

Infra-red photography

Astronomers today are able to photograph stars invisible to the eye, pilots can take aerial photographs through fog and haze, and detectives are able to expose forgeries of anything from banknotes to Old Masters—all by means of modern infra-red photography. Although infra-red rays are similar to the radiations which we call visible light, they cannot be seen by the human eye. Nevertheless, photographic plates can be made sensitive to these rays by treatment with certain dyes. These plates can then be used to photograph objects that are invisible. A boiling kettle, for example, can be photographed in complete darkness because of the infra-red rays which it emits. Infra-red rays can also be used to photograph distant landscapes or stars because they can penetrate the atmospheric haze which scatters normal light.

The first crude forerunner of the infra-red photograph was made just over a century ago by Sir John Herschel. He exposed to the sun's rays a piece of blackened paper, the reverse of which had been moistened with alcohol. But during the decade following the end of the first world war investigations by W. J. Pope and W. H. Mills and their collaborators at Cambridge contributed greatly to the systematic study and preparation of infra-red sensitising dyes.



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Children in the Classroom

A SUNDAY night broadcast, given recently by Professor F. J. Schonell, could not fail to leave us with some new ideas about education. The speaker was an eminent scholar whose work in the teaching of spelling has had a strong influence in this country. His comments on the needs of backward children (who form a much larger proportion of the school population than is commonly supposed) were pointed and valuable. Much of what he said, however, was relevant to our treatment of all children. We cannot be reminded too often that "success in school is almost as much dependent on emotional attitudes as on ability." It is true that attitudes fundamental in a child's character are formed in the home. The child is a product of heredity and environment before he goes to school, and sometimes he may be so handicapped by the treatment he has received in infancy that even a wise teacher can do little to help him. Although "special" schools may be available for children obviously backward, little help—outside the patience and understanding of the teacher—can be given to children whose weaknesses are incipient or concealed. They must take their chance in large classes, and if they are lucky they will survive with nothing worse than a chronic weakness in spelling or arithmetic.

Professor Schonell explained what is being done in England to help the maladjusted child. The work of the Child Guidance Clinics is still experimental, but it is already having results which show what direction must be taken in future. Similar methods have been used in New Zealand, though on a smaller and perhaps a more tentative scale; and much will have to be done before the schools may be said to have a full psychological service. In the meantime it is still necessary to defend the case for new action. Many parents are inclined to base their opinions solely on their own experience. Because they went through school without

serious difficulty, and suffered no harm when they were punished for classroom failures, they assume that other children—including their own—are in no need of different treatment. They are afraid that a new generation will be "pampered" if it is not handled firmly, and they see punishment as the proper remedy for errors of work in the young. The truth is, however, that fear is the enemy of learning, and indeed of health. A backward or difficult child may be strapped into docility, but he cannot be made to learn intelligently or to behave responsibly. One of Professor Schonell's strongest arguments was his disclosure that "in the past decade we have found that over 60 per cent of juvenile delinquents—the peak age for whom is 13 years—are either unable to read or are very backward in reading and writing."

It is wrong to suppose that emotional difficulties are confined to special cases. They may cause some children to seek compensation in unsocial behaviour; but other children may retreat into illness—especially the obscure disturbances of mind which harden into neuroses—or be left with an intractable weakness in a single subject. Children are not fragile creatures who require coddling; the psychologist himself would be the first to repudiate any such argument. But the eagerness and interest with which they go out to meet the life opening around them should warn us that even their toughness is superficial, and that their emotional liveliness—the swift and deeply-felt transitions of mood—makes them quick to learn and equally quick to draw back into a defensive dullness. Children have been treated in the past as if they had merely brains and wills, so that if they were unable to learn they were obviously disobedient and stubborn. Nowadays we know better; but we still know very little, and our own lessons must be continued if we are to have the sort of society in which education can do its work creatively.

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