crystals during rapid deformation. The most important mechanisms of damping are those proposed by Leibfried[12], and the radiation of sound waves caused by the periodical changes in the form of the dislocation as it moves through the lattice. Leibfried's original estimate of the damping caused by the scattering of thermal vibrations involves a confusion of two mechanisms of scattering, one applicable to any imperfection of the lattice and one peculiar to dislocations. The resulting estimate is certainly too high, but this effect is obviously important.

Speaking about work done at the Royal Aircraft Establishment, Farnborough, by S. Pearson, G. B. Greenough and himself, A. D. N. Smith criticized Kê's theory[13] that the high-temperature 'background' internal friction of annealed metals is due to the presence of dislocations. Experiments show that single-crystal specimens have a greatly reduced background compared with small-grained specimens, and it seems more reasonable to suppose that the difference is due to grain-boundary behaviour rather than that dislocations give rise to very much higher damping when situated in polycrystalline metals than when situated in single crystals. The mechanism proposed by Mr. Smith and his colleagues is that creep occurs at the regions of stress concentration arising from stress relaxation along the grain boundaries at high temperatures. Kê's objection that the stress will be insufficient to cause slip is invalid, since an activated creep may occur at any stress. Experimental evidence of this relation of 'background' to creep is that, at high temperatures, and under minute stresses, wires with high 'background' creep both in torsion and stretching. Single crystals show no such creep.

Dr. K. M. Entwistle said that at the University of Manchester methods of measuring damping have been developed for very low-loss materials such as aluminium-rich alloys, so as to investigate damping during quench ageing from about 20° C. to elevated temperatures. Pains have been taken to reduce the equipment loss to well below the energy-loss figure of 2×10^{-5} per cycle, characteristic of these materials around 20° C. In connexion with Zener's proposed mechanism for damping arising from stress-induced rotation of pairs of solute atoms in certain face-centred cubic solid solutions, Dr. Entwistle thought it likely that, assuming initially random distribution of solute atoms in an as-quenched alloy (for example, aluminium–4 per cent copper), subsequent diffusion might permit localized concentration of copper so that the number of effective atom pairs would rise to a maximum and then decay. By investigating damping in these circumstances, since this will vary similarly, it is hoped to confirm this hypothesis.

At the British Iron and Steel Research Association, said E. Linacre, methods of measuring damping capacity are being developed as a tool for metallurgical research; in particular, grain boundary damping in isothermal transformations, since nucleation and grain growth both occur there in a non-martensitic phase change. The preliminary results on two different steels appear to show considerable damping capacity changes on transformation. Mr. Linacre deprecated the indiscriminate use of logarithmic decrement, Q^{-1}, tan δ and specific damping capacity to specify damping and advocated the use of the first.

K. J. Marsh reported on an investigation of damping in copper and certain tin bronzes which has been carried out at the British Non-Ferrous Metals Research Association using the Kê technique at 0·3–2 c./s. over a temperature range. On 'oxygen free, high conductivity' copper the results agree with Kê's results. Markedly different damping/temperature curves have been obtained for tin bronzes with 3, 6 and 9 per cent tin, but they differ little from each other and do not reflect differences found in their hot-working properties. The damping increases with amplitude for these alloys.

Finally, G. Bradfield referred to Nowick's work[7], pointing out that a dislocation has the qualities of a vector associated with a plane, that is, a uniform distribution of the same kind of dislocation has the nature of a six-rank tensor which is similar to an elastic constant. Such a distribution can alter the six-rank elastic-constant matrix, adding real and imaginary increments for sinusoidal stress conditions. In general, the symmetry will be reduced. The changes in velocity and the attenuation of waves due to the dislocation system will exhibit markedly anisotropic characteristics. Mr. Bradfield traced an interesting parallel between the frequency invariance and dependence on density of dislocations of damping due to the latter and the corresponding damping phenomena for foreign particles suspended in a liquid (see Urick[14]). He felt that it is not yet clear whether a dislocation represents a singularity in mass or elasticity or both. Reporting on work at the National Physical Laboratory, Mr. Bradfield said that, in addition to investigation of elastic constants of alloys, the Read technique is being extended to use quartz resonators for damping measurements up to 400 kc./s. An inductor system has been devised to determine damping on small disks weighing only 1 gm.

G. BRADFIELD

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"WHITE CORRIDORS"

HERE is a new film (produced by Vic Films and to be distributed by G.F.D.), commercially presented as having full "entertainment value" (running for 102 min.), which can be strongly recommended to men of science, medical men and educationists. It is now being exhibited at the Leicester Square Cinema, London, and will eventually be generally distributed.

The film is adapted from the novel "Yeoman's Hospital", by Helen Ashton, and the screen play is written by Jan Read and Pat Jackson. Though not a 'documentary' film, it portrays the running of a present-day general hospital. Here are depicted the workaday lives of resident surgeons and physicians, nurses and patients.

The professional medical man is not likely to find any fault with the method of presentation. The

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scenery is typical of a general country hospital; in fact, though we like the title "White Corridors", the original one, "Yeoman's Hospital", seems more apt. There are no luxurious wards with wide passages between them, neither are the theatre nor apparatus extravagantly equipped or designed; the portrayal is faithful.

Though we cannot claim authority to criticize the artistes as such, we were favourably impressed by all of them—doctors, nurses and patients. We would, however, direct especial attention to Miss Googie Withers, who plays the part of a woman house surgeon, and to Mr. James Donald, portraying a young resident especially interested in chemotherapy and physiotherapy. Miss Withers acts with detachment and sincerity; Mr. Donald is the true man of science, enthusiastic though balanced, guarded and logical in his researches. The actions of these two brilliant artistes showed beyond doubt that the authors (Jan Read and Pat Jackson) and the producers (Joseph Janni and John Croydon) took very seriously to heart the necessity for truth and faithful registration. Also, we have little doubt that they went to considerable trouble in consulting medical and scientific literature, institutions and workers. This is revealed especially in the shots of the research laboratory where Mr. Donald (as the research-active resident) is trying to obtain a drug which can effectively tackle penicillin-resistant organisms. His use of the Geiger counter and radioactive cobalt, his handling of the Petri dishes containing growing germ colonies and the shots of these instruments and activities being demonstrated by this research worker to members of the visiting hospital committee (who have to decide whether the limited funds at their disposal shall be devoted to extending his laboratory or to building a nurses' recreation room) could be taking place in any reasonably large hospital fortunate enough to have such an enthusiast on its staff. This is the main reason why we would urge medical and scientific men and women to see the film. Medical practice and scientific research, through the media of good playwrights and a splendid cast of actors, are demonstrated to the public in a manner that is not only interesting and entertaining, but also accurate and true. Not once did we spot any, even possibly excusable, hyperbolical action or word in order to drive home a point.

Even the failings of some doctors and nurses are not ignored. The portrayals of these are well acted by Mr. Jack Watling as a philandering young house-surgeon who has yet to appreciate the true moral status of his calling, Miss Moira Lister as an attractive woman whose profession as a nurse cannot be allowed to govern or even modify her emotional life, and Miss Petula Clark who, with all the determination at her command, will never become an efficient nurse. (Though we were not told, we suspect that the second nurse married one of her patients, which would be for the good of all.)

Medical practice and ethics are continuously illustrated in two distinct ways throughout the film. Miss Googie Withers as the young house surgeon unobtrusively by her very acting (possibly under the guidance of a medical man or woman) shows how a doctor is expected to behave professionally. Always good, at times this actress is even magnificent, so that the audience learns much about medical ethics and practice at the same time as they are enjoying to the full the play of this accomplished actress. On the other hand, Sir Godfrey Tearle, the senior surgeon, brings home to his recalcitrant son (Mr. Watling, the house surgeon) and other members of the hospital staff what are the aims, and even limitations, of medical practice, by means of well-written and well-spoken dialogue.

The film will do much towards giving the public a true picture of some aspects of present-day medical practice and scientific research. Points which emerge include such as the beneficent utilization of radioactive elements, the physiological actions of drugs on germs, the fact that penicillin must not be looked upon as a 'cure-all', the strict discipline which medical men and women must impose upon themselves, the safeguarding of human life by medical ethics as well as medical practice, the academic and professional limitations of the doctor, the need for civic and government authorities to appreciate what research involves both in implication and application, etc. Yet withal, this film is never dull: the plot is interesting, the story well balanced and well told and one's interest continuously maintained. The result is a tribute to medical and scientific research and medical and nursing practice for which all who worked in the making of this film are to be thanked.

CAMBRIDGE UNIVERSITY EDUCATIONAL FILM COUNCIL

THE fourth annual report of the Cambridge University Educational Film Council describes cinematograph activities in the University and problems revealed during 1950. As elsewhere, much more use is made of films in teaching science than art subjects, although the sessions of films for students of economics that were begun as an experiment three years ago continue. Sessions of Russian dialogue and German dialogue films have both been repeated during the past year, while some exploration of the use of films in the teaching of architecture has been undertaken; fortnightly film sessions for students of geography have been inaugurated. The greatest use of films in teaching, however, has been in the Departments of Zoology and Engineering, where films have been made and used in teaching.

Although there are considerable difficulties attending the use of films in research, cinematography is being used for investigations into the flow of gases in internal combustion engines in the Department of Engineering; in connexion with research on survival at sea, in arctic, temperate and tropical waters, by the Department of Experimental Medicine; for laboratory investigation of the action of waves on beaches, by the Department of Geography; and for testing vigilance and for various experiments in the Department of Experimental Psychology.

Among the difficulties which limit film-making at Cambridge are the shortage of facilities and accommodation. There is not at Cambridge a photographic department such as exists at the University of Durham, or a visual-aids centre such as that at the University of Melbourne. There is no institution to provide cinematograph services and to produce films, in the same way that a university press provides printing services and produces books. A particular requirement of Cambridge film-makers is a properly equipped cutting room, and means by which films might be processed within the University are also required.

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