, though if fresh pieces cannot readily be procured, as might happen during a long voyage, the old fragments may be taken out, exposed to a slight temperature, and again returned.

Should the water be brackish from chloride of sodium this may be removed by filtering through a great depth of sand.

The immersion of certain vegetables also purifies water especially if they contain tannin. Dr. Parker says, that in the North of China the water of the Peiho is so impure that the Chinese never drink it except as tea, which if they desire to drink it cold is cooled with a lump of ice. But I think that if the Chinese really liked water, the melted ice would furnish them with a tolerably pure specimen. Though possibly the expense of this plan might prove an objection. Be this as it
May, cold tea is considered a most dyspeptic drink in this country and it is well replaced by the ordinary "toast and water" where a well burnt piece of bread is placed in a vessel and boiling water poured upon it. The water being previously boiled is already deprived of much impurity and the carbon of the burnt bread still further depurates it.

Exposing the water to air by pumping it through a sieve and allowing it to fall in fiery divided currents will get rid of much organic matter.

As to its storage and conveyance, leaden cisterns and pipes are protected by carbonates and sulphates but acted upon by chlorides and nitrates. If lead be inadmissible, zinc is so often contaminated with lead that it is very little better. In such cases cast iron pipes or earthenware pipes are useful and slate cisterns are probably the cleanest and best that can be employed.

Gutta percha, bituminous paper, and block tin have been proposed for water tanks or water pipes, but of these materials I have no experience.
To speak at all of hygiene, without mentioning exercise, would be a decided oversight. Of late the whole subject of exercise has received great attention and athletic clubs have been formed and gymnasia erected in many of our towns. It therefore becomes important for a medical man to be acquainted not only with what is done in a gymnasium but how it is done—so that if consulted on the subject he may be able to give trustworthy advice to his patient. A common error is to suppose that only youths are benefited by gymnastic training but more correct observation has shown that men of fifty at least, may not only indulge in such exercises with impunity but in nearly all cases, are positively improved by them, and a gymnasion often acts like a charm in removing dyspepsia.

Before a man commences any course of physical training a careful examination of the heart and lungs should be made and the condition of vessels as to rigidity should be ascertained. If this examination be satisfactory the next thing is to clothe the man...
Properly for his exertions. Flannel is undoubtedly the best material for an athlete's clothes, and we must be careful that no linens impede either circulation or respiration. A belt worn round the waist is very likely to cause hernia during great exertion, and should be entirely discarded. The shoes must be thin and if the man's feet are hard enough to exercise without any covering, so much the better. The flannel dress after use should be freely exposed to the air and frequently washed or beaten. The amount of exercise at first taken must be slight, especially if the subject has previously led a sedentary life, but it is to be gradually increased. Every other day is considered sufficiently frequent to attend a gymnasmum but the other days may be judiciously employed in moderate walking exercise. A man may, if very unfit, be gradually prepared for the gymnasmum by the use of the chest expander, light dumbbells or clubs at his own home. It is advisable also at the commencement to accurately ascertain his weight and the measurements
of the arm and forearm, thigh and leg at their thickest parts, also the dimensions of the chest. The heart gives trustworthy information at the time, as to whether a man is over exerting himself or not. There does not appear to be any harm in great rapidity of the pulse so long as it retains its equability, but if any inequality be observed the exercise must be checked for the time. It is questionable whether the "putting up" of heavy dumb bells for the purpose of testing a man's strength is not best avoided. Dilatation of vessels is very likely to result from such a practice and even purpura of the heart. The athlete must be cautioned as to this matter and then left to his own judgment for further guidance. I cannot here mention all the mechanical apparatus employed in the gymnasiun, but may state generally, that they all have their uses, and that he gets most food, who tries each in its turn. Special training of particular members as of the arms or legs should be discouraged so far as hygiene is concerned, since it is our object to develop the whole.
body and not a particular part of it. The trapeze is good for the purpose of calling almost every muscle into play, and may be largely made use of where there is not time for a more systematic course. But besides the mechanical appliances, the use of which is apt to become rather monotonous, every good gymnasiuim has its classes for fencing, single sticks and boxing. As to the latter, the French boxing, though of course altogether inferior to our own in any other respect, as an exercise is admirable. It consists in a liberal use of the legs as well as the arms for the purposes of offence or defence and strongly calls into play the abdominal and dorsal muscles in the balancing of the body. In fact many of the French exercises are excellent, though some of them approach too near the antics of a buffoon, and so cannot be used by Englishmen. I cannot enter here into the consideration of the building of gymnasia but merely remark that the freest ventilation must be provided and indeed the proper place for a gymnasiuim appears to be in the
open air. But another important point in training a man for physical exertion is to keep him amused while at his work. If you leave him to be constantly tugging at his chest expander or flinging himself about on the horizontal bar, or whirling his clubs or dumbbells he will soon become disgusted with the monotony of his exercises. Give him occasionally a day's cricketing, or put him in a boat with a pair of oars and let him row for a few hours. Such an exercise as pumping may well be carried on out of doors as may also running, climbing and vaulting. American bowls and quoits are also good but seem to have taken up their residence in pothouses, which is perhaps the less to be regretted as they only exercise fully one of the arms. In classes formed for systematic courses of athletic exercises individual members greatly aid each other by friendly rivalry and general companionship. I think the importance of so training a man that he may take an interest in the operation has not been sufficiently insisted upon, at least no modern book that I have met with
even mentioning it and indeed the man is too
often regarded as a machine whose movements
are to be regulated by our will and not by his
own. At stated intervals the condition of
the athlete requires to be examined into. If
his muscles that were formerly hard, have
become soft, if his appetite is impaired, or
if from too great absorption of fat the man
appear "fine drawn", he is overtrained and
the amount of exercise must be diminished.
It is advisable also for a medical man to be
present during the exercises so that he may
check at once any further exertion, should
inequality of heart's action or other cause arise
for doing so. As a method for still fur-
ther improving a man's "wind" singing
has been recommended. It is systematically
taught in the French army not only for the
purpose of amusing the men but chiefly
for improving their lungs. And I may
here mention how important it is that
singing should be encouraged amongst ladies.
As a class, they are indifferent to out door
exercise and with their present prejudices
dancing and singing seem their only refuges. Female gymnasia have been proposed over and over again, but the sex regarded them with indifference and did not even trouble to ask their medical advisers whether they were useful or not. This apathy on their part is peculiarly discouraging, for as Mr. Shandy says of his wife, "That she is not a woman of science is her misfortune,—but she might ask a question." Swimming, the purest exercise of health as Thurnam calls it, is certainly equally well adapted for both sexes. A bathing dress is at times indispensable, but the oiled silex cap and thick woollen clothes of a Frenchman can only impede one's movements in the water and prove altogether uncomfortable. Whether swimming should be taught or not as a branch of physical education I think severely admits of a doubt. Having spoken of the exercises of the athlete I now proceed to say a few words as to his diet and general hygienic treatment. If the man when first placed in your hands has any symptoms point to dyspepsia these must be carefully attended to. Relieve
Constipation if it exist by the mildest purgatives quickly discontinuing their use. It is a great mistake also to force stringent dietetic rules upon a man all at once. Of course temperance must be enforced from the beginning but to cut off at once all a man's tobacco, tea, or spirits is often to render him disgusted with the whole system. The cold bath can be used from the very onset, 'work the skin' being a most important maxim in the training of athletes. Not only must the man take his bath but it is essential that he be thoroughly rubbed afterwards. This can be done properly only by an efficient bathman for though the man may easily put the front of his body, the back remains untouched unless he throws the towel backwards and works it with both his hands, a clumsy plan by which he gains little advantage. The proper method is for the man on leaving the bath to be at once invested by a loose gown made of thick but not too coarse towelling. The gown reaches from his head to his heels and whilst he is busily engaged with a towel in drying the front of his body, the
bathman gently but firmly, thoroughly rubs
the spine and back by means of the towel. After
the bath he may, if strong enough, take an hour's
walk before breakfast and previous to starting
a poa-egg may be given him or if he be constive
a bottle of soda water can be taken. An hour
may be too much for some men and the time
must then be shortened. The breakfast consists
of meat and bread whilst many works recom-
mand as a beverage tea. This I am certain is
wrong if the man be at all dyspeptic, and
that nearly in all cases the tea is well replaced
by light wines largely diluted with water or
by a single tumbler of mild beer. An hour
after breakfast, supposing a man in active
training, he undergoes the heaviest part of his
day's work and is made to sweat more or
less profusely according to the stage of train-
ing. He dines about one o'clock and though
fat is excluded from the diet as much as
possible there is no good physiological rea-
son for this. My own idea is that as the
appetites of men vary so as to the quantity
they consume, it is better to allow any man
Whether in training or not an unrestricted amount of food at one meal during the day. Vegetables are sparingly used, and green ones appear the best. As to stimulants Dr. Parke believes that men train best on water, but though theoretically this may be perfectly true, practically it does not answer. To me it appears that if a man takes his food better with stimulants a moderate quantity may be allowed, giving beer and wine in preference to spirits. Four ounces of port daily must be considered ample, and is probably too much if claret and water replace the use of tea. Fish and other articles of diet vaguely spoken of as "watery" by regular trainers, may be also partaken of. Finally, it is necessary to watch the idiosyncrasies of men and humour them as much as possible.

To conclude - a novice in the art of compilation is often puzzled to know the exact amount of detail necessary to be thrown in so as to illustrate general principles. For my own part I have tried merely for sufficient minuteness to prove that I understand something of the subject I write about.
and am not altogether ignorant of a few of its practical applications. It follow therefore that throughout the whole paper I have not written for the information of any Reader, who is of course more familiar with the subject than I am, but for the purpose of endeavouring to show a small but accurate knowledge of Hygiene.