

A rotary chart translator enables a large number of circular charts to be re-recorded on a single strip chart with a reduced time base to facilitate a detailed study of blast-furnace blowing requirements. A 48-way recorder enables temperatures at different points in ingot moulds after teeming to be studied.

TECHNICAL BOOKS AND INFORMATION

THE Scottish Branch of Aslib held a conference in the Mitchell Library, Glasgow, on October 6. The conference was opened by Mr. C. A. Oakley, who spoke on this occasion as the author of several technical books, and not in his official capacity as regional controller for Scotland of the Board of Trade. He regretted that Glasgow has a reputation as a 'tough' city, largely due to certain books written about it, and said that he had written "The Second City" in answer. Mr. Oakley went on to suggest that this unsavoury reputation is a factor in the problem of bringing new industries to Scotland. There is no difficulty in persuading managers to come and live in the Glasgow area; but the charge-hand type of worker has taken his idea of the city from news and books. Describing his own experience, Mr. Oakley said that too frequently an author of technical books has to meet the cost of publication, and it is rare that this type of book produces substantial royalties. It may take ten years to collect the material, and technical books are better if they are written slowly over a period of years rather than tackled and finished in a few months.

Mr. James Fergusson, Keeper of the Records of Scotland, outlined the history and care of the records of Scotland and stressed that the live, active interest of the people is necessary to solve the problems facing Register House.

Sir James French, speaking on "Books in Industry", said that books should be available for self-education, and advocated numerous well-distributed collections of technical works. He suggested that money for this would be well spent, and could well be saved by reducing the school-leaving age to thirteen. His experience over many years has proved that youths at thirteen are ready and willing to leave school, and gain more from an earlier apprenticeship to a trade than from an enforced attendance at school, which bores them and wastes their time. Sir James said that even the most modern books are in some degree historical and that "pioneers of industry spend their lives hunting in unknown forests for which there are no guide books, until they themselves may write them".

The next speaker, Mr. W. A. Beck, superintendent for Scotland of H.M. Stationery Office, outlined the publications available and described the various classes of papers published. The last paper, by Mr. S. Weinberg, research manager of Messrs. G. and J. Weir, Ltd., was on "The Attitude of the Research Worker to Technical Information". He quoted Sir Alfred Egerton, giving the present rate of publication of scientific papers as approximately one million, ninety per cent of which are only written to publicize their author's existence. There is no easy solution, because a publication giving arbitrary results might well have a value in the experimental techniques described. Too often the librarian regards the research worker as an individual pursuing a certain

line of inquiry for a particular project. Ninety per cent of his reading time must be allocated for routine 'keeping abreast', but reading time for a specialized job cannot be arbitrarily decided. Mr. Weinberg said that it is useless for the research worker to attempt to examine more than one-tenth of one per cent of published material, which works out at twenty to twenty-five papers or articles a week. Of these, one-tenth may be of immediate interest, and a fraction of wider interest. In this connexion, it was stressed that editors cannot pay too much attention to the 'contents' page. Selection of material should always be the responsibility of the research worker and should not be left to the librarian, although the latter can usefully do the routine work of abstracting after the initial selection. From experience, Mr. Weinberg regretted that the emphasis in abstracts is on results, which are often of less use than the operational techniques and the experimental results prior to analysis.

Mr. Weinberg put forward a plea for discrimination on the part of editors and secretaries of learned societies, and he hoped that the advantages of personal publicity would be reduced in such a manner as to discourage all but the better papers. Repetition should either be avoided or clearly indicated. Until it is possible to dial the number of the information required and see it flashed on a screen, the bringing together of the librarian and research worker on a personal basis is most likely at this stage to produce beneficial results.

MILK RECORDING AND BREEDING OF DAIRY CATTLE

SINCE most of the important statutory activities of the Milk Marketing Board were taken over by the Ministry of Food at the beginning of the Second World War, and have not yet been restored to it, a good deal of the energies and the not inconsiderable financial resources of the Board have been of recent years devoted to the milk recording and breeding movement, with the ultimate objective of improving milk yields per cow and also milk quality. Dr. Joseph Edwards, head of the Production Division of the Milk Marketing Board, in an address to the Farmers' Club at a meeting in London on October 2, gave a valuable account of the extensive progress made in three fields: milk recording (National Milk Records) since the Milk Marketing Board took over this scheme from the Ministry of Agriculture in 1943; the development since 1947 of the Milk Marketing Board Bureau of Records; and artificial insemination of dairy cows which, following the pioneer work started in 1942 at the experimental centres at Cambridge and Reading, was taken up on a commercial scale by the Board in 1945.

In the first of these fields, the number of recorded herds has gone up from just over 4,000 to more than 24,000; about twenty per cent of the dairy cows in England and Wales are now recorded for yield. Some progress has also been made in recording butterfat percentage; about seven per cent of dairy cows are now in the scheme. All recorded cows are identified by ear-marking, itself no inconsiderable task. As regards development since 1947 of the Bureau of Records, this Bureau publishes annually a report and analysis of the figures obtained from the National Milk Records, a publication of real value to most of

the organizations and individuals interested in herd improvement; it also provides statistical and other services for artificial insemination centres and collates much data for the various breed societies and others. In the field of artificial insemination the progress has been particularly striking. The number of cows artificially inseminated from Milk Marketing Board centres has risen from 6,401 in 1945-46 to no less than 431,402 in 1949-50. In non-Board centres the number inseminated in the latter year was 172,321, so that the total for the country is well over 600,000, that is, some twenty per cent of the dairy cattle in England and Wales are now served artificially by bulls of which the great majority are well above average quality.

The records quoted by Dr. Edwards show the rapid advance in numbers in recent years of the heavy-yielding Friesian (or Friesian-type) animals, which now form as much as 32 per cent of the total national herd. He also gave some interesting figures indicating fluctuations in herd fertility (disclosed by artificial insemination).

From Dr. Edwards's figures and conclusions, which are borne out by all recent experience, it is clear that, at present, the main limiting factor in milk production in many herds is not heredity but dairy farming technique, particularly in relation to grassland improvement and pasture management.

H. D. KAY

FILMS AND FILMSTRIPS IN FUNDAMENTAL EDUCATION

PRODUCED in collaboration with Unesco, four new educational pamphlets of Film Centre, Ltd., discuss the role of films and filmstrips in fundamental education. The first, "The Film and Fundamental Education", shows that the full development of the film in fundamental education must depend to a large extent on governments. The finance and the resources involved are considerable, particularly for production. But whatever the contribution made by governments, a very large measure of initiative still lies with non-official organizations of all kinds, especially in the field of film use.

In many areas where the population is scattered, mobile units are likely to remain the most effective means of showing films for some time to come. Since the equipment of a mobile unit costs several thousand pounds, the responsibility will continue to lie mainly with governments. Ultimately, however, mobile units must make way for static projectors in each community, if films are to gain a regular and accepted place in local life. At this point private organizations should be ready to play their part. Where an individual organization is unable to afford the cost of a projector, a co-operative film service, uniting a number of bodies or persons prepared to contribute, can provide projection equipment and skilled projectionists. The service is also capable of further extension to include training courses for its members, and even a film lending library service.

In this context the Film Councils, developed in Canada and the United States, provide a very relevant example. These Councils bring together local bodies of all kinds—youth clubs, women's institutes, churches, chambers of commerce, trade unions, industrial firms, farmers' groups and others—for a common purpose, to promote the educational use of the film. The

Ottawa Film Council, for example, has more than a hundred affiliated organizations. The main value of the Council is twofold. By the pooling of finances the resources available to the community can be very considerably increased. The fullest possible local participation is also ensured.

Popular initiative and use of co-operative methods are, in fact, the keys to success. In the last analysis, fundamental education can only be a living and creative movement if it is a movement of the people themselves, working together for the advancement of the whole community and with it the whole nation.

The second pamphlet describes the most suitable apparatus for the projection of films and filmstrips in fundamental education, while the third and fourth pamphlets deal with the choice and care of films and filmstrip in fundamental education.

ACCEPTANCE SAMPLING

AT the first post-war meeting of the American Statistical Association, held in Cleveland, Ohio, in January 1946, an all-day session was devoted to statistical methods of acceptance inspection, and the proceedings of this session have recently been published*. It is a pity that there has been more than four years delay in publishing this material, as its prompt appearance would have had a stimulating and clarifying effect. As it is, considerable further development of the subject has occurred, and the book is somewhat out of date. A good deal of it will make worthwhile reading, nevertheless, to anyone interested in industrial inspection.

The first half of the book is devoted to acceptance sampling by attributes. A short history of developments prior to 1941, by Paul Peach, is well written and good, except that no reference is made to British work (one has to admit, however, that not much British work had been published). E. G. Olds, in a review of war-time developments, gives clear descriptions of the various methods available (though the relations between them are not always shown up well) and has compiled a good bibliography. Then follows the most interesting feature of the book, a verbatim report of a long discussion on sampling by attributes. The seventeen contributors appear to speak from extensive experience and to have really thought about the subject; and their discussion is remarkably shrewd and to the point.

The second half of the book, devoted to acceptance sampling by variables, is less interesting. J. H. Curtiss applies the language of the Neyman-Pearson theory of testing hypotheses to deal with a limited range of problems arising with specifications of population mean. A short summary is given of a paper by W. A. Wallis on using measured values of a variable to estimate the proportion falling beyond some limit and classed as "defective", instead of merely noting the proportion of defectives directly; a full account has been published in "Selected Techniques of Statistical Analysis" (London: McGraw-Hill Publishing Co., Ltd., 1947). The ensuing discussion on sampling by variables, though it brings out some interesting points, rather flags by comparison with the first discussion. J. W. Tukey, as chairman, gives a good summing-up.

F. J. ANSCOMBE

* Acceptance Sampling: a Series of Papers and Discussion on the subject of Acceptance Sampling delivered at the 105th Annual Meeting of the American Statistical Association at Cleveland, Ohio, on January 27, 1946. Pp. iv+155. (Washington, D.C.: American Statistical Association, 1950.)