

Many of the so-called chronic gas poisoning cases were cases rather of war neurasthenia; but few of those who drew a pension would ever admit a subsequent improvement or cure.

Chapter 16, on naval medical aspects of chemical warfare, is by Lieutenant Commander D. C. Walton, M.C., U. S. Navy, who points out how ancient is the use of poisonous gases in warfare; the classical "Greek fire" having been used by the Greeks for some 500 years, whilst quicklime has frequently been used in naval warfare. Gas was not actually used in naval warfare during the Great War, except from land batteries during the attack on the Mole at Zeebrugge, in 1918. Temporary lung irritants, vesicants, lachrymators and sensory irritants are not likely to be used in naval warfare during a fleet action; "practically all gases used at sea would be of a persistent nature, and only those which act rapidly on the organism would be used during an engagement." Smoke screens, of course, are very largely used in naval warfare, and the author gives some very striking photographs of their production by destroyers and aeroplanes; in fact his view of New York harbour being blotted out by a smoke screen from an aeroplane on May 2nd, 1924, is so startling as to seem almost unreal. In general the measures for individual protection at sea resemble those for land warfare. Closed action stations can easily be rendered gas-proof; in semi-closed stations a plenum fresh air system would expel gas or keep it out; whilst in open stations masks and protective clothing would be required.

In a final chapter Colonel Vedder discusses the possible therapeutic applications of chlorine vapour. During the influenza epidemic the men working at Edgewood Arsenal on chlorine plants practically escaped untouched, and this led to an investigation of the value of chlorine gas. It was found that concentration of 0.021 mgm. of chlorine per litre of air killed bacteria in from 1 to 2 hours. A gassing chamber was constructed with a concentration of 0.015 mgm. per litre and it was found that patients could tolerate this for one hour or more. The results in coryza, chronic rhinitis and bronchitis were distinctly encouraging. In addition to its bactericidal effect, the chlorine gas stimulates the flow of lymph to the mucous surfaces, causes hyperaemia and stimulates phagocytosis. A special chamber has been designed in which it is possible to maintain this concentration for an hour at a time, and chlorine rooms are being designed for hospitals. It is even suggested that, in order to prevent the spread of influenza, infectious catarrh and the like, in cinema theatres and other places ventilated on the plenum system, a certain amount of chlorine might be introduced into the atmosphere prophylactically. Certain diseases however fail to respond to chlorine treatment, such as hay fever, asthma, pneumonia and tuberculosis.

Colonel Vedder's very interesting book should appeal to a wide circle of readers. It is essential for the administrative military medical officer, who may at any time be faced with the necessity of devising a medical organisation against gas. It will also interest chemists, pathologists, and medical men in general.

R. KNOWLES.

THE AIMS OF A MEDICAL MAN.

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(Being an Address delivered at the opening of the winter session of the Carmichael Medical College, Belgachia, Calcutta.)

WHEN your Principal did me the honour to ask me to address you on this occasion I chose for the subject of my remarks the "Aims of a Medical Man." My choice of this subject was largely directed by the fact that I have long been asking myself the question:—What are the present-day objectives of the medical profession?

It seems to me that this is a question that all medical students must ask themselves because, not only in this country but also in the world at large, it now and then appears as if medical men were in danger of forgetting those great ideals which formerly animated the leaders of our noble profession. For many years medical men have rightly prided themselves on the fact that as a class they have almost invariably placed the care of their individual patients and the welfare of the community before their own personal interests. In fact it had been largely true of medical men, in the past:—

"Then none was for a party,
Then all were for the State;
Then the great man helped the poor,
And the poor man loved the great."

But times have changed, and nowadays we hear of doctors combining just like labourers and artisans in trade unions for the purpose of enforcing their demands, and threatening to "strike" if those demands are not acceded to. Recently a circular from the secretary of an important medical organisation came into my hands; this organisation claims to represent a most powerful body of medical opinion whose object is stated to be "*the promotion of the medical and the allied sciences and the maintenance of the honour and interests of the profession.*" And on reading the circular I was amazed to find that it said very little about the promotion of science, and nothing about the honour of the profession. On the contrary it was mainly devoted to a description of the material advantages that medical practitioners might expect to receive if they became members of the Society. Indeed, the greatest emphasis was placed upon what were termed medico-political and social advantages. And on referring to the appended list of the current medico-political activities of the Society to see what its aims actually were, I discovered that every one of the objectives mentioned was related to the remuneration to be received by medical men, especially in cases where they were employed by the State or by local authorities. Now this is evidence of a most regrettable state of things. And I may state at once that it is a grave departure from the traditions of the noblest of "those three noble professions" which to quote the words of Sir Thomas Browne "all civil commonwealths do honour." Fifty years ago this same great medical society of which I speak was taking the foremost part in the work of sanitary reform, and was using all its prestige and influence to impress upon the British Parliament the need of efficient public health legislation. These were medico-political activities worthy of the name; and it was disinterested efforts of this kind that have earned for the medical profession the honourable position that it has so long commanded. In those days it seems to me medical men must have imbibed much of the spirit of Sir Thomas Browne's *Religio Medici*, and must have echoed, perhaps, unconsciously the words of this great physician who wrote and practised in England 250 years ago. "I feel not in me," said he, "those sordid and unchristian desires of my profession; I do not secretly implore and wish for plagues, rejoice at famines, revolve ephemerides and almanacs in expectation of malignant aspects, fatal conjunctions and eclipses. I rejoice not at unwholesome springs nor unseasonable winters; my prayer goes with the husbandman's; I desire everything in its proper season that neither men nor the times be put out of temper.

"Let me be sick myself, if sometimes the malady of my patient be not a disease unto me. I desire rather to cure his infirmities than mine own necessities. When I do him no good, methinks it is scarce honest gain, though I confess 'tis but the worthy salary of our well-intended endeavours. I am not only ashamed but heartily sorry that, besides death, there are diseases incurable; yet not for my own sake, or that they be beyond my art, but for the general cause and sake of humanity, whose common cause I apprehend as mine own."

It is sentiments of the kind just quoted which have long inspired the best aims of the medical profession of every country, and I am proud to say that, in spite of occasional lapses from this high standard of ethics as in the case of the regrettable circular to which I have previously alluded, medical men in every part of the world continue to show, by their noble actions and example, that they regard the welfare of humanity as of more account than personal interest and advancement and as a class prefer honour to gold. If this were not so how can you explain the fact that the death-rate among medical men usually exceeds that of the general population at the corresponding age periods of life? Why was it, I may ask that in the Crimea the French army lost 18 per cent. of its non-combatant surgeons, while the deaths among its combatant officers were only 7 per cent. And why was it also that during the great typhus epidemic in Ireland in 1843-47 the death-rate among medical men was 66 per 1,000, no less than 32 per cent. of those dying falling victims to typhus, whereas among the general population only 9 per cent. of deaths were due to this disease. It is not lust of gold or personal advancement that will explain figures like these which are practical evidence of noble aims and high ideals.

There is a remarkable book, published in 1918, entitled *The Science of Power*. In this book which I should like you all to read, the late Professor Benjamin Kidd calls attention to what he terms "the emotion of the ideal." He states that it is this emotion of the ideal which is the greatest power at work in the world to-day. In his view the Great War itself affords a striking demonstration of the fact that the vast majority of mankind in every country, when actuated by this emotion of the ideal, are willing to sacrifice all hope of personal comfort and material gain and even life itself for the attainment of what they believe to be the common good. And he goes on to develop the thesis that it is this spirit of sacrifice for an ideal that will prove the most potent of all the influences that are tending to shape the social integration of the future. It is true that some critics of this book have characterised it as "a panegyric of masochism and slave mentality." But we may well ask cynics of this sort, what has become of the "cult of the superman" and where are now the disciples of Nietzsche who taught Germany that purely material gains were the only aims worth working for? Surely the results of the Great War should have demonstrated to every one, but the few who are morally blind that materialism is a hopeless doctrine. And to quote the words of the *Bhagavat Gita*:—"These men . . . in spite of grand . . . And flowery speech, which teach of birth

And fruits of action done on earth;
And how by various rituals done,
Wealth, power and worldly joys are won;
Deceived are they by doctrine vain;
And strive for pleasure, wealth and gain.
Their wisdom sure can never stand
On action's true communion ground."

Truly it has been well said—"What shall it profit a man if he gain the whole world and lose his own soul?"

And now let us turn from the general to the particular and enquire what should be the special aims of a medical man. If we look up the words medicine, medical, and medicinal in the dictionary, we shall find that they all pertain to that which is applied for the cure or lessening of disease or pain. Now the word medicine itself is derived from various Latin words, i.e., *medicus*, pertaining to healing, or *mederi*, *medeor*, *medicare*, all of which relate to healing, or to restoring. We find also that the Latin word *mederi* is related also to *meditor* or *meditare*, to meditate, and that this in turn is again related to the Greek *medos*, meaning care.

Primarily, therefore, a medical man is one who professes to heal or who at least seeks to heal. Now let us ask ourselves what healing is. The dictionary tells us that:—

Heal means to make whole and healthy, to cure, to remove or subdue what is evil, to restore to soundness, to remedy or repair.

Here then we find a ready answer to the question "What are the true aims of a medical man?" Briefly:—

- (1) To make whole.
- (2) To make healthy.
- (3) To cure.
- (4) To remove or subdue what is evil.
- (5) To restore to soundness.
- (6) To remedy.
- (7) To repair.

Carrying our analysis a little further, we may ask, "What is health?" Health is wholeness, and the word *heal* is itself derived from an old Anglo-Saxon word meaning literally, *whole*, *perfect*, or *healthy*. And if we push our enquiries still further we shall find that there are a vast number of other important concepts grouped round this great central idea of health and healing. For example the word *hail*, meaning to salute, is derived from the act of wishing a person good health; and the very word *salute* also has a very similar derivation from the Latin *sanus* meaning sound, or *sanitas* meaning health, or *sanare* meaning to heal.

But there is another very significant word closely related to the word "health" and the idea of healing to which I want to draw your attention. This is the term *holy*, which as you will readily perceive brings the conception of the healing art very close to religious duties and aspirations. And if we were to carry our investigations still further we should find also that the ideas embodied in the very terms *saint*, *sanctum* and *sacred* are in the end bound up with similar notions of wholeness and perfection. When we remember these facts we shall realise that it is by no means strange that the early history of the practice of medicine in every part of the world shows that the art of healing has always been closely associated on the one hand with priesthood, and on the other with the teaching and practice of religion.

Now there is another important point to which I wish to draw your attention. You will observe that the word *healing* and the phrase to *heal* do not imply action taken for personal advantage, on the contrary they suggest something done to benefit others. Everyone knows that the sentence "Physician heal thyself" was both meant as a jibe and understood as such. In fact medical men are constantly engaged in healing others, and as incidents in the lives of thousands of medical heroes have frequently proved, very often it is a case of "he saved others, himself he could not save." And here I may observe that the very words *safe*, *save* and *saviour* are also connected with the idea of health or making whole, and so also is the word *redeemer* which is often used in the same sense as *saviour*.

Now we do not call a man who merely saves himself a saviour, but we apply that term only to one who saves others, and in this sense all medical men are saviours. Everyone must know of instances in which medical men have saved the lives of others at the cost of their own. A few years back a medical man in the Darjeeling district, who was well known to me, while lying sick of influenza with a temperature over 101°, received a telegram stating that one of his patients, living many miles away, had a temperature of 106°. There was no one else to go and my friend rose from his sick bed and rode through the inclement weather to the bed-side of the patient. After doing what was necessary for his patient, he found that by an error a temperature of 106° had been written instead of 100°, the doctor returned to his own sick bed, never to leave it except as a corpse. Now while one may regret the error which led to a needless sacrifice, no medical man can help feeling a thrill of pride every time he hears of such a case to think that it was a member of the profession to which he himself belongs who at the call of what he believed to be his duty willingly laid down

his life, for the sake of his patient. Let us contrast this incident with another which came under my personal notice many years ago in a Bengal district. In this latter case a fairly prosperous cultivator lay ill with small-pox. His relations sent for a qualified local practitioner, but the doctor refused to come until a fee of Rs. 32 had been placed in his hands in advance. On receiving the money the doctor went to the house of the patient, but while passing through the court-yard he saw standing there a pony and a pair of bullocks and promptly demanded that these should be given to him in addition to his fee, at the same time threatening to take his departure without seeing the patient unless this was done. I regret to say that he got the animals and afterwards saw the patient, who died a few days later. Now I ask you which of these two medical men whose conduct I have described, deserved the trust and honour of his fellow men? The one lost his life, but left behind him enshrined in the hearts of all who knew him a living memory of goodness and self-sacrifice. The other may have secured material wealth, but his gains could bring him nothing but bitterness of soul and poverty of spirit.

Besides being a healer, a saviour, or saviour of his fellow men, a medical man must possess certain other special qualities of which we find some indication in our brief study of the derivation of the word *medical*. We saw that this word was closely related to the Latin word *meditare*, meaning to meditate; and to the Greek word *medos*, meaning care. Obviously, therefore, a medical man should be both a meditative man and a careful man. As a meditative man he must be a thinker, a student and a learner, always imbued with the divine curiosity which will make him an investigator and a patient seeker after truth. He must likewise be a careful man, because it is his duty to care for or to cure bodies, just as it is the duty of the priest to be the curator or "*curé*" of souls. This brings me back to another important point. You will remember that I have already alluded to the fact that the art of healing was at one time practised by the priesthood.

It follows that in those early days the care or cure of the body was directly associated with the care or cure of the soul. You will also recollect that I told you that the word *holy* which is obviously related to the practice of religion originally meant exactly the same as *whole* or *healthy*, from which it follows that a healer must originally have been one who not only made people healthy, but also made them holy. If this is so it is obvious that a medical man should in the very highest sense be a religious man. Now this is a very important conception, because you have probably often heard it said that nowadays science and religion are antagonistic, and it is sometimes assumed that because a medical man is a scientific man he is, therefore, bound to be more or less sceptical of religion. This is a grievous error. The idea that science has destroyed the foundations of religion is absurd. The teaching of Einstein in regard to relativity and much of the recent work that has been done on psychology afford convincing evidence on this point. Einstein has shown that all knowledge is relative. Even the most exact sciences cannot lead us to a knowledge of the absolute. On the contrary you may be certain that the teachings of science are limited and partial in proportion as they appear most logical, most exact and most conclusive. By this I do not mean in any way to belittle science and scientific work. Science has a most important function to perform and we cannot do without it. But like the special sense organs such as the eye and the ear the usefulness of science depends just as much upon what it ignores and excludes as upon what it reveals. In fact science could not reveal as much as it does if it did not at the same time exclude everything that was not strictly relevant to the subject under immediate observation. Thus it gives us very brilliant illumination over a limited area, so that the important facts with which it deals stand out clear and distinct, but at the same time unless we are careful the

very brilliance of the illumination tends to dull our appreciation and obscure our vision of other facts that are not included within our purview at the moment. If you have been working in a brilliantly-lighted room and then suddenly go out into the badly-lighted street, you know what happens. For a time you cannot see, everything appears dark and you may easily stumble against objects that are clearly visible to those whose eyes have not been dazzled with an excess of light. So it is with some scientific men, who become so dazzled with the excess of light in their own narrow sphere of thought that they become blind to the great truths of religion that are clearly recognized by those who have retained a wider outlook on the problems of life in general.

Science deals with the particular rather than the general, and more especially with what we term the material; and as you know, its methods are largely those of analysis. Now while it is very important that men should study the particular,—in other words that some of us should specialize in order that the sum total of knowledge may be increased; and while for this purpose analytical methods may be of great value, we must never forget that specialization and analysis have their own limitations. A simple illustration will demonstrate this fact. Just let us imagine for a moment that an intelligent inhabitant of the planet Mars, possessed of faculties and training very similar to our own, were to pay a visit to Calcutta, descending on the *maidan* near the Victoria Memorial. Let us suppose that that huge building were to attract the visitor's notice and prompt investigation, and that he were to apply scientific methods of analysis in order to satisfy his curiosity. Let us imagine him saying to himself "here is a huge mass of material which possesses a peculiar shape suggestive of some definite function and purpose; let me discover what it is composed of so that I may understand it." Let us imagine that he was able carefully to take the building to pieces, beginning with the dome and gradually descending to the foundation, and that every stone was counted and was duly classified according to its shape, size, or some other standard.

When the work of destruction was complete all that would be left of the Victoria Memorial would be a number of neatly arranged piles of material and an accurate inventory of the contents of each pile. And even if our visitor had taken the trouble while demolishing the building, to prepare careful plans of it so that he could afterwards reconstruct it, he would still remain entirely ignorant regarding its origin, its purpose and the various ideas and emotions which it embodies and symbolises. Yet it is apparent that a knowledge of these very matters is absolutely essential for a true comprehension of the Memorial and all it stands for. Now if you have interpreted this little parable aright it will help you to an understanding of the respective functions of science and religion. The main task of religion is to do what science cannot do, to comprehend life, for religion is concerned with life as a whole, whereas science merely deals with various aspects of life. Once you have grasped this fact you will realize that science and religion can never be really antagonistic, and that science can never replace religion, but that both are necessary to the welfare of mankind.

Medical men are concerned in a very special manner with the welfare of mankind, for the aim of the medical profession for countless ages has been to discover in what that welfare consists and how it may best be secured. Nearly 2,500 years ago Hippocrates established a noble order of priesthood in the temple of Æsculapius. In those days the physicians were priests, the places in which they worked were holy, and the arts of healing that they practised formed a sacred ritual. In those days also, before anyone was admitted to the great order of doctor-priest or priestly doctor he was obliged to swear a solemn oath always to do his duty to his patients, to reveal none of their secrets, and to consider himself not all where their interests were

concerned. And although times have changed, the young medical graduate is usually required, even at the present time, to take the same great Hippocratic oath when he receives his degree. It is not without good reasons, therefore, that I have impressed upon you the fact that a medical man should always be a religious man; for the profession he has chosen is a sacred calling and the oath that he has taken is a religious vow.

A recent medical writer in the *Observer* has wittily remarked:—"Druggists should dispense drugs; doctors should dispense doctrine." And as you will readily perceive, I have endeavoured in this address to follow out the above suggestion by avoiding all reference to drugs and confining my remarks entirely to doctrine.

Finally, as a fitting conclusion to the doctrines I have been dispensing, I wish to direct your attention to some of the wonderful teachings which you will find in your own great *Bhagavat Gita*. What better guide to conduct can anyone find, be he a medical man or a layman, for example than the following:—

"Those men who do to others great and small
What good they can, and rule their passions all,
Who see all equal and do none disdain,
They too—the spirit seekers—Me attain.

"Whate'er you do, enjoy or give, endure
Whate'er perform of rites and worship pure,
O Kunti's son! all those in Me resign,
And never think that fruits or acts are thine.

"By working thus, from bonds of action free—
Fruits good or evil both—wilt gain thou Me,
In Me resigned entire, the holy soul
Doth Me attain all free from world's control.

"Of fruits regardless wont to be,
From chains of birth forever free;
The learned joined to wisdom gain
A state diseaseless, free from pain.

"The patience by which one can well control
The working of the senses, life and mind,
Which fixed on these does want no other goal,
That patience, friend, is of the saintly kind.

"The wise with knowledge such do Me adore
And from their inmost heart devotion pour;
They live in Me, they have their minds in Me
And 'mongst themselves, expound My nature free.
And still of Me do talk and thus do gain
Contentment, sure purest joy attain.

"As boats by gales and storms are tossed
Now here, now there, and often lost;
So human wisdom by a mind
Which follows senses wild and blind,
Is driven and dashed and made a wreck.
So keep thy senses well in check.

"Yet not as sin enjoyment shun,
Enjoy the world; but see 'tis done
With senses under self-control
And free from love and hate; the soul
Enjoying objects thus doth gain,
Contentment void of earthly pain."

HINTS TO MEDICAL MOTORISTS.

By J. W. D. M.

THE motor car has now become an essential article of equipment of most medical men. To the doctor time is money,—often it is something more,—a human life.

To the motorist who leaves his car entirely in the hands of a paid driver, motoring is expensive; but to the man who takes an interest in looking after it and who drives it himself the car becomes an inexpensive means of travel and also an interesting hobby.

From the nature of his training the medical man should have little difficulty in learning about the

mechanism of his car, and when trouble arises he ought to be able to deal with the emergency with greater efficiency and resource than can be expected from an unintelligent driver.

We can strongly recommend motoring as a healthful and money-saving hobby to those who find a car a necessity in their daily work.

These notes are not intended to take the place of a book of instructions. Every motorist worthy of the name will learn the theory and practice of the internal combustion engine from one of the excellent books which are published; he will also carefully study the book of instructions which is supplied with his own make of car.

The first essential of the good motorist is to learn to leave his car alone as much as possible. He will see that it is properly oiled and cleaned, and he will periodically go over the car to see that the nuts are tight, but he will never undo a single nut unless there is a good reason for doing so. The car has been put together by experts, and when any important part has been dismantled it will seldom be so well re-adjusted as it was when it left the works. Meddlesome interference will shorten the life of the car nearly as much as neglect.

It is not necessary to do the work of oiling and cleaning as a routine, but once a month or preferably once a week the owner should go over the car and see that the driver has not forgotten to oil some essential part simply because it is not in an easily accessible position.

The first problem in connection with a car is its purchase, and it is in this matter that the beginner often has to buy his experience dearly. He should decide whether to buy a new or second-hand car, and as a rule the beginner will be well advised to go in for a new car unless he has complete information as to the condition of the second-hand car of his choice.

The commonest mistake is to be tempted by a large, cheap, second-hand car. The imposing-looking mount often looks dirt-cheap at the price, but when the cost of repairs and running and the difficulty in getting rid of the car are considered the owner will often have cause to regret that he has bought a white elephant. If, on the other hand, he has an opportunity of buying a car which has been in use in his own station, if he knows its history from the beginning, and if he has the assurance of a real expert that the car is in sound condition he need not hesitate to buy a second-hand vehicle. Let him, however, estimate the cost of a new set of tyres, a coat of paint, perhaps a new hood and a general overhaul should these be necessary.

In buying a new car there is a bewildering array of models from which to choose, and there is no "best car" for all possible purposes. For certain kinds of work the humble Ford will be most suitable; for others one of the small English or French cars will be more satisfactory.

The points to consider are:—

1. The smallest car which will serve the purpose should be selected, as the cost of tyres and petrol will be less, especially if long distances have to be covered. In every case a small, good car is a better bargain than a larger second-rate mount.

2. A car which is popular in the locality should be selected unless the owner is an expert and can rise superior to considerations of repair facilities and second-hand value. Of two cars which are equally good, the one which is best known in the locality is always most satisfactory, especially for the beginner.

3. If bad roads have to be traversed see that the clearance of the car is sufficient; for really bad roads the Ford in some cases is the only possible vehicle.

If the roads are good the small English or French cars are usually preferred.

4. The type of body will depend on circumstances; as a rule a light four seater is the most serviceable, especially if touring has to be done. For station work a light two seater with a dicky seat will be chosen if