

THE MURDOCH BICENTENARY

THIS year marks the bicentenary of the birth of William Murdoch (1754–1839), the originator of gas lighting. For that great achievement alone he would stand out as a great figure in the history of progress, yet it was only one of his many inventions. The story of his life should serve as an incentive and example to every scientific worker. Possibly forgotten is the incident of the wooden hat which brought about his association with Matthew Boulton and James Watt, and his opportunity for achievement. After having walked all the way from his home in Ayrshire to the now famous Soho Works in Birmingham, he might have been turned away by Boulton had not Murdoch dropped his wooden hat at the prospective employer's rebuff. Boulton noticed, however, the unusual character of his head-gear, questioned him about it, and learnt that he was the inventor of the oval lathe with which he had made it. That was the beginning of the famous triple partnership.

As a boy, Murdoch had made himself 'a wooden horse' for his journeys to school, a distance of 2½ miles; it was the forerunner of the tricycle and the bicycle, which only became a practical reality many years later. This experience ultimately led him to construct a model non-condensing locomotive steam-engine, now in the Birmingham Art Gallery; but his attempts to patent it were, strangely enough, opposed by Watt. An entrancing story of these early beginnings and his many other remarkable inventions has been recently published in *West's Gas*, the house journal of West's Social Society, from the pen of his great-grand-niece, Margaret L. Murdoch. Attractive, too, is the 1954 Murdoch Memorial Lecture of the Institution of Gas Engineers, under the distinguished authorship of no less a person than the chairman of Imperial Chemical Industries, Ltd., Dr. Alexander Fleck. Therein has been paid a fitting tribute to Murdoch's memory in a very informative account of the origins and development of gas for industrial purposes, viewed from the angle of an organization which has, above all others, so successfully applied the service of gas to the chemical industry. It is, in Dr. Fleck's words, a record "of the development of a great concert of industrial processes—today as powerful and as full of promise as ever before to make available the things we value in our way of living".

In effect, gas becomes increasingly a great source of chemicals. The vast output of ammonia and nitric acid for chemical manufacture and explosives are the products of a synthesis which begins with the gasification of coke, and the production of hydrogen and carbon monoxide, as water gas. The same process is the starting point of that remarkable synthesis of hydrocarbons and the complex series of by-products associated with the Fischer-Tropsch process, so actively applied to the German economy in the Second World War. From the same origins, with benzene, is produced nylon. From the hydrogenolysis of natural oils and fats arise higher alcohols, solvents and plasticizers, to mention but a limited range of many wonders.

To turn to the wider needs of the fuel industries, there must ultimately come an urgent and crying demand for the greater application of total gasification in the gas and heavy industries, for the supplies

of good coking coals are showing signs of exhaustion, and processes must be devised to utilize weakly and non-caking coals. The 'smog' problem also points out the same objective. With the provision of cheap gas for industry, the efficiency and adaptability of many types of heating and processing plant become greatly advanced. A process for the cheap production of oxygen would expedite all the prospective developments in this field. That the gasification of oil may also serve as a useful adjunct to the processes based on coal may be envisaged with a measure of certainty. In the pursuit of these objectives, reference to the example of Murdoch's career may be timely—to the example of his energy and persistence in an age when technical skills were weak and groping, under rebuffs and disappointments such as the opposition of no less a person than Watt. But for this opposition, Murdoch's locomotive would have been an accomplished fact nearly half a century before Stephenson's, and a quarter of a century before Trevethick's. Indeed, as a boy, Trevethick had been a frequent visitor to Murdoch's home at Redruth, and must have seen him at work on his engine. It is said that Trevethick purchased the model from the disappointed inventor. Murdoch has been called "the incomparable mechanic"; further, we must recognize what an amazing achievement has emerged from disappointment and effort.

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THE HEALTH OF CHILDREN

A NEW exhibition at the Wellcome Historical Medical Museum, at 28 Portman Square, London, W.1, deals with "The Child Through the Ages" and illustrates by means of skilfully selected objects, books and prints the methods which have been used to feed, clothe and transport the young child from early times. It also shows the development of the idea that disease in the child is often so different from that in the adult as to warrant the creation of the specialty later termed 'paediatrics'. This exhibition covers the whole field from the earliest times to the beginning of the present century. It contains many objects of great beauty, and is worthy of the traditions of the Wellcome Museum.

It is well known that the Museum possesses a very fine collection of effigies of ancient Egyptian gods, and a few of these are shown in this exhibition. In the classical period of Greece and Rome the emphasis is rather on the portrayal of the mother with her child. Third-dimensional art had become fully representational, and the artists found in this theme a congenial subject. Some of these third-century B.C. terra cottas show a gracefulness of line which often escapes more ambitious compositions. The marble bas-relief from Ostia of a mother suckling her child exhibits a different treatment from that used in the Greek figures, and is also noteworthy.

During the medieval period, the attitude of the Christian Church resulted in the cult of certain saints who were especially concerned with the care of children. This attitude is exemplified by several very interesting Breton effigies in wood, dating from the

thirteenth century and later. The Renaissance saw the foundation of the Ospedale degli Innocenti at Florence, with its well-known Della Robbia medallions, and there are exhibited a number of interesting illustrations of this and similar institutions.

So far as the management and treatment of children were concerned, there was little change in practice from the time of Soranus (first century A.D.) until the seventeenth century. During the sixteenth century the popular emphasis was on swaddling clothes, the bath and the baby's toilet. Prints by the Dutch, French and Italian masters depict such scenes, and sometimes show practices which are not referred to in the books of the period. The humanitarian movement in Great Britain, so well epitomized by Thomas Coram with his establishment of the Foundling Hospital, led finally to George Armstrong's dispensary (1769) and to the foundation of hospitals for sick children. The Industrial Revolution and the consequent employment of children in industry led to results which are illustrated by contemporary documents. The work of the great Victorian sanitary reformers had an important bearing on the welfare of children. But it was towards the close of the nineteenth century that French work on infant feeding was taken up in Britain and led directly to the great infant welfare movement.

The development of paediatrics as a specialty is well illustrated in this exhibition by the first editions of many of the classics of that subject, such as the books by Hieronymus Mercurialis, Thomas Phaer, Robert Pemell and Walter Harris, to name only a few of those which are shown.

Some comments may be made regarding methods of feeding infants at different periods. Some of the third-century B.C. Greek feeding bottles which are shown have artistic merit. The Roman feeding vessels are of a glass of great beauty. One of the most interesting types of feeding vessels exhibited is the so-called breast-shaped feeding bottle, used by the Greek settlers in southern Italy during the three centuries before our era, of which several examples are shown. Of a complicated design, these charming bottles must have been difficult to fill and next to impossible to keep clean. In the sixteenth and seventeenth centuries feeding bottles resembled rather large spice pots, and were made in pewter. Several fine examples are shown. The early nineteenth century saw the florescence of the boat-shaped feeding bottle, with a spout at one end and an opening for filling on the upper side. Made at first in porcelain and earthenware, some had interesting designs. Wedgwood and Spode both made such types. From these to similar glass vessels was a short step. Some fine cradles of different periods are also shown, together with the 'walking-stool' which appears in paintings by the great masters as early as the sixteenth century.

As a pendant to the historical exposition, some cases are devoted to the management of the child among primitive races. The baby-carriers used by certain African tribes and by the American Indians are beautifully made. Those of the Indians consist of highly decorated pouches of hide. The feeding of infants among primitive peoples is illustrated by several carvings. One of the most interesting of these is a fine ivory from Central Africa, showing a mother suckling her child. The exhibition also contains a very interesting series of amulets, used both by primitive peoples and by Europeans up to the present day.

EAST AFRICA HIGH COMMISSION REPORT FOR 1953

THE East Africa High Commission was constituted on December 19, 1947, to replace the East African Governors' Conference, and came into operation on January 1, 1948. It grew out of the experience of common administrative organization of the Second World War, and the scope of the Commission is due for review before the end of 1955. Its purview included on January 1, 1948, the four research organizations comprised in the East African Research Services, to which have since been added the Desert Locust Survey and Control, the East African Bureau of Research in Medicine and Hygiene, the Filariasis Research Unit, the East African Medical Survey, the Virus Research Unit, the East African Malaria Unit, the East African Inter-Territorial Leprosy Specialist and the East African Marine Fisheries Research Organization. Although the annual report of the Commission for 1953* includes as Part 3 an account of the evolution and of the constitution and scope of the Commission, out of its total of ninety-eight pages a full forty are concerned with the research and scientific services, and the record of activities thus presented is one which is of unusual interest to the scientist, whose clearly evinced support may be required if next year is to see no interruption to such services and the provision of inter-territorial financial support on an adequate scale.

During the year the East African Advisory Council on Agriculture, Animal Industry and Forestry was replaced by a Governing Body for the Natural Resources Group of the High Commission Research Services. The Body now constituted will be responsible for seeing that the activities of the four East African Research Organizations are directed to effective ends and supervising their general financial policy. To some extent the chapter of the report dealing with research and scientific services overlaps with that in "Colonial Research", but fuller accounts are given of certain activities than is possible in that report. On the other hand, the activities of the East African Industrial Research Board are covered more fully in the eleventh annual report of that Board (see *Nature*, September 4, p. 430). In the East African Agriculture and Forestry Research Organization, completion of farm buildings for the Animal Industry Division filled a main gap in research facilities, and the Plant Quarantine Station at Muguga was also completed during the year. Considerable work was carried out on breeding crop plants for resistance to disease, particular success being had with a strain of maize resistant to rust (*Puccinia polysora*). Entomological research was directed mainly towards the survey of insects attacking forest trees and timber and investigations of the more dangerous pests and the use of insecticides on field crops. Soils research was concentrated on the characteristics of a soil, determinable by analysis, that will indicate the ability of plants grown on it to respond to dressings of phosphate and nitrogen. The Veterinary Research Organization continued to work on the development of a quantitative serological test for the virus and antibodies of rinderpest, as well as field surveys of east coast fever, studies on problems of identification of the genera

* Colonial Office. Annual Report on the East Africa High Commission, 1953 (Colonial 305). Pp. ii+100+4 plates. (London: H.M.S.O., 1954.) 3s. 6d. net.