therefore, respiratory diseases constituted nearly one-fourth of the whole amount of sickness treated. The death-rate in Macclesfield of phthisis was, in 1874, about 3 per thousand.

WOOLLEN MANUFACTURES.

Sorting, Carding, Spinning, etc.—The next manufacture generating dust of animal constitution is the woollen, including under that term the so-called worsted manufacture, and its many products in wearing apparel. When pure wool is dealt with, the occupation is little less healthy than that of silk working, but its processes are more complex. Those of a preparatory character are the only operations which to any important extent affect health. In the first place, the wool as received is picked over, and its different qualities separated. This is the business of a "sorting," and is chargeable, as will be presently seen, with the most serious consequences when certain wools are employed. After sundry washings wool has to be purified from all dirt and refuse matter by machines known as willying, scribbling, and carding, until by their action it is eventually thrown off in a kind of loose, flattened rope, called a "sliver." This now goes to the spinning machines to be converted into yarn ready for weaving or other purposes. It is anterior to spinning that dangers arise from dust. The mechanical cleansing operations to remove particles of dirt, and loose fibres which cannot be drawn into a "sliver," cause much dust. In olden time the carding and other similar machines were open, and the dust necessarily diffused itself through the workroom. At the present day the machines are enclosed and otherwise improved, so that little escapes; and, compared with the dust from like operations with cotton, that of woollen is less injurious, for one reason that it contains no metallic particles such as, it is stated, are found in cotton dust. Besides, the fibre of wool is in itself of an animal and an oily nature, and, over and above this, when it is running through the spinning machines it is lubricated with oil, whereby the generation of dust is still further obviated. The constant contact of the hands of the workers with the oil is considered by themselves contributory to health, and woollen spinners contrast favourably with the like class of workers in cotton and linen. Another advantage of wool spinning over cotton is, that a high temperature is not required, and that there is no wet spinning.

Weaving.—Turning to the weaving of wool, this has great sanitary advantages over cotton weaving, for, though the sheds are considerably hotter than the spinning rooms, yet there is no such excessive temperature as is found in cotton sheds; moreover, the air is not loaded with steam nor with dust from sizing, as happens with cotton weaving. Further, wool dust is less irritating than that from cotton and linen; the animal nature renders it so, whilst its fibres are also tougher as well as longer, and therefore can be drawn out with less breakage, and with smaller labour in "piecing." Inasmuch as the finishing departments of the manufacture of cloth fabrics, namely, milling, pulling, dressing, and shearing, cause little or no dust calculated to injure health, they may be dismissed without further remark.

Woollen Hosiery-Making.—Again, woollen hosiery-making presents no intrinsically unhealthy feature, although the sanitary returns of hosiery towns exhibit excessive prevalence of consumption, struma, and pulmonary diseases generally; a circumstance chiefly originating from the poor character of the trade in the matter of the earnings of the workpeople, the consequent deficient nourishment they obtain, the insanitary state of their homes—which are oftentimes also their workshops—overcrowding, prevalent intemperance, with its attendant misery, and many other disease-producing conditions, already enumerated among the collateral incidents of manufacture.

Shoddy and the "Shoddy Disease."—On all sides our attention is called to the ingenuity displayed in converting what, in former times, was accounted waste, into useful and valuable material. The woollen manufacture furnishes striking examples of the fact. Woollen fabrics, however tattered and torn, are not allowed to be wasted. Old cloth revives in a new, if not an equally reputable, form, by the manipulation of mungo and shoddy grinders. The old cloth, or other woollen substance, having been torn up and disintegrated by a machine called the "devil," resumes its original aspect as wool, but with greatly shortened fibres. After well scouring, it is, when dried, placed in the carding machine, and having once again assumed the character of a "sliver," becomes transformed by the spinning machines into yarn, and then by weaving into cloth, to be presently made up into habiliments for the service of men. The reduction of the woollen rags to a fibrous

pulp is known as the process of "grinding," and along with the next succeeding operations of carding, combing, and weaving, is productive of a large amount of irritant dust, more or less of which escapes from the machines. The making of "flock" for flock-paper resembles that of shoddy-grinding in essential features. Dr. Greenhow regarded it as even a more dusty business, but at the time he wrote far less care was taken to prevent the emission of dust from the grinding machines. He described the inhalation of the dust as causing a febrile condition known among the workpeople themselves as "shoddy fever." It was characterised by headache, sickness, dryness of the mouth, difficulty of breathing, cough, and expectoration. I have not had opportunity of confirming this account, but I anticipate that the evils depicted have been greatly reduced by improved machinery, and by the enforcement of apparatus for ventilation. Nevertheless, any dust that does escape will doubtless produce pathological effects when continuously inhaled.

Wool-extracting.—The great commercial value of wool is demonstrated by yet another process, invented of recent years to prevent its waste. It is that for separating the wool from cotton in mixed tissues. This proceeding was described by Captain May, one of the district factory inspectors, and is quoted in the official report of the Chief Inspector in 1887. The separation of the two materials is effected by hydrochloric acid, which incinerates the cotton, and leaves the wool untouched. The rags so acted on are next placed in a "willying" machine, which by a rotary beating action removes the charred particles. Dust is generated in the process; but this does not represent the whole of its evils, for these machines are liable to explosions whenever fresh rags are thrust into them. This is explained on the supposition that sparks are struck from metal buttons or other metallic substances intermixed with the rags, which ignite the finely divided particles of carbon, and produce an explosion, just as happens with very finely divided coal-dust in mines.

WOOLSORTERS' DISEASE.

The lecturer then sketched the history of the investigation of woolsorters' disease, and the recognition of its true nature, giving special credit to the work of Dr. Bell, of Bradford. The disease had, according to a recent communication from Dr. Bell, ranged more widely than at first supposed; it had attacked not only sorters, but wool-washers, packers, carders, combers, overlookers, buyers, staplers, and, in one instance, the wife of a mohair-sorter, who had not been within half a mile of the mill. The lecturer said that he had received from his son, who was in practice in a Yorkshire woollen-spinning town, an analysis of the illnesses from which the mill-hands who had consulted him were suffering. Of 120 patients working in worsted mills, 14.6 per cent. were attended for phthisis; 12.5 for rheumatism, mostly acute; 11.6 for pneumonia; 10.0 for bronchitis; 4.16 for heart-lesions; 13.3 for dyspepsia; 8.33 for anæmia and debility, and 4.1 for neuralgic pains; males suffered in larger proportion than females from bronchitis and neuralgia, but females in a larger ratio than males in the remaining maladies. The numbers were, however, too few to ground any positive conclusion thereon.

THE

DUTIES OF NAVAL SURGEONS.

Being an Address delivered at the Opening of the Course of Instruction for newly entered Surgeons R.N. at Haslar, March 6th, 1889.

BY FLEET-SURGEON WALTER REID, M.D., R.N.

GENTLEMEN,—It is my duty, before beginning the proper business of your instruction, to explain to you why you have been sent here, and to point out the nature and the scope of the work in which you are expected to engage during your present connection with Haslar. It has for a number of years been thought right by those who have been charged with the administration of our naval affairs that medical officers, on their entry into the service and before proceeding to sea, shall be afforded opportunities for some special instruction and experience in matters connected with the health of the Royal Navy such as they cannot be expected to obtain in the ordinary medical schools of the country. But I must tell you that you have been sent to Haslar

not merely to receive instruction in certain special subjects given within the walls of the establishment, for you have also come here in order that you may have opportunities of making, so to speak, the acquaintance of the naval service; and you will indeed be able, both at Haslar and in its neighbourhood, to familiarize yourselves with the various classes of people which constitute the *personnel* of the British fleet, and you will have opportunities afforded you for the systematic inspection of ships of war of every kind, and of examining for yourselves the great variety of contrivances which constitute its *matériel*. You will, moreover, learn here to know something of the rules and customs, something of the history and traditions, and something also of the high purposes of an ancient and famous service. As for the *personnel*—that is to say, the people of the fleet—you will find in this large hospital officers and men of various classes, and at every stage of their careers, from the young midshipman and sailor boy to the worn-out old naval pensioner, who has come here to find a shelter and an asylum for his declining years. In our neighbourhood, also, wherever you may go, either in the course of duty or in the pursuit of pleasure, you will find that most of the people you meet are more or less associated with the naval service.

And it is well and needful that you, thus early in your own careers, should learn to know the nature and the character of the people with whom you will have so much to do hereafter. Some of you, it may be, have taken your notions of our men from such sources as the writings of Smollett, or from the tales of Marryat, or the songs of Dibdin. But you will find that the seaman of to-day is no longer the quaint and curious character, the unlettered and often superstitious individual, whose ways those authors have so well portrayed. He was then, it is true, the master of an art—the great art of seamanship—which required of him the exercise of the finest qualities of manhood, the qualities especially of physical strength and hardihood, of courage and energy, of patience and endurance, with a cool judgment and readiness of resource in every form of difficulty and danger. He was a simple, yet a perfect seaman, who practised with such effect the brilliant warfare of Nelson's time, and thereby rendered such matchless services to his nation. But that simple seaman, so brave and so perfect in his art, is himself no longer suited to the times. It is not a mere question of seamanship, as formerly understood, that will decide the naval battle of the future.

The vast changes, indeed, which have taken place in the structure of ships and their armaments have made necessary a system of education and training in the blue-jacket of to-day which was not required by his forefathers. Whereas formerly he was picked up anywhere and anyhow, and placed on board ship, where he acquired the art of seamanship in the rude school of experience at sea, he is now most carefully selected as a boy, and systematically educated and trained to the performance of the varied and arduous duties required of him in the regular service. He is not now simply or only a seaman, but he is also a man thoroughly trained in the use of the complicated and highly scientific apparatus of modern naval warfare. He is a scientific gunner, or a skilled torpedoist. He is, to a certain extent, trained as a soldier of the line. I have known him even act, at a pinch, as a cavalry soldier. He has, in fact, to be a good all-round man, ready to turn his hand to any duty that may turn up, either afloat or ashore. By the time, therefore, that he reaches the grade of an able-bodied seaman, he represents the expenditure upon him by the State of considerable cost and care in his training. He is, in fact, a valuable public servant.

Yet however much our men have changed, however much it may be needful to still further develop their intellectual and other faculties, in order that they may understand and be able to wield the complex and ponderous apparatus of modern times, it is quite certain that the success of this service in the fulfilment of its purposes must depend as much as ever, if not more, upon the physical health and strength and courage of everyone who forms part of its *personnel*.

Now it is our special duty as medical officers of the fleet to contribute, as far as we are able, to the development and maintenance of these great qualities so necessary to the success of the service, and, therefore, as you all know, to the safety and even to the very existence of this Empire.

Gentlemen, I have sought to enlist your interest in these matters in order that you may see the need of at once acquiring the habit of observing all that relates to the people amongst whom you will have to labour, and for the health and lives of whom you will be in a great measure responsible hereafter. Observe, then,

how the various classes of people in the navy are recruited and trained. Observe the nature of the conditions under which they serve, where and how they fail or break down in health, and try to discover where improvements likely to diminish disease or lead to greater physical efficiency may be made. You may observe, also, the special features of character, of modes of thought and action in naval men which arise from their special life and training. It is always an advantage to any man, in whatever position he may be placed, to have an acquaintance or familiarity with the character of the particular class of people with whom he will have to deal, and this is peculiarly so in the navy, where your avocations will bring you into daily and immediate contact often with large numbers of people belonging to a line of life altogether special, and of whom a knowledge is necessary for the successful performance of your duties. Hence, I say, the young naval surgeon is properly sent to Haslar, with its naval associations and surroundings, instead of as formerly to Netley, where everything is military.

But Haslar is not less favourably situated for the study of the *matériel* of the British fleet than for that of its *personnel*, for, as you know, we are in close proximity to the most important naval port and dockyard in the world, where warships of every kind are built and repaired, or visit for other purposes. Some years ago an able and distinguished medical officer of the American navy, my friend, Dr. Browne, who has since deservedly reached the head of his department, came here to see what we were about in the way of teaching naval hygiene. From the terms in which he has since publicly reported of what he saw, I presume he was satisfied; and I may add that he has adopted the sincerest form of flattery in commending us to his own country for imitation. But in the course of his visit he ventured upon a criticism, for he made the remark that we had no museum with which to illustrate the subjects of instruction in naval hygiene. I then invited him to accompany me to the dockyard, where I would show him our museum. After inspecting a number of ships and other naval material, I asked him what he now thought of our museum. "Well," said he, "I guess we can't duplicate this, even in the States, in the way of museums." He saw at once, in fact, that we have here unrivalled opportunities of studying all that relates to the health of the navy, so far as the structure of ships and their materials are concerned. We will, then, show you in the harbour and dockyard of Portsmouth ships of every kind, from the old wooden line-of-battle ships to the very latest developments of the art of naval architecture now on the stocks.

Here, too, you will find that we have wandered far away from the fashions of Nelson's time—much further than in the case of our men. For whilst the modern man-of-war's man is still made of flesh and blood like his progenitor, has the same configuration, and acts by the same motive power, there is no such similarity between the ships of the present and the past. Our modern ships, instead of being built of wood, are now constructed of the finest steel; instead of the stately three-decker and the light and graceful frigate or brig, you will see the hideous, misshapen monster, the modern battle ship or cruiser, violating every law of taste, and rendering all attempts to make them look seemly on the part of their officers but a bootless endeavour.

I sometimes think it almost time that we should alter the sex of our ships or unsex them altogether. At all events we can no longer say, as in the song, "Our ship, she is a beauty," and deserving the appellation of the feminine gender—at any rate, on the score of grace and good looks. And, as for motive power, instead of being carried along by the winds, our ships are now driven through the water by steam machinery, often of a more powerful description than anything you can meet with in the arts and industries of civil life. Our weapons, too, have undergone changes equally great. Instead of the simple cast-iron gun of two or three tons with which Nelson fought Trafalgar, we have now guns weighing upwards of 100 tons, laboriously constructed of steel—their design the outcome of costly experiments and of elaborate scientific investigation.

But as yet there is no sign of finality in any of these things, or of a resting-place for the inventive activities of ship-constructors and artillerymen. Most of the changes of which I have spoken have taken place in my time, and none can say what changes you may live to see. A destructive genius may at any time arise and alter the whole system of naval warfare, and make obsolete all that now is. But to us, as medical officers, a ship is not merely a vessel to float or a machine to fight; she is also a human habitation, and it is from this, which is our point of view of ship construc-

tion, that we shall invite you to examine and to study the various types of war vessel which we shall take means to show and explain to you during your present connection with Haslar. I may also tell you that the Admiralty, recognising the value of practical instruction of this kind in the training of naval surgeons, affords every facility for seeing all that you require to see of the *matériel* of the navy in Portsmouth Harbour and Dockyard.

Our plan of instruction is to take each class of ship separately, to examine a specimen in the drawings, then one under construction on the stocks, should there be one such building, and finally one finished and afloat; you will begin by inspecting that historical and interesting old ship the *Victory*, launched in 1765, and finish with the most recent vessels now under construction.

Looking upon a ship, then, as a human habitation, you will in this way get a very good idea of what her capabilities in this respect may be, such indeed as you cannot always obtain on board a ship in actual commission, when so many of her parts are hidden by fittings and stores. You will thus become acquainted practically with the principles and methods of ship ventilation, and you will be able to see how and where, in certain parts of her structure, foul and disease-producing materials are liable to accumulate and work ill effects upon the health of her company. It is in proportion as she fulfils more or less completely the requirements of sound sanitary science that we, as medical officers, must rate her as a good ship or a bad one. Is she in the one case fit to carry for years and in any part of the world a healthy and vigorous crew, or, on the other, a mere generator of ill-health and disease, and thus unfit for the purposes for which she was built, no matter how clever and ingenious her designs may be in all other respects? Is any given vessel or type of war-ship likely to prove a healthy dwelling for her company? If not, how can she be made so? Such are the questions which we, as medical men, have to consider, so far as we have to do with the construction of ships.

But, gentlemen, I have not come to an end of my catalogue of the advantages which Haslar offers as a school for the study of naval hygiene, for it happens that in its immediate neighbourhood we are able to show you much that concerns the victualling and clothing of the fleet. Ships calling or fitting out at Portsmouth take in their supplies of provisions and clothing at the Royal Clarence Yard, Gosport. When, therefore, you have done with the ships we will take you there in order that you may examine into the system of victualling the navy, and inspect for yourselves the various articles of food and clothing supplied to the service by Government. All this, of course, will have reference to the question of the health of the navy.

So far then have I spoken only of that part of your instruction which takes place in a manner outside the walls of Haslar. In this establishment we have our largest naval hospital, and we think it right that, while you are here, you should see as much as possible of its practice. For this purpose you will be divided into groups, and attached in rotation to the different divisions, in each of which you will work for a month under the permanent officers. Thus, during the four months you are here, you will be able to go the round of the hospital. You will come in contact with all its officials. You will have opportunities of seeing the kind of diseases and injuries current in the service, and as we draw our patients from all parts of the world, you will be able to study the influences upon the health of officers and men of the various climates in which you may be called upon to serve hereafter. You will also have opportunities of studying the organisation and administration of a large naval medical establishment, for you may at any time, on a distant station, in the emergencies of war or epidemics, be called upon suddenly to organise a hospital, either afloat or ashore, for your sick and wounded. You will find in such a case that a knowledge of the administration and economy of an establishment like this will be of the greatest service to you.

In the medical wards you will meet with a great variety of interesting cases of disease, many of them incurred through service abroad as well as at home.

In the surgical wards you will also meet with a number of cases interesting in themselves, and illustrative especially of the kind of injuries incident to the naval service, and of the ways in which they are incurred.

In a big hospital like this, a number of deaths must necessarily take place, and it is our practice in every case, where there is no objection on the part of the relatives, to make a *post-mortem* examination. While you are here this duty will be carried out by

you under our superintendence. Our plan is to tell off two officers, in their turn, to perform the necropsy and one to make and carefully record the notes whilst all the others are present.

We regard this part of your instruction as important, because it occasionally happens that we have men coming here from the schools who have had no real practice at this kind of work, or who perhaps do not quite realise its value. We are, therefore, desirous of impressing you with a sense of the obligation that lies upon you of taking every opportunity of making yourselves acquainted with the phenomena of disease as they are presented in the dead, and to study these carefully, not merely from the point of view of pure pathology, but also with reference to the symptoms presented during life, and to the questions of treatment which you have had to consider in your anxious care of the patient while living. In point of fact, it is our duty to the living to lose no opportunity of acquiring that knowledge which the dead alone can give.

But the subject to which you are expected to devote your special attention while here is that of hygiene. You will be asked to look upon naval hygiene, not as a specialism, but rather as the adaptation of the general principles of hygiene to the case of men living under special conditions. Accordingly, the plan which we ask you to follow in the study of the hygiene of the navy is, first of all, to make yourselves acquainted with the general principles of hygiene. You can then easily apply these to the special circumstances of active service in the navy. Nor is that active service always confined to duty on board ship. It very frequently happens that we have to do with men employed or living on shore, as in the medical charge of hospitals, barracks, encampments, and expeditions by land or river.

Adopting and carrying out this principle, I shall deliver in this hall a course of lectures on Hygiene, General as well as Naval.

Unquestionably the subjects which rank first in importance in their relations to the health of man are the food he eats, the water he drinks, and the air he breathes. We shall, therefore, take these subjects to begin with, treating them first generally, and then with special reference to the health of the navy afloat and ashore.

Scurvy being a dietetic disease naturally comes under the head of food; so also the important subject of the dietetic use of alcohol. In like manner the whole subject of ventilation will come under the head of air.

Then there are a number of other subjects in connection with the health of the navy which deserve our attentive study, and which may appear to some of you hereafter as worthy of a more careful investigation than they have hitherto had. I refer to such subjects as recruiting, training, work, discipline, cleanliness, clothing, and so forth. We shall inquire here how these and other matters, which I need not particularise further to-day, influence the physical development and general well-being and the health of the people of the navy.

I have to mention that in the laboratory attached to this establishment you will be instructed by my colleague, Dr. Kirker, in those departments of analysis which bear upon the practice of hygiene. Although the limited time at our disposal does not admit of our going extensively into work of this kind, I feel quite sure that you will have ample means and opportunity while here of making yourselves acquainted with the various methods required in carrying out your sanitary duties in the naval service.

The recent advances of medical science in the direction of bacteriology have rendered it also advisable that we should add some instruction to your course of studies in the methods by which the new science has been enlisted in the cause of sanitation. I may here mention that the laboratory, with all its resources, is open at all times to those of you who may wish to work at any subject independently.

You will also receive some instruction in practical meteorology. I have always looked upon this science as deserving of more attention than it usually receives at the hands of medical men. It appears to me that the study of meteorological phenomena, in relation to the health of human beings, may be divided into two heads: first, their direct physical effects upon the human organism by the influences of temperature, moisture, and pressure, and probably electricity, separately and combined; secondly, the manner in which these atmospheric constituents influence the propagation, the spread, the activity, and the destruction of morbid materials. I therefore commend the study of meteorology to your attention, more especially as none can have better opportunities for following it out on the lines I have indicated, in all parts of the world, than the medical officers of the Royal Navy.

Dr. Kirker will also give you some instruction in military medicine and surgery. He will deal with the hygiene of camps, the diseases which prevail in military expeditions, together with the nature and management of gunshot wounds and other injuries incident to war. Not only may you have medical charge of marines, than whom no finer soldiers serve under the Crown, but you are liable at any time to act on shore in medical charge of blue-jackets also serving as soldiers. In fact, no military expedition at the present time appears to be thought complete without a naval force attached to it. It is, therefore, desirable that to some extent you should be made acquainted with the duties which may be required of you when placed in charge of men doing military work on shore.

Such, then, are the rough outlines of the course of instruction which you are about to begin at Haslar. At its close you will undergo an examination having reference solely to what you have seen and heard and done during its continuance. We shall thus be able to ascertain for the information of the Director-General to what extent you have taken advantage of the opportunities afforded you for instruction, and to whether or not, or in what degree, you are likely to turn out efficient and reliable officers in the future.

Gentlemen, before parting with you to-day, I will venture to lay before you one or two considerations which may not be inappropriate to the circumstances under which we are for the first time met together.

Various inducements, no doubt, have led you to adopt the navy as your field of labour and means of livelihood. The easy and certain competence which it offers may have had its influence, and no blame to you that you have elected a life of independence and a sure means of livelihood which will serve you from now even unto extreme old age.

The love of travel and the desire for maritime adventure, so strongly implanted amongst the youth of this country, may also have exercised their influence upon you, and certainly you cannot be in a better position to indulge such tastes than in the service of the Royal Navy. Others amongst you may have been impelled by an honourable ambition to rise to distinction and reap the rewards of the public service.

There may be some of you, too, who are imbued from childhood with an hereditary love and reverence for an ancient and a gallant service, in which your forefathers, perchance, have spent their lives, and helped to build up its great renown. I would even believe that there are those amongst you, also, who have moved hitherwards upon a yet more lofty plane, and have been led by the high sentiment of patriotism to devote your lives and your energies to the service of the State. But whatever may have been the motives which have brought you here, let me tell you that you take your place in the ranks of a service which holds as one of its most cherished possessions a memorable watchword bequeathed to it by one of its greatest admirals. When Nelson made the signal, "England expects that every man will do his duty," no one knew so well as he that it was not necessary so to address his people when, after so long a chase, he had brought them face to face with England's foes. We will rather look upon that striking episode as the final flash of the splendid genius which saw in such an hour that he could hoist aloft a signal to serve the British fleet so long as it shall last, and leave to it a legacy to help us, one and all, in every trial and danger we may be called upon to face in the service of our country. Let it not be said of you hereafter that you have been heedless of Nelson's word.

It is then to the sentiments of duty in its widest and fullest sense, that you must look for a rule of conduct and a guide, and for a support both strong and sure in all you have to do in the service of the navy. Remember that you serve the Queen, and that it is your duty to be loyal to her, for in her name all our services are performed. It is your duty to strictly obey your superior officers, and to pay them that deference and those signs of respect to which their rank and position entitle them, and to submit to whatever restrictions they may require of you for the good of Her Majesty's service. It is your duty, by careful study and by taking advantage of whatever opportunities may come in your way, to perfect yourselves as far as possible in the science and practice of your profession, so that whenever or wheresoever needed, you will be found able and ready to bring its blessings to the side of suffering humanity.

On the other hand, it is not your duty, but for you it is a crime, to unfit yourselves by habits of selfish or vicious indulgence for

the right exercise of that profession, to set the example of a bad life where you ought to have shown a good one, and to render your presence a nuisance and a curse where it ought to have been a comfort and a blessing. But while I urge you to a sense of duty, let me not be unmindful of your pleasures, which, though coming after duty, are yet accessory to it. No one, I am sure, in the navy will unreasonably interfere with you in the pursuit of healthy and legitimate amusements. The tendency of the service is, in fact, the other way. Every one of you ought to cultivate the taste for some form—or many forms, if you like—of outdoor recreation. I will even say it is your duty in this way to recreate your bodies, and so to attain a healthy physical and intellectual well-being. It is the *sanus homo in corpore sano* that we want in the navy; in other words, the man who is always found "fit" whenever or wherever the call of duty comes. I think you will find at Haslar that you are unusually well off for opportunities for all kinds of outdoor recreation, both on land and water.

In conclusion, gentlemen, let me once for all impress upon your minds the important fact that you are now members of two professions, than which no two can well be nobler. By the one you seek to relieve the sufferings and to protect the lives of your fellow men, whilst by the other you jointly strive to foster and to safeguard the vast and varied interests of our mighty empire, and thus you have become responsible for the honour and good name of each of these professions. Let your conduct and your bearing, then, be so that henceforth it shall always become both the medical gentleman and the naval officer.

ABSTRACTS OF THE HUNTERIAN LECTURES ON PAST AND PRESENT SURGERY.

Delivered at St. George's Hospital.

BY TIMOTHY HOLMES, M.A.CANTAB., F.R.C.S.,
Consulting Surgeon to St. George's Hospital.

LECTURE IV.

THE subject of this lecture was abdominal surgery, as illustrated by the total experience of the surgeons and obstetric physicians in operations involving the free exposure of the peritoneal cavity during the past five years—1884 to 1888 inclusive. These operations were divided into the following classes: 1. For injuries to the intestines or other organs contained in the peritoneum. 2. For obstruction of the intestines in its various forms. 3. For tumours, ovarian or other. 4. In order to attach the stomach or intestine to the abdominal wall and establish an opening in it.

The early history of ovariectomy and other operations on the peritoneum was glanced at, and it was shown how constantly they were followed by fatal peritonitis, due no doubt to the fact that strict surgical cleanliness was not then understood, and that the peritoneum was constantly inoculated with the germs of putrefaction. Our experience at the present day has proved that this can be almost certainly prevented; but it would be a great error to suppose that therefore operations undertaken for the relief of obscure diseases involving serious and rapidly fatal changes in vital organs can be undertaken with any confidence of success. The diagnosis and prognosis of such cases is excessively difficult, and this applies particularly to internal strangulation of the bowel. In the first category, that of operations for traumatic causes, three cases were brought forward—one in which the bowel was believed to be, and really was, ruptured; but the operation failed to discover the seat of this lesion, and there was found to be also a laceration of the spleen. Another was a desperate case in which the small intestines protruded through a spike wound of the rectum, and were drawn back by abdominal section. Both these, of course, proved fatal. The third was a successful case of suture of the bladder for intraperitoneal rupture, which has been published. Another case was referred to, under the lecturer's own care, of fatal traumatic peritonitis, in which abdominal section was contemplated in order to wash out the peritoneal cavity, but was not performed; and the operation was advocated in cases of this kind, properly selected.

Abdominal section for the relief of internal strangulation by a