

Fig. 1. Fracture interface in carbon fibre composite.

electron microscope, Professor Pfefferkorn (University of Munster) outlined preparation techniques suitable for varying applications. He described a coating technique which is fairly generally applicable when a specimen is susceptible to charging. This involves a triple evaporation of carbon on gold on carbon. The underlying carbon layer, which needs to be only 100–200 Å thick, provides a coating which inhibits nucleation of the subsequent gold over-layer. The gold is applied to enhance the secondary emission coefficient. The upper layer of carbon serves to suppress the usual effects of hydrocarbon contamination on the specimen and thus maintain high contrast conditions for a longer period of operation. The total “sandwich” need not be thicker than 400 Å. Dr P. Echlin (Department of Botany, University of Cambridge) discussed work in which he had correlated information from both the light microscope and the transmission electron microscope with observations in a scanning electron microscope, in order to establish the conditions which create artefacts peculiar to specimen preparation for the scanning electron microscope and the precautions to be taken to avoid them.

Contrast arising from the presence of magnetic fields

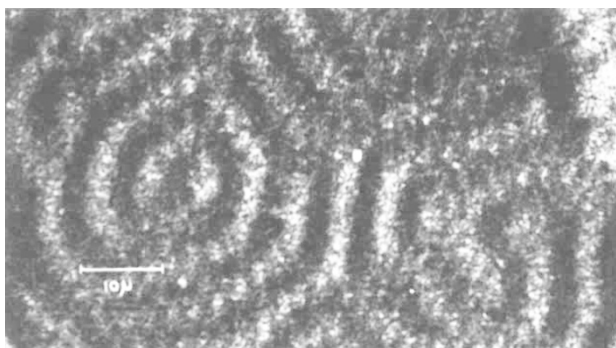


Fig. 2. Domain structure in cobalt crystals.

localized on the specimen surface, although previously predicted, has only recently been shown to be detectable. D. C. Joy (Department of Metallurgy, University of Oxford) has been able to use this effect to investigate domain structure in detail, and in particular to show that contrast due to domain structure on large cobalt crystals can be removed if the sample is heated to 240° C. Cycling the sample through this temperature region established the reversibility of the process (see Fig. 2).

Legal Medicine

from a Correspondent

THE ninth annual scientific meeting of the British Academy of Forensic Sciences was held at the British Medical Association on July 19 and 20. The four scientific sessions were each well attended by the three professions represented in the academy—medicine, law and forensic science.

In the first session, papers were presented on the Abortion Act and the Sexual Offences Act. The second of these Acts of Parliament seems to have been so rapidly and completely assimilated that almost no questions about it were raised. On the other hand, the Abortion Act is undoubtedly generating interest and causing severe problems in some fields of gynaecology and associated psychiatric practice as well. Not only are growing numbers of patients seeking termination of pregnancy under the act, but the new technical requirements often present great difficulties. How, for example, is one to quantify the effect of non-termination on the existing children of the pregnant woman's family, or how is one objectively to assess the risk of abnormality in the child yet to be born, if psychiatric as well as physiological factors are to be given full weight? A leading gynaecologist contended that many young girls were coming to regard the prospect of having an abortion as no more serious than going to a dentist, and were indignant to learn that a period in hospital was necessary.

The session on “Family Law—Paternity—Child Protection” was interesting chiefly because serological techniques have advanced so rapidly that the courts need no longer rely only on those tests which prove exclusion of a putative father. With the discovery of increasing numbers of serological grouping systems, the courts can now venture into the realm of “proof of paternity”. Significantly high figures could often be obtained in balancing the probability of Mr X being the father, rather than a male picked at random from the population.

The Criminal Justice Act is remarkable for the way in which science, law and medicine are equally drawn into its orbit. Of particular interest is the impact of section 2 of the Act, dealing with “written statements before examining justices” in regard to the presentation of scientific evidence in court. The academy was told that because the forensic scientist is now relieved of a considerable amount of court-going, he can spend longer at the laboratory bench. The quality of scientific evidence has been much improved both for this reason and because the written evidence in court now has to be understood and evaluated without the presence of the scientist; consequently his conclusions must be expressed in an unambiguous, almost narrative, style—an exercise of inestimable value and one from which other disciplines would no doubt benefit.