

THE CIVILIAN POPULATION UNDER BOMBARDMENT

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A MEETING of the British Psychological Society was held at Nottingham during April 17-21 and, among other matters, dealt with the effects of war conditions on the civilian population. In particular, Dr. Margaret Lowenfeld introduced the problem of man in the mass, while Dr. H. Crichton-Miller set out the effects on the individual of air bombardment. Discussion emphasized that more should be done by psychologists in air-raid shelters and evacuation areas, and a further meeting will be held to consider the whole situation.

Man in the aggregate shows behaviour that cannot be foretold from the study of man as an individual; but there is little that ranks as scientific knowledge of such behaviour. Many assumptions about mass behaviour derive from introspection, the study of animal behaviour and from psychopathology. The inadequacy of such a basis is witnessed by the breakdown of the theory that, brought to its senses by the horrors and foolishness of 1914-18, mankind would replace savage war by civilized consultation; and by the fact that loudly heralded 'panic' has, so far, failed to materialize.

There is scarcely any acceptable published material on which to base decisions of such practical importance as the kind of shelters human beings prefer: whether deep or surface, noisy or quiet, small or large. We do not know the conditions that promote or hinder courage, or how best to protect children. We do know that groups of the population behave peculiarly; that in some areas old men and women refuse removal to safety from nightly bombardment, that panic does not occur where physiologically it should, and that noise is more frightening than bomb destruction to some, while it is comforting to others.

With the same people nightly in the same shelters, subjected to events varying from mere boredom to the horrors of an inferno, almost laboratory conditions are provided for testing theories of instinctive activity and volitional control. Such an opportunity ought not to be neglected by social psychology. Concerted effort should be made to secure unbiased psychological truth and to put it to practical use. It is time that factually based reasoning and planning were given a chance to displace 'trial and error' methods.

The official explanation of absence of panic under bombardment and presence of the 'we can take it' attitude would seem to be our much-

applauded morale. Therein lies a danger. Moral courage eliminates self-pity and malingering, and, if functional disability is due to these, it is something to be ashamed of and despised. But functional disability resulting from air bombardment is a serious reality and has nothing whatever to do with morals. In the War of 1914-18 the functional effects of high explosives were clearly recognized and labelled shell-shock. For various reasons it was decided to cut out shell-shock from the present War. However, the naïve conviction that a symptom can be eliminated by forbidding it a name broke down. The symptom reappeared and clinicians named it blast-concussion.

The incalculable effect of blast on plate-glass windows is a commonplace. It is reasonable to suppose that similar effects of compression and suction on elastic abdominal walls displace the fluids of the body with extreme violence to and from the skull-contained brain. The strain thus imposed upon the delicate structure of the central nervous system is very severe and in fatal cases punctate hæmorrhages are found, *post mortem*, not only in the meninges but also throughout the brain substance.

Blast-concussion, in varying degrees of severity, is to be expected after exposure to an explosion. It bears no relation to morale, courage, discipline or any other ethical virtue, and has no intrinsic connexion with psychology. Extrinsic association is, however, very common. The effects on a person suffering from acute anxiety differ from those on one knocked out with 'no time to be frightened'. A hysterical person will exploit the effects in the same unconscious or semi-volitional way in which other disabilities are exploited. An alloy of organic concussion and emotional fear is common. Each factor should be dealt with, and the assumption that all unwounded patients are malingerers should be carefully avoided. The obviously wounded person is in a relatively happy position. He is ensured the rest essential for cure of concussion, and spared the feeling of loss of prestige from being disabled without visible trauma. Thus the worst effects of blast-concussion are seen in the unwounded.

Consider next physiological conditions influencing air-raid reactions. An exhausted man, with his supply of blood sugar at fasting level or below it, reacts badly to fear of death or danger. Anæmia and anoxæmia lead to despondency, apathy and inertia on one hand and to mental confusion and

uncontrolled behaviour on the other. Toxaemia lowers the whole resistance of the organism. With women there is also the varying emotional effects of the menstrual cycle, lactation and the climacteric. Again, in reaction to fear there is the influence of the adrenal glands. Normally fear produces an adrenal response which mobilizes available glucose, increasing muscular tone and enhancing activity which issues in 'fight or flight'. In troops about to attack, aggression should be at a maximum; but with civilians exposed to bombardment the natural reactions of 'fight or flight' are inappropriate, and fortitude, endurance, self-control are needed. In the first we have an instinctive pattern of behaviour, in the second a civilized pattern of conduct. In the absence of opportunity for retaliation or escape a severe strain is placed upon the efficiency of cortical control. Fear of death or suffering is endured in a latent or overt way. If latent it constitutes anxiety, if expressed we call it hysteria. The hysterical appeal drains off anxiety which has been accumulated by interference with the 'fight or flight' mechanism. Anxiety is the price man pays for a culture that demands inhibition of fear and hate reactions.

All this can be seen in the shelter situation under bombardment. Crude pugnacity in one man picks a quarrel with the shelter warden on wholly

inadequate grounds. Flight reaction in another refuses the protection of the shelter and drives away, on and on, until the petrol supply is exhausted. In either case the breakdown of cortical control results in an instinctive reaction to fear. With realization that neither fight nor flight is a reasonable way out, the anxiety case, trembling and sweating, alert, taut and incapable of relaxation, scarcely controls himself as explosion follows explosion, while the hysteric in many ways proclaims the need of compassion, admiration or interest, and takes refuge in imagined protection of others. Still more common is anxiety-hysteria in which a limited control is unable to restrain a partial publicity campaign, but, nevertheless, succeeds in enduring a measure of unrelieved fear.

In many cases no one factor will fully account for the unhappy condition of the patient. A case was quoted where the recognized causes were: (1) dental sepsis, (2) gross ill treatment in childhood, (3) unfaithful marital life charged with guilt and fear. The elimination of any one of these factors would have modified the character of the breakdown. Each played its part in reducing a powerfully built, athletic man to a trembling, sighing, restless mass of anxiety when his house was demolished just after he and his family had taken cover in a public shelter.

OBITUARIES

Dr. Otto Pettersson

OTTO PETERSSON, chemist, physicist and hydrographer, was born in Gothenburg in February 1848, and died there on January 16, 1941. He took his degree at Uppsala in 1882, and began work as an inorganic chemist, studying selenium and beryllium while his friend Theodor Cleve was studying the rare earths; but he soon turned to physical chemistry, which was coming to the front just then, and had a long paper in *NATURE* on a "New Principle of Measuring Heat", in 1884, nearly sixty years ago (*NATURE*, 30, 320; 1884). Heat phenomena in general, specific heats, latent heats and heats of crystallization, led him towards hydrography by way of the temperature and ice-conditions of the Baltic and Arctic Seas; and he got his chance when Norden-skiöld brought the *Vega* home and asked him to report on the hydrography of the Siberian Sea. A careful determination of the maximal density-point of sea-water at various salinities formed part of this report, and the work brought him into contact with John Murray, and with Tait, who was then busy with the temperature observations of the *Challenger*.

Pettersson had a family place at Holma, in Bohuslan, where the Baltic was at his very door, with all its fascinating hydrography. F. L. Ekman had made a good start towards its investigation, but

there was plenty left to do; and Pettersson with his friend, Gustav Ekman, wrote one paper after another in the early 'nineties, mostly on the hydrography of the Skagerrak. Two problems interested him then and ever after. Where ocean water enters the inland sea it dips down and lets the fresh water float out above the salt; each has its own phenomena, and the submerged surface of discontinuity is the seat of waves and tides which may reach considerable amplitude. Under such conditions as these Nansen had encountered 'dead water', and Wilfred Ekman had explained that old mystery once for all; our submarine commanders were mightily perplexed by the same stratification when they first entered the Skagerrak in the beginning of the War of 1914-18; and here Otto Pettersson found what he called the Gulf-stream water' rolling in, deep down, invisible.

The second problem, closely associated with the first, lay in the vicissitudes of the Swedish herring fishery. For Bohuslan had been the seat of the great Hanseatic herring fishery in the thirteenth and fourteenth centuries, until it came to a sudden end in the fifteenth, and moved out, to the enrichment of Holland, into the North Sea. Pettersson found an explanation of this great historical event (and of certain other catastrophies such as the formation of the Zuyder Zee) as part of a long-period phenomenon,