medical men, not appointed by or in any way under the control of the Procurator-Fiscal who conducts all criminal investigations, whose sole object it is to arrive at the truth irrespective of the Crown or the accused. To put it on the lowest possible plane, as they are in no way under the dictation of any legal official, there is no temptation for them to act otherwise. Starting from this point of view, it is not difficult to arrive at a reason why the Crown has been actuated in laying down for the guidance of the medico-legal examiners certain definite regulations anent the exclusion of others than those named in the warrant for the inspection of a body. Moreover, "accidents" have been known to happen where interested persons have been present at *post-mortem* examinations. One has only to cite the conduct of Palmer in the famous Rugeley case. But, in addition, I submit there are other obvious reasons why, in the interests of justice, interested persons representing a side should be excluded during the official investigation. Let it be assumed for the sake of argument that the Crown conceded the demand that is made in your article, and that experts for the accused were permitted to be present. What would be the likely results reasonably stated? It is asking more of human, or even of medical human, nature than could successfully bear the stress to expect that experts for the accused could enter upon their task without unconsciously, if you will, assuming a biassed or partisan position in favour of the accused. Facts ascertained at the necropsy, and inferences therefrom, would tend to be tinctured of the same colour, and it would become difficult, if not indeed at times impossible, for the two sets of examiners to proceed dispassionately with the examination, or upon occasions to agree even as to facts. Assuming the latter contingency, since these facts are to be laid before a judge who knows little about surgery, and a jury that knows less, who can decide regarding their presence or absence? This sometimes happens in civil causes, and the deplorable differences in medical evidence in these has given rise to the suggestion that in the trial of such cases a medical assessor should be appointed to assist in arriving at a judgment, as, for example, in Admiralty and shipping cases. Contemplate this contingency in a criminal trial. I frankly admit that, in the above circumstances, it would be impossible for the Crown examiners to avoid sharing in similar bias or partisanship, arising out of nothing else than the average "cussedness" of mankind. Scenes in court, therefore, during the giving of testimony can be better imagined than described. I believe that justice would less likely be secured under the conditions asked for than under the present, in which having no interest to serve than that of truth the Crown examiners can calmly proceed with their investigation and with the preparation of their report.

Your article proceeds to state that:

> The report of the inspectors instructed by the Crown is the only evidence of the *post-mortem* examination that is, or can be, permitted at the trial. At every other point the agent of the accused has been enabled beforehand to test and examine the evidence relied on by the Crown against his client, and to prepare his defence, but in respect of the medical evidence he can do nothing but accept whatever the Crown may bring forward. Unless there be some omission or blunder in the medical report, very little can as a rule be extracted from it for the benefit of the defence. No other observations nor alternative opinions can be obtained. The prisoner's counsel can never hope to break down this evidence, nor can he even effectually cross-examine upon it. It is obvious that this arrangement of medical testimony puts an enormous power in the hands of the prosecution, and, unless a case breaks down in some other respect, must make strongly for the conviction of an accused person.

Now I would submit that the "whole truth and nothing but the truth" is not comprehended in the preceding sentences. In the first place, regarding the *post-mortem* examination, it would be more correct to say that while the report of it usually forms the sole medical evidence, it is by no means confined to the four walls of the report. The second paragraph of the quotation unmistakably leads the reader to believe that the medical reporters are hedged about in some way different from the other witnesses in the case. This is not so; as a matter of fact, the medical reporters may be precognosced by counsel for the defence just as are other witnesses, and their clear legal duty, if duly precognosced, is to put the defence in precisely the same position respecting what they are prepared to say as the Crown; in like manner the Crown may, if it think fit, precognosce witnesses for the defence. Respecting the medico-legal report itself, I pray your readers to take especial note of what follows. After the facts ascertained from the external and internal inspection of the body have been duly recorded in the report, the reporters proceed to give their opinion of the cause of death, adducing the reasons for the opinion so formed. In the official document embracing suggestions for the medico-legal examination of dead bodies which the Crown issues to those appointed to this duty, it is stated:

> The inspectors must deliver to the law authorities, and within two days where no further examination is required, *a distinct report containing their opinion on the case, with the reasons succinctly but clearly stated. They must understand that they cannot found their opinion on any facts represented to have been ascertained by themselves during the inspection which are not specified in their notes.*

(The italics are mine.) From the foregoing it will be apparent, therefore, that counsel for the defence may have all the material before him equally with the advocate-depute who conducts the prosecution, whereby he can test the value of the opinion arrived at by the examiners from the facts of the necropsy, and the logical sequence of that opinion from the reasons which are given, since all these would be provided him in the precognitions of the examiners. I am quite alive to the fact that, unless coached by a medico-legal expert, counsel for the defence may not be able to initiate at the trial a pertinent rebutting case; but assuming that he has availed himself of his right to precognosce the examiners—which no careful counsel would neglect to do—he will have abundance of time to submit, if he think proper, those precognitions to other medical men for critical scrutiny and suggestions. In this way other observations or alternative opinions may be obtained. Neither is it right to say that "prisoner's counsel can never hope to break down" the evidence of the Crown examiners, nor that he cannot "effectually cross-examine upon it," as has already been shown. From my own experience I am able to point to cases where prisoner's counsel upon the facts, opinions, and reasons of the Crown examiners contained in their reports, have been able to break down the inculpatory case, and that even in the major charge of murder. I venture to submit that the reason why in the bulk of cases the evidence of the Crown reporters is unassailed, is the justness and truth of their conclusions. As a matter of experience the weakest part of a medical report which is capable of being successfully attacked is usually the opinion derived from the facts and the reasons offered for the opinion. This is the part to which a medico-legal critic would first look for evidence of weakness or irrelevancy. But it ought to be borne in mind that in the bulk of cases the conditions found upon the dead body are such that a careful investigator can readily discover, and concerning which there can be no reasonable difference of opinion; hence it is difficult to conceive a well-founded reason for the demand contained in your article. I fear that it has been taken too much for granted that the opinion of the examiners in the average case falls to be formulated from pathological conditions more or less obscure, instead of lesions which are only too well-marked and definite. Moreover, the law of England does not differ much in the above respect from the law of Scotland. The former, indeed, offers less protection to the accused than the latter. The facts revealed in a necropsy performed on a coroner's warrant may afterwards figure in a capital charge against a prisoner, since it is quite competent for a coroner, under 6 and 7 Will. IV, cap. 89, s. 1, to name one medical examiner only in the warrant, whereas in Scotland, where inculpation of a person is to be founded upon medical evidence derived from the inspection of a body, such inspection must be made by two medical inspectors, and the report signed by them both.—I am, etc.,

JOHN GLAISTER,
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University of Glasgow.

THE CLEANSING OF SURGEONS' HANDS.

SIR,—On reading Mr. Thomas's note on A Reliable Washing Tap for Operation Rooms in the BRITISH MEDICAL JOURNAL of October 21st I was struck with the view expressed in the sentence "The most popular practice of washing hands is that of doing so in hand basins...it is not in accordance with the elementary principles of removing surgical dirt...because

after the first swill of the hands in the water the remainder of the hand-washing is done in septic or dirty water until the basin is sterilised and refilled with clean water."

We can easily sterilise and refill the basin by having three basins and passing from one to the other; and here it is not the water and basins, but the soap and brushes, or loofah or compresses, with which the dirt is rubbed off, which are the important factors, and must be changed at each stage. If they are not changed, washing in a sterilised Niagara will not avail.

Surgeons often use lysol or other antiseptics in the earlier washings, and rinse off in pure water before beginning the operation. Supposing any dirt, with germs, to be washed or rubbed off the hands, the germs are killed by the antiseptic agent with more certainty than those remaining in the epidermis of the hands are killed by any known process.

Professor Mikulicz, of Breslau, the pioneer of veils and gloves, and gauze drainage, has just published his method of disinfection of the hands and skin, and water has no part in it at all. He uses a solution of soap in spirit. A towel or piece of lint is dipped in the solution, and used to rub off all visible (gross) dirt, the nails are cleaned, then the hands or skin are brushed with sterilised brushes in the soap spirit solution for five minutes.

Kelly has his basins on pivots for the purpose of being able to remove and sterilise them; we have ordinary hand basins on wooden tables, and, in addition to sterilising them, we have the practical rule that whenever a hand basin is broken in the hospital the new one goes into the single wards and the broken one is replaced from the single ward.

I must uphold the claims of the ordinary entire washing basins for washing the hands before surgical operation, and object to washing in a running stream of water as imperfect, because the continuous soaking and softening of the hands is wanting, and consequently less epidermis is scrubbed away.—I am, etc.,

FRED. EDGE,
October 21st. Surgeon to the Women's Hospital, Birmingham.

PHYSICAL TESTS FOR THE PUBLIC SERVICES.

SIR,—I feel gratified that my letter has elicited from Dr. Sykes so important an expression of opinion on the subject of the physical and educational tests for the public services. As, however, Dr. Sykes's letter seems to call for some reply, I beg the favour of your again according me a short space. I would first explain that I have discussed this question purely as a member of the British Medical Association, and that I never had the honour of being connected with the Administrative Medical Department of the navy or army beyond serving for some years on the Central Medical Boards at the Horse Guards and India House. It is not for me to take up cudgels on behalf of the medical authorities or Medical Boards, and I never expressed or heard of any claim to "infallibility" on their part, and I hardly think that they are likely to feel disturbed by the tirade against them contained in Dr. Sykes's letter. I quite admit that the resolution before the Ophthalmological Section at Portsmouth, advising that the medical examination should be held after the educational, was not passed, and consequently has no force; but though it was not put to the vote, the majority of those present were in favour of it, which shows that men well qualified to form an opinion take exactly opposite views as to how the alleged evil is to be remedied. In criticising my letter, Dr. Sykes mainly finds fault with the present system of competitive examination, with which my letter was not concerned, but referred solely to the physical or medical examinations, and the periods when these should be held. On the wide question of the defects in the present system of competition, in which physical tests have no place, there are few of us who will not agree with Dr. Sykes that there is room for improvement. But while fully recognising that officers in the navy and army require high physical as well as mental qualities, the great difficulty of the problem now presents itself—that of fairly combining physical and intellectual tests in any system of open competition; and although, to quote Dr. Sykes, "the physical fitness of an officer to fight is of more importance than book cram," it is equally true that because a lad is an athlete it does at all follow that in after-years he will be better than the one who as a boy had not given much time to athletics, and that in the essential qualities of health, energy, and endurance, little men, who would be nowhere in any physical competition, are just as good as big men, and to handicap either class by competitive tests would be opposed to common sense. One might easily instance some of our most distinguished warriors and commanders, and it goes without saying that a general does not plan a campaign or win a battle with his "biceps." This problem has never yet received a satisfactory solution. To take one simple illustration. If, as has so often been recommended, riding received marks in the competition, the lad brought up in the country and accustomed to horses would be likely to get full marks, while a town lad, or one whose parents had not been able to afford horses, would likely get a duck's egg. Yet after a very short time he is likely to become just as good and plucky a rider as the other. It is well known in India that many of the best riders have virtually learned to ride out there, and to handicap such men because they had not the opportunity as boys would be manifestly unfair, and not in the interests of either the public or of the services. The same difficulties apply to every other form of physical competition. All discoverable physical defects are, of course, guarded against by the medical examinations.

Dr. Sykes is mistaken in supposing that height is not taken into account in the physical measurements. By the regulations, those above a certain height must have a higher minimum weight and chest girth than those who are below.

Most people will agree with Dr. Sykes in denouncing the bad effects of the present competitive examinations, but a satisfactory remedy has never yet been shown. I have two sons in the army and one in the navy, and I know about the anxiety caused to parents in preparing their sons for these examinations.

The principle of open competition has been settled by public opinion. If, then, there are, say, ten competitors for one prize or vacancy, if the subjects of examination are made easy so that several of the candidates can get full marks, which is to receive the prize? If the papers are made more difficult there will of necessity spring up a class of special tutors or "crammers" or special schools to prepare for these examinations, and parents will send their sons where they think they will be best worked up.

The teachers must, for their own credit, work up their pupils at high pressure, and hence the evil results we deplore, but for which an adequate remedy has not yet been devised. No comparison holds between the subjects set at the previous examination of our universities and the competitive examination for the services. The former is simply for the purpose of excluding a man who does not show sufficient previous knowledge to fit him to commence study at the University. The other is to select and give the prize to the best competitor and to reject the remainder. The result of this must be that the candidates are worked up to the utmost extent of their endurance.

I offer no opinion as to whether the subjects of these examinations are well or ill chosen, but, as far as I can understand, it makes little difference whether they are a little harder or a little easier, high-pressure work must inevitably attend competition.

With reference to the time for holding the medical examinations, as far as the interests or welfare of the candidates are concerned, it is probably quite immaterial whether they are examined immediately before or immediately after the competitive. Either method may be equally right, and in reality it is a matter of little importance. The question of holding the medical examination months or years before the competitive, as advocated by Dr. Sykes, is a much more formidable one. The object of this examination is to ensure that the candidate is fit at the time of entrance into the service. We know that many forms of disability might appear between the ages of, say, 16 to 19—for instance, injury, rupture, tubercle, heart disease, progressive myopia, and so on; so that his being fit at one time would in no way guarantee his fitness a few years, or even a few months, later. He must of necessity, therefore, be again medically examined about the time of entrance, and if one were now rejected who had at a previous examination been pronounced fit, what a flood of grievances this would give rise to!

At the time of commencing their special studies by far the