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OUR CONCERN FOR THE MIND

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It would be wrong not to begin by thanking you for inviting me to give this address. I am as proud as everyone here to belong to our worthy profession, and, as I have lived an academic life in the rear of the front line, I am doubly proud to be chosen by those who are in the thick of it. It is an honour which no one should have accepted out of hand, for it involves an obligation not merely to speak but to have something to say. So I had better confess that I wasted no time over such scruples: the prospect of this meeting was so pleasant that I had not the will to refuse.

There are many things that make it pleasant for all of us — the drive through the Border country, the romantic capital we have come to, and the friends we meet in it, but my own particular reason for pleasure is more compelling. It is that I attended my first scientific congress here in 1923 with my wife, and that we were newly married and going to set up house as soon as we were back in Cambridge. I will say no more about that domestic angle, for even without it there would be vivid memories to recall. The world was coming back to life after the first world war and we were joining the International Congress of Physiology. Congresses were still small enough to be family parties, and we were received into the party by Schafer and his Edinburgh colleagues with all the well-known physiologists as fellow guests. Pavlov had come to talk about conditioned reflexes, with his son as interpreter; Magnus demonstrated the righting reactions of the guinea-pig. Biochemistry was still part of the family, and diabetes was as good as conquered by Banting and Best. In fact, physiology was booming: the meeting was a grand start for a young couple, and I feel sure that the sun shone uninterruptedly.

That was thirty-six years ago, and now instead of congresses of about 300 there is the Physiological Congress of over 2,000; the pharmacologists have their own; the biochemists run to 5,000 or more; and there are so many smaller meetings for the specialists that it is a wonder that they have any time in their laboratories. And, in spite of that, an immense volume of research has gone on in every branch of medical science and there have been spectacular advances in the treatment of disease. Advance would certainly have come if the world had been able to live at peace, but it is remarkable how much of the advance seems to have been the direct result of two great wars.

War and Medical Progress

If our descendants are able to live at peace with one another they may not realize the full effect that war

can have on medical progress. They will realize why there were technological advances in everything connected with fighting and why the medical services had to be specially concerned with the diseases of armies in unhealthy conditions as well as with the injuries they inflict on one another. They will see why it was necessary to eradicate malaria, with the resulting increase of the areas which can be inhabited by man; for this, after all, has been the result of earlier wars on a more limited scale: without the Spanish-American War at the turn of the century we should have had to wait much longer for the attack on yellow-fever and hookworm, and we can confidently expect that more uninhabitable regions will be made habitable if there are further wars of the sort that will find a use for them.

But we all know that this is nothing like the whole story. Our descendants will realize some of the emotional strains engendered by wars in those who had to risk their lives or self-respect, but even for us it is hard to recall the full force of the emotional drive which diverted the world from contemplation to action.

In 1914 and 1939 scientists in every field lost interest in the distant target and moved heaven and earth for a chance to put their skill to some practical use. Their particular loyalties assured them that the only way to true progress was to strike down the enemy.

What was achieved under this emotional pressure has altered the whole pattern of scientific advance. In physics and chemistry as well as in medicine the two great wars encouraged practical applications, and their solution has reacted on theory. And although some lines of academic research may have suffered, I think we should all agree that the infusion of new ideas has been to the general advantage.

No one wants the world to be in a constant state of emergency where only the most detached scientist could keep his interest fixed on the stars. The diversion to short-range problems could not have succeeded without the peace-time knowledge to glean from, and in peace-time many scientists work in fields where no one will be much the worse if the practical applications are neglected. An intensive development of them might lead to faster travel or shinier fabrics, but we can afford to wait for these benefits until the advertisements force them on our notice.

In the medical field we cannot be quite so complacent, for the sick are always there to claim the immediate application of new knowledge; but in medicine

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there is another way in which the pressure of war has helped the advance: it has done so by focusing attention on old problems as well as by diverting it to new ones. We have many old problems which we are liable to neglect because they are old and have been difficult to solve in the past, or because they arose from social conditions which were taken for granted. For there is a special brake on medical progress which has encouraged us to let them alone—the brake which is imposed by the ingrained resignation of the human race in the face of ill-health.

We still need resignation to face the disabilities of our old age and its final termination, and early views of disease have very deep roots in the mind. Though we have learnt to relate our ailments to natural and not supernatural influences, there is still the image of Nature as a stern goddess upholding the way of life our forefathers were used to. In Edinburgh one does not need to be reminded of the critics of Simpson who thought it wrong to do away with the pains of childbirth. And we do not need to consult statistical tables to recall the infantile mortality that we tolerated at the beginning of this century.

The war of 1914 showed how Nature had dealt with the population of the British Isles. It compelled a stocktaking of the health and physique of our adult males, and it was a shock to the public as well as to the medical profession to realize the great number who had to be classed as C3 instead of A1. Since they had been C3 from childhood it was then too late to find a remedy. The lesson, fortunately, was not forgotten in the 20 years of peace, though the second war was needed to establish proper dietary standards.

Mental Health

There was another neglected field of medicine to which the first war drew our attention, for it became necessary to consider the mental as well as the bodily health of our armies. When the war was over the emotional origin of many symptoms was recognized, and their recognition no longer meant that they were to be dealt with by a tonic or a refusal to take them seriously. I am afraid there can be no certainty that our mental health has been greatly improved, but I think it will be worth spending time to discuss the change in our attitude to it. It is a chapter of medical history which shows what the pressure of war can do and how it must be followed by the slower building up of knowledge in more peaceful times.

By 1914 Freud's work was already well advanced. English translations were available and Ernest Jones had begun to shock conventional opinion by insisting that they should be taken seriously. Bernard Hart had prepared the way in 1912 by publishing a small classic, *The Psychology of Insanity*. It was widely read by laymen as well as doctors and seemed to put psychiatry on a new footing. On the Continent it had already become an important field for research and here no doubt the new ideas would have taken hold sooner or later, but until the war the neuroses attracted very little interest. Patients who could afford them were allowed to do so. Neurologists were satisfied if they could exclude organic disease of the nervous system, alienists signed certificates, and there were a few enthusiasts, well regarded but without hospital posts, to whom cases were referred for treatment. There was the Weir Mitchell rest cure for neurasthenia, there were some reputable hypnotists and many medicinal spas.

Emotional Origin of Shell Shock

The war changed all that within a few months when shell shock became an urgent military problem. It was supposed at first to be due to mechanical damage to the brain and treated by prolonged rest, but the realization of its emotional origin did not make its treatment and prevention less urgent. Within a year most of the convalescent hospitals on this side of the Channel had spectacular cases to display of mutism, deafness, tremors, paraplegia, convulsive attacks—the whole gamut of hysterical manifestations elaborated by Charcot at the Salpêtrière. Our French colleagues had the same war-time experience, and displayed their usual skill in devising categories with appropriate names: *camptocormie*, *dysbasie*, *tremblements*, *pseudo-choreiformes*, etc.

For those who were new to these dramatic symptoms it was at first an immense attraction to work the miracle which restored the patient to bodily health. There was great variation in technique, ranging from persuasion or hypnosis to some face-saving suggestive method; but a feature of the most successful kinds of treatment was the unrelenting pressure which was maintained until every physical symptom was abandoned. The brainwashing technique which produces the full confession and change of heart has been compared by Sargant to some revivalist procedures, and one can see a considerable resemblance in some of the methods which were used to dispel the amnesias and palsies of the first war. They are well described in Arthur Hurst's writings in 1918 and in Roussy and Lhermitte's in 1917.

But unfortunately hidden fears were seldom banished by blocking this path of escape. Special hospitals had to be set up, close to the front line, to prevent the elaboration of hysterical symptoms, and they were staffed by doctors specially interested in the psychological side of medicine and in the way in which these symptoms arose.

The Freudian Outlook

During the war Freud's theories remained in the background. They could not be overlooked, since they suggested a possible line of treatment, and they were brought into some prominence by the savage contempt of the orthodox. But it was not a congenial time for pursuing the sexual symbols appearing in dreams or for arguing that an unconscious mind was a contradiction in terms. The lengthy processes of psycho-analysis were out of the question, but those who had not taken sides and were prepared to experiment found enough to rouse their interest in the Freudian outlook or at least in the mental processes which Freud had described. The recall of distressing experiences seemed to be a useful, perhaps an essential, step for the reassurance of the patient, and it was only too obvious that the hysterical escape from anxiety was more intelligible in psychological than in physical terms. By the end of the war the methods adopted in most of the special hospitals did not differ much from those in use in the last war, though in those days the range of sedatives and of physical methods of treatment was far more restricted.

The change in our attitude to neurosis came gradually and might have been longer in coming without a paper in *The Lancet* in 1917 in which Rivers stated the psychological position with admirable restraint—and restraint was needed, for the enthusiasts were already gathering to overplay their hand.

They did so with increasing vehemence after the war, and issues were further confused by the diverging gospels of Jung and Adler, and for a brief space by the popularity of Coué, a simple and honest faith healer. By that time, however, the tide was running strongly in favour of the emotional origin and elaboration of neurotic illness on the lines described by Freud. It is still running strongly, and it would need great self-assurance now to deny any value to his interpretation. Most of us have had to take its details on trust, for the literature is extensive and often obscure, and until we have mastered it and perhaps been analysed ourselves we are in no position to criticize the psycho-analysts. Their practice demands a long training and long sessions with their patients. It is not their fault that they must lead dedicated lives which give no time for scientific propaganda. But we can agree that we have all gained a new way of regarding human behaviour from the cradle onwards, a new aspect showing all kinds of detail as part of a coherent picture. The picture may be distorted and there are other aspects to be considered, but that does not alter the fact that it has made us revise all our notions of parental and social responsibilities and given us new kinds of biography and interpretations of historical events.

The first war provided a large-scale demonstration of psychical and psychosomatic illness and of the effects of different kinds of treatment. But the history of medicine makes us look very carefully before we should agree that the particular line of treatment has much to do with its results. In the past, success in the treatment of neurotic complaints had been claimed for methods as different as the removal of the colon, the anchoring of a wandering kidney, and the laying on of hands. Without statistics, and with the fortunes of war changing from month to month, the evidence in favour of treatment by abreaction was not convincing proof of the theory behind it, and, as Rivers pointed out in 1917, the investigation of war neuroses had really done very little to support the overwhelming importance of the sexual theme.

In fact, I think our attitude to neuroses changed as the war went on, not so much because of what we found in our patients but because of what we were finding in ourselves. It was a time for the recasting of ideas. We had lost faith in the rule of our elders and were fighting a war which seemed to have no meaning and no end. The Freudian picture fitted the mood of disillusion. It meant a radical change of outlook away from the concrete but unenlightening details of physiology and pathology to an allegorical representation of the mind with veiled and rather sinister figures contending for mastery. We could imagine these forces at work in ourselves, and Freud had given them substance by showing how their conflict could explain neurotic as well as normal behaviour. To be sure, the great French neurologists had interested themselves in hysteria, but it led no further to say that it came from increased suggestibility. The Freudian scheme, with its unflattering picture of human motives, was a challenge bound to be taken up, and it was a new and comprehensive explanation with enough detail to be examined dispassionately.

New Lines of Attack

It is not surprising, therefore, that the first war made us turn to the repressed complex as a cause of ill-health, but it is also not surprising that thirty years of peace

interrupted by another war have given an opportunity for exploring other lines of attack.

They began as the result of clinical observations unrelated to any theory, for Sakel found the effects of insulin coma almost by accident, and Meduna tried camphor-induced convulsions because an epileptic fit seemed to benefit schizophrenia. In 1933 the reports of these new treatments of mental disease seemed a reversion to the eighteenth century. There was nothing but the results to justify them: yet in this case the proof of the pudding has been the eating, and electrically induced convulsions have become the routine method for freeing the mind from some of its troubles. Here the point of attack is the brain and not the conflict of ideas which has arisen in it, and leucotomy and the tranquillizing drugs are in the same category: it is their action on the brain which relieves the over-anxious mind.

If we agree, as we must, that brain and mind interact or run in parallel, it is rational enough to aim at reducing the conflict by psychotherapy or by damping down the neural activity without which it cannot exist. But at present we still have these two sides of the picture to choose from. We tend to blame the mind when the disturbance is slight and the brain when it is more severe, though we show our confusion by calling the slight disturbance a neurosis and the severe one a psychosis. And our former wars have been responsible for emphasizing the present dilemma. It is owing to them that the picture drawn by Pavlov has taken so long to become fashionable in the West and that the picture drawn by Freud has scarcely begun to penetrate to the East.

Pavlov's Physiological Picture

Pavlov's interpretation of human behaviour has been accepted in the East far more whole-heartedly than Freud's in the West. It has inspired an immense volume of research and a large Russian literature. It is the basis of the treatment used for all kinds of mental disturbance and for all the problems of childhood and adolescence. Pavlov was an unrivalled experimenter, a skilled surgeon with abounding spirits and good health, and he took a more cheerful view of our troubles than Freud. Our anxieties are not considered as the symbolic expression of what we must not allow ourselves to think; for the mind, conscious or unconscious, has no place in his scheme. Our intelligent behaviour expresses our cerebral activity, and our troubles are due to some derangement of the processes of conditioning and of the balance of excitation and inhibition of the cerebrum. On both schemes we can blame our special troubles on the way we have been brought up, but in the East the emphasis is on the nervous connexions and not on the original sin.

Unless we are as whole-hearted materialists as our colleagues in the East we must think of Pavlov's scheme as a working hypothesis for analysing behaviour from the physiological side. The picture before us is that of a nervous machine which can make intelligent decisions. The picture does not go into details, but the outlines are based on evidence which can be tested experimentally, and to that extent it has the advantage over the psycho-analytic picture of the mind. This may offer an explanation of every detail in a dream, but the evidence is seldom of a kind to give complete certainty, and it is difficult to see how the picture can be devel-

oped much further. The physiological picture is still in the making, and we have a long way to go before the advance from this side will be halted.

What Does the Brain Do?

The difficulty at present is that the advance is leading us into a wood that becomes more and more obscure because the trees are so thickly crowded. Work in the physiology and biochemistry and pharmacology of the brain has accumulated a great store of facts, and neurosurgery can now check them on the human patient. The result has been that the simple schemes which used to satisfy us are as out of date as the maps of the phrenologists, but as yet we have nothing much better to take their place. In fact, we really have no clear idea of what most of our brain does for us, of the part it plays in guiding our thought and behaviour. Some areas receive signals from the sense organs or elaborate skilled movements, but there is a duplicate or even a triplicate representation, and in animals most of it can be destroyed without obvious loss. Large areas of the human cerebrum can be destroyed without making us incapable of rational thought or behaviour. The electroencephalogram seemed to herald a new way of analysing cerebral activity, but it has revealed little more than the tendency to epilepsy. Micro-electro recordings from the nerve cells of the cortex give a bewildering variety of response patterns. The search for chemical transmitters is still going on, and every day the psychiatrists gather in the new drugs and enzymes which might furnish information that would help them in their investigations.

This is, of course, a most enviable position to have reached. The obscurity is a challenge. It throws no gloom on the investigator, and no one doubts that there will soon be new discoveries to bring us into the light again. Just at present, however, I think we have gone too far to use Pavlov's formula without a good deal of revision, and we have certainly not gone far enough to be within sight of any blending of the two pictures—finding the nervous substratum of the id and the super-ego or localizing the censorship of thought in the reticular formation.

Our treatment seems to recognize the possibility of it, for it mixes drugs and convulsions and neurosurgery with psychotherapy and psycho-analysis; and there is nothing new in this: the bottle of medicine and the doctor's visit have made the two-pronged attack for centuries. And we have progressed in understanding far enough to have no further use for the methods of dealing with hysterical manifestations which were developed in the first war. We have made our mental hospitals much more cheerful places to visit, and though they have many more patients the majority are soon able to leave. But we do not seem to have checked the incidence of disorders for which the brain or mind is mainly responsible. We are badly in need of new discoveries in the pathology of the brain and of fresh developments on the psychological side to bring the two pictures nearer together.

We cannot now expect another major war to give a fresh turn to our thoughts: there will be no more large wars to alter the course of arts and sciences, for when they have finished there will be nothing left to alter. But there is still a long way to go on a dual but converging attack. There is no reason to doubt that the

normal progress of laboratory and clinical research will give the answer for those mental disorders that have an organic origin. It has done so already for general paralysis of the insane: the biochemistry of the brain is still in its infancy, the lysergic acid story has raised our hopes and gamma amino-butyric acid is a strong candidate for the role of a humoral inhibitory agent. And on the psychological side, though research is more difficult, the paediatrician and the child psychiatrist may devise methods of upbringing with fewer perils to the mind. We must learn more about the effect of social pressures, the particular conditions in our own ways of life and in human society generally which lead to anxiety or psychosis.

Medical Aspects of Social Problems

In fact, we have still a long way to go in the path of advance which was opened up after the war of 1914 by the shell-shocked patients, the change in our attitude to neurosis, and the theories of Freud and Jung and their fellows. Elaboration of the Freudian picture may not lead much further, but this does not mean that we cannot learn better ways of ensuring mental health, better ways of dealing with the frustrations of infancy, the revolts of youth, and the loneliness of old age. Social science, and its applications to medicine, may have been poorly served by the enthusiasts, and some of their conclusions have been criticized as vehemently as we were once accustomed to criticize Freud. In spite of that, the medical profession has established its right to a hearing in a wide range of social problems which were formerly the exclusive province of Church and State. We must not set ourselves up to instruct the teachers, the criminal courts, and the law givers on matters about which we have no clear views ourselves, but at least we know more than they do about the physics and chemistry of human behaviour and about the mental tensions which can menace it.

For increasing our knowledge of these things we must rely mainly on the research teams who can make the experiments and the statistical surveys and give their whole time to investigation; but the interactions of mind and body are more likely to reveal themselves in the surgery and the consulting-room than in the laboratory. It would be a great mistake to think that there can be a general advance without the support of every doctor who has patients to understand. We have ourselves to understand too: however healthy and well balanced we may be there may be something to learn by observing our own reactions to difficult situations. At all events we have been trained to the clinical observation of human beings exposed to anxiety and discomfort, and we must not belittle our training.

Our two great wars and the years that have followed them have given us new methods and ideas and a better nourished and healthier population to look after. We need not worry too much at having found no answer to an old philosophical dilemma, but we have patients with troubles to be prevented or put right, and we have learnt to respect troubles that we used to neglect. Our medicines for them have longer names and our psychotherapy is more self-conscious, and we have still a long way to go before we can claim any striking advance. But it is our privilege as well as our responsibility to work for it, and it will be a work in which every one of us can share.