

NATURE

No. 4129 SATURDAY, DECEMBER 18, 1948 Vol. 162

CONTENTS

	Page
Educational Administration	941
Ten Years Progress in Horticultural Science. By Dr. M. A. H. Tincker	943
Goodness Defined. By F. I. G. Rawlins	944
Operational Calculus and its Applications. By Prof. L. M. Milne-Thomson	945
An Introduction to Radio Engineering. By W. R.	945
A Kinetic Approach to the Theory of the Strength of Glass. By S. M. Cox	947
Minimum Oxygen Layer in the Ocean. By Dr. R. B. Seymour Sewell, C.I.E., F.R.S., and Prof. Louis Fage	949
Use of Liquid Fuels: Conference at Birmingham. By Prof. F. H. Garner, O.B.E.	951
Obituaries:	
Dr. S. E. Sheppard. By Dr. C. E. K. Mees, F.R.S.	952
Prof. Kornel de Kőrös. By Prof. M. Polanyi, F.R.S.	953
News and Views	954
Letters to the Editors:	
Method for Obtaining Wool Roots for Histochemical Examination.—William J. Ellis	957
Fine Structure of Cell Walls in Fresh Plant Tissues.—Dr. R. D. Preston, A. B. Wardrop and Dr. E. Nicolai	957
Extraction of Bright Coals by Anhydrous Ethylene Diamine.—I. G. C. Dryden	959
Properties of Ethylene Diamine.—Dr. S. G. Boas-Traube, Miss E. M. Dresel and I. G. C. Dryden	960
Solubility of Bituminous Coal in Alcoholic Potash.—N. Berkowitz	960
Membrane Electrophoresis in Relation to Bioelectrical Polarization Effects.—Prof. Torsten Teorell	961
Electrical Potential Change Accompanying the Development of Rigor in Iodoacetate-Poisoned Muscle.—Y. M. Liu, C. H. Hsu and Dr. T. P. Feng	962
Nervous Mechanism in Tunicata.—Dr. S. M. Das	963
Interpretation of Experiments on Metabolic Processes, using Isotopic Tracer Elements.—Dr. A. G. Ogston	963
Cultivation of <i>Trypanosoma cruzi</i> in the Developing Chick Embryo.—Dr. P. N. Ganapati	963
Phosphorylation of Myosin by Adenosine Triphosphate.—Prof. Fritz Buchthal, Adam Deutsch, Gustav G. Knappeis and Agnete Munch-Petersen	965
Ribonucleic Acid Supply and Phosphatase Distribution during the Spermatogenesis of <i>Asellus aquaticus</i> .—Giovanna Vitagliano and Marina de Nicola	965
Electrical Resistance of Wires with Large Strains.—Dr. W. Weibull	966
The Green Auroral Line as an Initiator of Phosphorescence in Condensed Systems.—Prof. L. Vegard and G. Kvifte	967
Some New Ferromagnetic Manganese Alloys.—F. A. Hames and D. S. Eppelsheimer	968
Addition of Maleic Anhydride to Anethole.—Prof. M. Lora-Tamayo	969
Interpretation of Data from Electrical Resistivity Geophysical Surveys.—W. G. G. Cooper; J. M. Hough	970
Blinking.—Dr. R. E. D. Clark; Dr. Robert W. Lawson	970
Geology and Mineral Resources of Africa	971
Power Supply and the Electrical Engineer	972
Modern Developments in Forestry	974
Laboratory Glassware Production. By R. Sutcliffe	974
Education in Haiti. By T. H. Hawkins	975

Editorial and Publishing Offices

MACMILLAN & CO., LTD.,

ST. MARTIN'S STREET, LONDON, W.C.2.

Telephone Number: Whitehall 8831

Telegrams: Phisus Lesquare London

Advertisements should be addressed to

T. G. Scott & Son, Ltd., Talbot House, 9 Arundel Street, London, W.C.2

Telephone: Temple Bar 1942

The annual subscription rate is £4 10 0, payable in advance, inland or abroad
All rights reserved. Registered as a Newspaper at the General Post Office

EDUCATIONAL ADMINISTRATION

TWO recent broadsheets by P.E.P. ("Councils and their Schools") have directed attention to the local administration of education and its implications for democracy. The first, which is mainly concerned with the administrative structure of education in Britain, is introduced by the two pertinent questions: "Can provisional standards of efficiency be achieved if real responsibility rests with the ordinary citizen? If not, does the interest of the child demand that the management of its education be surrendered wholly to the expert specialist?"

The 1944 Act provided for an administrative framework in which a harmony of democratic control and technical efficiency could be achieved, and in this broadsheet an account is given of the hierarchy of education authorities, of the composition and functions of local education committees and of schemes of divisional administration in county areas. The second broadsheet discusses educational administration on the level of the individual school, as well as parent-teacher associations and other voluntary organisations connected with the schools.

In examining the machinery of local educational administration, the writers of the first broadsheet have brought together, in a form not otherwise readily accessible, information about the size and populations of the local education authorities and divisional executive areas as well as methods of co-opting members on to education committees. As they rightly point out, assessment of the merits and defects of the 1944 Act can only be tentative, because several of its main provisions have not yet been implemented and many bodies have only recently been constituted.

Some general principles of educational administration have been clearly defined by the Act. The relation between the central Ministry of Education and the local education authorities has been significantly altered. Instead of being merely advisory, the Ministry of Education is now more an executive agency possessing the right to make final decisions on many of the administrative schemes and policies of the local education authorities. This change in the Ministry's function has been unusually prominent during three years of acute shortage of man-power and materials necessitating direct control of available materials from the centre, and many local education authorities are finding it increasingly difficult to distinguish the new permanent statutory functions of the central department from its recently acquired temporary functions. Although these are due to the pressure of special circumstances, local education authorities are feeling the limitation of their sovereignty more acutely than they might otherwise have done, and tend to forget that there is considerable scope for local initiative. The most important elements of educational policy, for example, are the conduct and curricula of schools, and these are still subject to local decisions. Moreover, no significant intermediate regional agencies have been developed, and contact with the Ministry is still direct. His

Majesty's inspectors possess no executive functions except that they may approve certain items of expenditure.

Under the 1944 Act, the Ministry and the local education authorities are thus clearly defined as the chief levels of administration. The Act also provides for a considerable degree of decentralization. In county areas divisional executives have been established, while in all areas managers and governors have to be appointed for individual schools or for groups of schools. This, at least, is the theoretical division between the different levels of administration. In practice the division is less clearly defined, and the place of the divisional executive has proved to be one of the less happy developments of the 1944 Act. Divisional executives were created as a compromise between those who believed that education administration should be vested solely in the county and county boroughs, and those who thought the larger non-county boroughs and urban districts should become local education authorities in their own right. Neither faction has been satisfied. Schemes of divisional administration exist in only thirty-eight counties, and in twenty-one of these there are only one or two divisional executives. Most of the divisional executives set up under county schemes are *ad hoc* bodies and often do not sufficiently represent a community of interests to interpret local views effectively. Yet, the broadsheet concludes, "in spite of all the problems and inconsistencies found within the system, it appears that the chief purpose of the divisional schemes—the participation of a larger number of people, and the expression of local interests, in educational administration—is being achieved. The new method is costly and generally rather slow, for the delegation of functions involves the use of more officers, together with delays in passing on reports and in waiting for decisions from one committee to another on the different tiers of administration."

While this cautious optimism might be justified in some cases, many divisional education officers are feeling acutely frustrated and, as their president, Alderman C. Barton, M.P., said to the recent annual conference: "While there is this apparent tendency towards a broader interpretation of the powers of divisional executives, it is true to say that the restrictive effect of over-elaborate regulations, highly centralized control of supplies, and quite minor details of administration all tend to weaken the real effectiveness of delegated powers. In many cases, too, the stringency of financial control exercised by the county council reduced the delegation to a mere farce."

Nor is discontent confined to the divisional education officers themselves. Before the introduction of divisional executives, some further education establishments in county boroughs were under the control of the county education authority. Now they come under the dual control of both the county authority and the divisional executives, and heads and principals of these establishments are placed in a dilemma as to the proper arbiter of their problems. In certain matters the head is instructed to refer to

the divisional executive; in others to the county authorities; on occasion to both.

After three years experience of divisional executives there is a growing body of opinion that they have no executive place in educational administration and that they should be abolished in favour of a second tier of local administration. This should be made up of those people in intimate touch with the schools, the governors and managers. Selected governors and managers could form local educational advisory committees served by a staff whose duty it would be to keep in touch with schools, teachers, parents, managers and governors.

It is with the composition of governing and managing bodies of schools and the link between parents and teachers that the second broadsheet is chiefly concerned. Starting with the assumption that most people have some real interest in schools and should possess some method of making their influence felt, the broadsheet reviews the means whereby the various interests and experience of different kinds of people could be brought within the administrative system. Besides the establishment of divisional executives, the 1944 Act provides for co-option to education committees and, for every school maintained by a local education authority, a body of governors for secondary and managers for primary schools. These bodies have been only slowly established, and the problem of finding people to serve on them has frequently been the cause of delay. The 1944 Act provides for the grouping of schools, and, usually from expediency, this provision has been widely used. Like most expedient solutions the grouping has proved to be widely unpopular, particularly with those head teachers who are trying to build up local pride and interest in their schools.

Most appointing bodies are trying to discharge their responsibilities conscientiously; but they have been seriously criticized for doing too many jobs themselves instead of bringing new people into local administration. Their reply that new people cannot be found is more a commentary on the narrowness of the contacts of local representatives than of the shortage of public-spirited citizens. "Councillors do not always look beyond the members of their political party and their circle of friends."

The Ministry of Education has issued model articles of government which have been generally used by local education authorities in preparing their schemes for government and management. A division of responsibility is suggested in which "the L.E.A. would have the right to settle the general educational character of the school and its place in the local system. Subject to this general responsibility the governors would have general direction of the conduct and curriculum of the school. The headmaster or headmistress would control the internal organisation, management and discipline of the school, and would also have the power of suspending pupils, subject to a report being made forthwith to the governors and the L.E.A." This provides a *modus vivendi* between the local education authority and the governors and managers. Where there is no system of divisional administration these school bodies are the only local

agents of the education authority. "Wherever there is a three-tier system of administration, competition and conflicts between the different levels are more likely to arise. On each step of the hierarchy there is a latent and sometimes active conflict between those which are immediately above and below each other. The local education authorities have very much the same attitude towards the Ministry of Education as the divisional executives have towards the local education authorities."

It is difficult for divisional executives to take an objective and positive attitude towards governors and managers, because they themselves are agents of decentralized and detailed administration. The boundary between their field of activity and that of the school boards is often blurred, some of the functions assigned to them belonging in principle to governors and managers as well.

It is also easy to forget that the object of educational administration is the individual school and the effect it has on the children in the schoolroom and the playground. The interpreters of educational ideals are the teachers in the schools, and their relationship with governors and managers is the most difficult and subtle problem of all. Primarily this is a relationship which has to be worked out amicably with head teachers; but "in a democratic system it is important that assistant teachers should feel that there is someone who, in matters of discipline and promotion as well as in the day-to-day routine of the school, is there to hold the balance and to see that justice is and appears to be done"

The authority of governors and managers must be wisely and tactfully used and rests on the fact that the head and his staff are the servants of the community; the authority of the school board is a sanction against abuse of power and neglect of duty.

At the school the most vitally concerned representatives of the community are parents. Yet they are the least organised, and their official place within the educational system is that of bystanders rather than of active participants. It is rare for them to sit on committees or act as governors or managers, because they are mothers and fathers and for no other reason. It is only through parent or parent-teacher associations that they can nominate representatives and make representations to governors or managers. Their more active participation in local education administration will depend on whether parent associations intend and are able to take part in the running of the nation's schools. The aims and associations of these parent or parent-teacher associations are very varied, and they seem to grow more freely in schools which serve a socially homogeneous area than in others; they exist most frequently in artisan and middle-class neighbourhoods and are found more often in nursery and secondary schools than in primary. Examples of the work of parent-teacher associations show that they can be a powerful instrument of educational progress. Their effectiveness can be considerably increased if the basis of association were communal rather than sectional; parent-teacher groups which take an

active interest in all the broader aspects of education are the exception rather than the rule. There might be much more concern to form such groups if the reward of representation on education committees and similar bodies were offered to them. Examination of local administration suggests that too narrow a field is harvested in the choice of people to serve on education committees and local school bodies. The belief among councillors that the verdict of voters at a council election should be the only passport to participation in local government should give way to the conviction that education should have a wider appeal than that of ordinary local government and politics. Many parents would be glad to serve on government and managing bodies and local education committees if given the chance. Local education administrators should possess the will and the wit to bring them in. In so doing they would do well to remember the prudent rule of the London County Council, that no parent may become a manager while he has a child in the school concerned; parents with children who have left school may be the people to nominate.

TEN YEARS PROGRESS IN HORTICULTURAL SCIENCE

Hormones and Horticulture

The Use of Special Chemicals in the Control of Plant Growth. By George S. Avery, Jr., and Elizabeth Bindloss Johnson, with the collaboration of Prof. Ruth M. Addoms and Prof. Betty F. Thomson. (McGraw-Hill Publications in the Botanical Sciences.) Pp. xi+326. (New York and London: McGraw-Hill Book Co., Inc., 1947.) 27s.

TWELVE years ago Avery and Burkholder, with other collaborators, translated "Die Wuchstheorie" (Boysen-Jensen) and published a very useful introductory account of "Growth Hormones in Plants" which reviewed the literature concerned with the discovery and isolation of highly active substances from plant tissues, and with the application of these substances and chemically prepared compounds to plants. The ensuing interval has witnessed a rapid and wide extension of the list of synthetic compounds of very high activity, and has also afforded some, but perhaps not as yet sufficient, time in which to estimate the value of their practical application on a commercial scale to cultivated plants. The present volume deals with this expansion and the more practical applications, as the sub-title indicates.

The preface contains the remark that, "a chemical revolution is sweeping through the agricultural world"—others may think it is seeping through some parts of the world—and that, "by the application of minute amounts of growth controlling hormones we enter an important new era". Whether or not such bold claims be true, there can be no doubt that the diversity of the uses to which these substances can be put affords great interest to chemist, botanist, horticulturist and practical growers of many crops. To cater for such diverse readers the text has been prepared on broad general lines, without undue technicality.