It is rather a relief to know that it will not be my job to rake over the rubbish-heap of a long lost classical education for a title for the next D.G.'s exercise. It has become almost traditional to give to military exercises titles which hint that the more senior officers have had the benefit of a grounding in what the Scots call "the humanities"—a grounding received, of course, at a time when they were least able to enjoy it; in fact, as I said of Xenophon's *Anabasis* in my account of our 1952 exercise, "at a time when the sufferings, dissensions and glories of the immortal Ten Thousand were merely a boring recital of stades and parasangs." Now we have all heard of the N.C.O. who told the soldier that only officers had abdomens—the men have stomachs; and a ripe old specimen of a senior officer once said: "Officers are never drunk, sir. The men get drunk—officers become flushed with wine." But I think we can take it as axiomatic that, in these democratic days when a vigilant press is liable to comment on our every action, senior officers are *never* snobs. Nevertheless they may feel that, however inaccessibly filed in the archives of the memory, a classical education confers a tenuous cultural superiority over those whose education seems to have led to a preference for horror comics. (Has the editor ever considered if the circulation of this Journal could be stimulated by introducing a supplement to appeal to that class of reader? The directorate of pathology can always provide plenty of A.B.C. horrors, though it would be irreverent to suggest that it can be comic—not that this stopped me from hinting just that in this Journal in my account of the 1951 exercise.) For our 1954 title we toyed with many possibilities. To mention only two which we rejected: "Phœnix"—there might not be much rising from the ashes of an atomic explosion; and "Pompeii"—no use; it took over two thousand years to evacuate the casualties. So "Avernus" it was, and for no one more than for medical services would another war be the gateway to hell.

In 1951 in "Medical Mushroom" we made a very detailed survey of many of the medical aspects of A, B, and C warfare. The demonstration of protection from atomic explosions staged by Colonel D. M. Ahern became a classic, and has been repeated in various forms to many audiences by the Field Training School and others. We did not then deal with the problems of planning and deployment with which the use of atomic weapons would confront the medical services. We should probably try to stop talking of atomic warfare, since all war must now be atomic war; and of course the implications of these weapons have been examined at every exercise for some time now. The D.G. thought
that the time had come to state these implications as realistically as possible without understatement or exaggeration. As an example of our British gift for understatement I will quote Sergeant William Lawrence of the 40th Foot, who described the fate of a comrade who “was struck dead, his shirt being burnt in places like tinder, and his mess-tin turned black” when struck by lightning, as an “inconvenient mishap to a soldier” (1). This can perhaps be equalled only by the Indian gaoler who was asked why a prisoner looked gloomy and replied, “Sir, he is to be hanged tomorrow, therefore he is somewhat peevish.”

There is less likelihood of underestimation of our dangers than of a tendency to unbalanced exaggeration of the horrors with which we may be faced. Only some 15 per cent. of the survivors in Hiroshima and Nagasaki suffered effects of ionizing radiation, yet there are signs that this is the effect of atomic explosions most feared by the public. I once heard a young soldier speak of the “atom ray” as if it were the death ray of science fiction. Devastating though the blast wave of the atom bomb may be, it is not a sharp blow like that of the blast from conventional weapons but a sustained push; and, whilst it affects many strong structures like a combined cyclone and earthquake, the human body, unless flung against hard surfaces or struck by flying debris, may well escape serious effects like the ruptured organs and eardrums caused by other types of blast. Obviously the heavy casualties and the high proportion of burns would throw a severe strain on the medical services and call for a high degree of flexibility in our plans and in the working methods of units, but it may be well to remember that, although we who know only the last war have seen no really heavy casualties, our fathers and forefathers have seen horrors far worse than even atomic attack should inflict upon well-trained troops, and the British Army has survived them. Napier (2) tells us that at the Nive 5,000 men fell in one hour in a space one square mile, and Captain Gronow writes of the Grenadier square at Waterloo, that “it was impossible to move a yard without treading on a wounded comrade or upon the bodies of the dead” (3). Yet a soldier of the 71st Regiment, after a graphic account of the “horrible spectacle,” adds: “I looked over the field of Waterloo as a matter of course—a matter of small concern.” (4) Flash burns they may not have known, but in the summer Peninsular battlefields often caught fire. The sufferings which resulted from this have been described by Rifleman Costello at Talavera (5) and at Vimiera by Sergeant Robertson, who saw the battlefield six days after the battle, when it was still “strewn with the dead and some of the poor wounded fellows were still living . . . and the wounded who were unable to drag themselves out of the way of the flames, as well as the dead bodies, were scorched in a horrible manner” (6). One could quote many similar descriptions from the spate of journals and memoirs with which Wellington’s men started the fashion of war-time reminiscence.

The term “The Great War,” which to us for so long meant 1914-1918, is used for the Peninsular War by writers such as Oman and Fortescue in books published before 1914, yet Colonel G. F. R. Henderson says that the casualties on both sides at Gettysburg and the Wilderness equalled the casualties in the
British Army for the whole Peninsular War plus Quatre Bras and Waterloo (7). The D.G. told us at "Rubicon" that when he was a young R.M.O. in the Somme battle, the 29th Division, with thirteen battalions in the line, sustained 6,000 casualties, which were evacuated from the battlefield in forty-eight hours. At a 43rd Division medical exercise Colonel Lytle, the A.D.M.S., quoted some similar figures, including the total losses of the 8th Division in four years, which were 2,927 officers and 60,931 other ranks. In the Somme battle 26th Field Ambulance rarely handled less than 1,000 casualties each day, and on one occasion this unit itself lost 41 bearers out of a total of 90. Volume III of the Medical Services General History gives figures for the other two field ambulances for this division for the first three days of the battle. The total admissions were 3,056. Total evacuations: walking cases, 836 = 27.9 per cent.; lying and sitting, 2,166 = 72.1 per cent. These figures Colonel Lytle, who like myself knew only World War II, said he finds "quite horrifying"—yet Sir Winston Churchill in his Life of Marlborough says: "The spectacle of one of the battlefields of Marlborough, Frederick, or Napoleon was incomparably more gruesome than any equal sector of the recent fronts in France or Flanders" (8).

The eye-witness accounts I have mentioned are almost unbearably moving, but none more so than Sir Winston Churchill's descriptions of Marlborough's battlefields. "Sometimes two hundred thousand men fought for an afternoon in a space no larger than the London parks put together and left the ground literally carpeted with a quarter of their number, and in places heaped with maimed or slaughtered men... In prolonged severe fighting the survivors of a regiment often stood for hours knee-deep in the bodies of their comrades, writhing or for ever still. In their ears rang the hideous chorus of the shrieks and groans of a pain which no anaesthetic would ever soothe" (8). No apology could be needed for quoting such words, and I make none for this lengthy preamble to my account of "Avernus," for I am sure that it is important that our apprehensions of the fearful possibilities of any future warfare should be balanced by realization of what the British Army has endured—and even gloried in. We must capture and instil into our soldiers the spirit which sustained their ancestors. Some hints as to how we might do this would surely be our chief reward if we were to follow Napoleon's advice to read and read again the campaigns of the great captains. But, whether or not Napoleon would allow any of the World War I generals to fall in in the ranks of his great captains, there may be rewards of a more concrete sort awaiting the man who will study the casualty figures of some of their hardest fights, and how the medical services dealt with the wounded. After all, their units were not so very different from ours, and some such research, especially if it could include reliable opinions from those who served in their field ambulances and C.C.S.s., should surely be a most valuable guide in any reorganization of our methods in the field to cope with an expected increase in battle casualties. If any keen historian undertakes this task I hope that he will send me a copy of his conclusions.

This long and not-so-easy descent to Avernus has at last arrived at the exercise, which began with an authoritative survey of recent developments.
in atomic warfare by Mr. Neville Gadsby of the Army Operational Research Group.

The story of our exercise grew out of a winter study period conducted by the D.G., and dealt with a force of half a million men in "Mythland," an imaginary continental country, and particularly with the problems caused by attacks with many atomic weapons in addition to heavy fighting. If a regular attender at our exercises woke up in World War III and found that Colonel John Crosse was not the Army Group D.M.S. he would know it was only a dream, and go to sleep again. We knew it was pretty hopeless to disguise him, but decided to try the effect of a bald head—a condition caused, I am reliably informed, by an excess of male hormones. What his hormones had failed to do for him was achieved by Captain Alan Critchley, and our D.M.S. presented a pickled walrus face topped by a fine specimen of the stately domes of England. His appearance was the only comic aspect of the sixty-five minutes during which he gave a masterly survey of his medical plan which was deceptively lucid and easy to listen to, and accordingly involved a lot of hard work. This was followed by a talk by Lieut.-Colonel Marks on casualty estimation, which included a demonstration of a device elaborated by Mr. Gadsby, with which an A.D.M.S. or D.D.M.S., who knows the location of ground zero of an atomic explosion and has the deployment of troops in the affected area marked on his map, can make a quick estimate of his problem, and so make a tentative plan before information is received from reconnaissances made at the scene of the attack. We then went on to D+8 and heard the story of the opening days of the war which began with heavy atom bombing of ports, cities and industrial areas in "Mythland" and in the U.K.; and, as we heard later, even heavier attacks by us on the Fantasians, our traditional exercise enemy. This playlet was set in the office of the D.D.M.S. of the Army Group, and opened with a broadcast from London in a warm transatlantic voice suggestive of Alistair Cooke in his best form, but actually supplied by Captain "Matt" Cooper, who has replaced Captain O'Brecht as our Canadian member of the Field Training School.

To give a comprehensive picture of the workings of Civil Defence was a formidable task capably performed by Lieut.-Colonel Maitland and a team of assistants, with an enormous and elaborate model of a city and its suburbs, of which W.O.II H. N. Evans, R.E., of the Army School of Health, and his carpenters were justly proud.

The object of the last serial of the first day was to select three syndicates and to give them the problems which they had to study. This was done in a playlet which gave Colonel Crosse a fine chance to let himself go in a hilarious act with Captain Critchley, who had invented and constructed a machine to which justice could be done only by an illustration by Heath Robinson or Emett. This was exhibited and duly selected the syndicates; and made a good job of it, too, because these syndicates under Colonels Furnival, Oxley, and Ollerenshaw produced solutions completely different from one another and from the solution of the directing staff. These were presented and discussed on the
second morning, after which we had most interesting lectures, on Resuscitation by Lieut.-Colonel Stephen, and on Burns by Mr. Patrick Clarkson, who very kindly stayed on until the evening to take part in a discussion. He is very generous with his time where our army exercises are concerned, and I have now heard him speak at four, and am still astounded at what a lot he manages to tell us in the all too short time which is usually available.

On the second afternoon the Field Training Centre staged a demonstration of the effect of an atom bomb over part of an Army Maintenance Area, in which 550 men took part. It began with a report by R.T. describing the approach of a formation of enemy aircraft apparently on its way to attack a nearby city. One was seen to break away from the formation and soon afterwards a well-simulated “atom bomb explosion” was seen. It was a low airburst, probably designed to cause embarrassment by contamination of ground rather than casualties. But at the first stand we saw that Fantasian luck was in, as a big pay parade had been formed up in the open facing the ball of fire and a great number were suffering from flash burns and shock. Time was now telescoped and we saw the first efforts to organize first aid and self-help; then the arrival of the C.O. of the army field ambulance to reconnoitre and decide on how best to deploy his unit; the approach of monitoring teams reporting to their H.Q. by “walkie-talkie”; and the arrival of the company of the field ambulance, which quickly set up a treatment centre near the R.A.P. of the R.H.V.

Next we walked round the scene, and then went to a nearby C.C.S. which had been partly affected by the bomb.

A demonstration must be well rehearsed if it is to retain the interest of senior officers, most of whom have already seen rather too much of this sort of thing. Some are renewing old acquaintances, and as they are herded, or perhaps one should say marshalled, from stand to stand it is evident that they would greatly prefer to go on reminiscing about old so-and-so, or 'Pindi in '32. Some are buoyed up by the prospect of seeing some really humorous hitch, like the old gentleman who went to church only once a year—on Christmas Day, in the hope of hearing the choir break down in the anthem. I once saw this type display rather less than enjoyment when the hitch did occur. They had declined to be issued with gas-capes and to offer themselves as targets for an air attack with mustard substitute. The aircraft sprayed the wrong party and they went home with their neatly pressed drill or gaberdine looking like a typhus rash. The Field Training Centre deserved special praise for the absence of boredom or hitches because it was not possible to rehearse their demonstration in detail, since such large numbers of R.A.M.C. men, who included reservists, could not be diverted from their normal duties for more than three days.

When planning “Avernus” we were determined to avoid the now familiar features of most exercises dealing with atomic weapons—the scientific discourse on nuclear fission; the films and pictures of Hiroshima and Nagasaki, which after all are now nearly ten years old. But in a delightful lecture Colonel Meneces brought to life the tale of those two cities, and explained certain aspects of their fate which have a direct bearing on our training today. I believe he may live
to regret his brilliant performance because, although the script of his lecture can be read in the exercise report, its value is greatly increased by his beautiful slides and his own explanation of them, and I foresee many requests for the lecture at other exercises.

On the last morning further corps problems and divisional problems were presented and discussed. Altogether during the exercise some three hours were spent in very profitable discussions, and the opinions expressed are now being examined at the War Office.

On the last morning of the two previous exercises an hour was given to discussion of A.E.R. and T.A. problems. This year I reviewed the progress in their training which has been made in the past three years; and some remarkable progress has been made. The present conditions of national service make it essential that a man's training should be actively continued, and indeed in many cases its deficiencies remedied, during his reserve service. During the past three years, which have seen the organization in its present form of the Army Emergency Reserve, there has been a notable growth of co-operation, and I think it might be said some intensification of mutual esteem, between the medical services of the active and reserve armies. We are indeed all one medical service, and one manifestation of this has been the very great increase in the numbers of medical officers of the reserve army invited by the D.G. to attend his exercises. The number of reservists under training and the nature of their training will probably surprise many who are not actively concerned with the reserve army if they read this part of the exercise report.

We were glad to have with us for the whole of the exercise representatives of the Royal Navy and Royal Air Force. Major-General Dimond represented the Home Office, and Colonel Morgan Smith represented the D.M.S. of the Canadian Army, with three senior officers of the R.C.A.M.C. Lieut.-Colonel Bhalla, now with the High Commissioner for India in London, attended; and the United States of America were represented by Brigadier-General Wilfred Hall, the Chief of the Medical Branch at SHAPE, and of course our old friend Colonel Walter Moursund, who always accuses me of having once begun some remarks with "Ladies and Gentlemen—and Walter Moursund." If I ever did this it would have been perfectly understood by any officer who has attended many conferences with him, for his contributions to discussions are always pithy and to the point, and delivered in characteristic style and with dry Kansas humour which helps to fix them in one's memory. As this will be his last D.G.'s exercise he made some very kind remarks on the last day, from which we were happy to learn that he has enjoyed being with us as much as we have enjoyed having him. Needless to say, the contributions of these distinguished visitors to our discussions greatly enhances their value.

Once again the D.G. in his closing address thanked those whose hard work had made the exercise a success—a very pleasant thing to hear, but, as he well knows, quite unnecessary, because the hard work is always more than cancelled out by the fun. Throughout the year the D.G. himself is always ready to escape from the cares of his high office for a frolic with the Fantasians and the Myth-
landers. As the day draws near and final rehearsals begin, his enthusiasm, and perennial conviction that this year’s exercise is going to be the best we’ve ever had, keep us all going. “Compulsory overtime” is not in the Field Training Centre vocabulary. I’m bound to say that I feel a bit sad that next year’s changing-room pep-talk will be given to a team with a new centre-forward—or in view of the D.G.’s noted weakness for cricket (which as a Scot I regard as an organized waste of time), should I compare the Inspector of Training rather to a wicket-keeper who has to stop all the fast balls bowled by the captain?

It is hardly necessary to wish my successor joy, for it is always a joy to work with the Field Training School; and to have introduced so many of their demonstrations, the fame of which has spread beyond R.A.M.C. circles, has been like leading in endless winners which one had neither bred nor trained—a lovely life. Now they are part of our new Field Training Centre; the principal meeting-place between the medical services of the active and the reserve armies as they go forward together to a state of efficiency which could be a powerful prop to the morale of the Army and of the nation should they ever be called upon to face the trials which were studied during Exercise “Medical Avernus.”

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"Medical Avernus"
D.G.A.M.S. Exercise, 1954

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J R Army Med Corps 1955 101: 220-226
doi: 10.1136/jramc-101-03-07

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