

Richard Kirwan, F.R.S., 1733-1812

By DR. W. H. BRINDLEY

RICHARD KIRWAN, the bicentenary of whose birth falls this year, was known to his generation as a man of great understanding and charm; he became known, indeed, as the 'Nestor of English chemistry'. To succeeding generations, however, his exploits and his personality have not been fully revealed; for in spite of the high esteem in which he was held by his illustrious contemporaries, in spite of his numerous researches and his close association with learned societies, his career received little attention from the biographers of his time. In fact, no serious attempt was made to record even the salient features of his life until almost forty years after his death. By that time many details were probably beyond recall; even the exact date of his birth does not appear to have been published, though this omission is, perhaps, not surprising in view of the haphazard manner in which births and deaths were registered in Ireland prior to the nineteenth century. Donovan omits the date from his biographical sketch, whilst Thomson, in his "History of the Royal Society" (1812), states that Kirwan was born on August 1, 1735. The destruction of the Record Office in Dublin in 1922, and also of other records, make it unlikely that we shall ever know more than the bare fact that he was born in 1733.

Although Kirwan was an indefatigable writer, ever ready to express his opinions upon scientific and other matters, there is no evidence that he kept a detailed and systematic account of those personal experiences which would have thrown so much light, not only upon his own career, but also upon contemporary events and personalities. The failure of modern biographers to elaborate his life-story must therefore be attributed to a deficiency of authentic facts, rather than to a lack of interest in the study.

Born at Cloughballymore, Co. Galway, in 1733, Kirwan was a precocious child. At a very early age his desire for uninterrupted study was so keen that he was wont to read his books sitting among the branches of a tree. Leaving Ireland in 1750, he spent four years at an academy at Poitiers, where, despite his predilection for chemistry, he became a good Latin scholar and therefore did not entirely disregard the remarks of his mother: "I apprehend," she wrote, "that chemistry, or some such abstruse study, takes up your time and attention too much. . . . Write to me again about what books you want; if they be of chemistry, I'll never desire to know more of them."

Kirwan entered the Jesuit novitiate, either at St. Omer or at Hesdin, in 1754, this course being discontinued the following year, when he returned to Ireland to succeed to the family estates. At this time, and for some years to come, his career was unsettled, the Society of Jesus, chemistry

and law, in turn, claiming his attention. Although he conformed to the established church in 1764, and ultimately became a Unitarian, his marriage, in 1757, was the immediate cause of his separation from the Society of Jesus, whilst an apparent discourtesy on the part of Black, in failing to acknowledge a number of communications from Kirwan on 'fixed air' and 'causticity', temporarily estranged him from chemical pursuits, the intervening period being occupied in studying law and in practising at the Irish Bar. But his zeal for chemical knowledge was such that it could not be quenched by Black's indifference; he gave up his legal practice, and in 1768 resumed those studies with which the name of Kirwan is chiefly associated.

In 1777 Kirwan settled in London, staying there until 1787, when delicate health compelled him to lead a more retired life, which he sought and found in Dublin. During those ten years he was in close contact with many kindred spirits, his home in Newman Street being the resort of Cavendish, Priestley, Banks, Horne Tooke, Burke and other eminent men. Distance alone must have prevented Black from attending the conversazioni, since he and Kirwan were now very friendly. Although Johnson does not appear to have been a member of this circle, he met Kirwan from time to time, probably in the company of Burke and other members of the Literary Club. On one occasion, when trade winds was the subject under discussion, Johnson, with his usual temerity, crossed swords with Kirwan, whose knowledge of the subject was vastly superior and his dialectic skill little inferior to those of his opponent. As Donovan points out, Johnson's vanity was so wounded in this skirmish that he ever afterwards refrained from entering into an argument with Kirwan.

Kirwan was elected a fellow of the Royal Society in 1780 and was adjudged Copley medallist in 1782 for a series of communications on chemical affinity; he became president of the Royal Irish Academy in 1799. He published a large number of papers on chemistry, geology, mineralogy, meteorology, philology and metaphysics, whilst his "Elements of Mineralogy" (1784)—the first systematic treatise on the subject in English—went through several editions, and was translated into French, German and Russian. His keen interest in this study was demonstrated by his securing the Leskeyan collection of minerals for the museum of the Royal Dublin Society and, above all, by the memorial which, in his capacity of honorary inspector-general of mines in Ireland, he presented to the Government, pointing out the economic importance of mineralogical science and requesting support and encouragement for its advancement. As Pickells remarked at the Cork

meeting of the British Association in 1843, Kirwan's work in this particular field was of national importance.

Kirwan's essay on the phlogiston theory, of which he was a leading exponent, attracted the close attention of his fellow-chemists, especially those of the French school, who paid Kirwan the compliment of marshalling their forces to refute his arguments; Lavoisier, Berthollet, de Morveau, de Fourcroy and Monge co-operating in this effort. The refutation was so complete that ultimately Kirwan was converted and proclaimed his conversion with characteristic grace. Priestley, now

the sole exponent of the Stahl theory, was greatly impressed by his friend's defection, and remarked that Kirwan had acquired more honour by his conduct than he could have done by the most brilliant discoveries.

In his later years, Kirwan devoted most of his time to metaphysical studies, though it cannot be doubted that he continued to pass many happy hours in studying Italian music, of which he had a profound knowledge. A true philosopher to the last, caring neither for riches nor for distinctions, he died at Dublin on June 1, 1812.

News and Views

European Civilisation and African Brains

DR. H. L. GORDON'S letter in the *Times* of December 8, recording the results of his calculation of the average skull capacity of 3,444 unselected adult male natives of Kenya Colony, and an examination of 100 brains of normal adult male natives, opens up a question of considerable scientific interest and of far-reaching practical importance. Dr. Gordon finds that the average cranial capacity of the natives measured is 1,316 cubic centimetres, as against the European average of 1,481 c.c. The element of uncertainty introduced by the fact that the cranial capacity, and inferentially the size of the brain, is calculated from measurements taken on the head of the living is neutralised in some degree by the examination of the 100 brains, which confirms the evidence of the cranial capacity, giving an average weight 150 gm. less than the average brain weight of the European. There is a further quantitative inferiority in the brain, in that, according to Dr. Vint, Government pathologist, the cortex shows a deficiency of 15 per cent in quantity, while the cells of the cortex are smaller, less well arranged and less well shaped than in the European brain. Thus both in quantity and quality the Kenya brain is shown to be inferior. Anthropologists have virtually abandoned any attempt to correlate size of brain with mental ability in view of the conflicting character of the facts; but if ability is regarded as in some way related to the quality of the brain, the inferiority of the Kenya brain is still significant.

THERE are many questions which the anthropologist would wish to ask before accepting these figures at their face value. He will wish to know more about the source from which they were obtained. While Dr. L. S. B. Leakey in the *Times* of December 13 inquires as to the provenance of the brains examined, others will wish to know the tribal affinities of the natives whose heads were measured. Among Kenya natives there are many differences, both physical and cultural, according as they are derived from nomad or settled, pastoral or agricultural groups. Further, it may be asked, how does the cranial capacity relate to other measurements, such as stature, and are the European figures comparable on this basis? Finally—a point

frequently overlooked in a comparison of this nature—from what social class are the European figures derived, educated or uncultured? It would appear from the general tenor of Dr. Gordon's communication, and more particularly from his reference to the incidence of dementia præcox among natives who have received European education, that his investigations lead him to the conclusion that the character of the African, or Kenya, native brain is not such as to be adaptable to Europeanisation. If this could be shown to be the true view, it would seem to demand a native policy of prolonged, if not permanent, segregation, to allow native institutions to develop slowly along their own lines. Whatever may be the view taken of Dr. Gordon's results as they stand, they call for further investigation with official support, and on lines in accordance with strict scientific requirements, with the view of determining the facts and, if necessary, their practical consequences in relation to native policy.

Import of Dyestuffs into Great Britain

THE second reading of the Dyestuffs (Import Regulation) Bill was carried in the House of Commons on December 18. Dr. Burgin, Parliamentary Secretary to the Board of Trade, pointed out that the object of the bill was to place on a permanent basis the prohibition of importation into Great Britain of dyestuffs and intermediates. Such prohibition has been in force since January 1921 and has come up for consideration annually, being prolonged by the Expiring Laws Continuance Act of this year in order to give time for the preparation of the present bill. Dr. Burgin stated that conditions have changed greatly since 1920. The production of dyestuffs on the Continent is in excess of the world's requirements, and one of the first effects of raising the ban on such imports into Great Britain would be that the smaller British dyestuff makers, who render invaluable service to the consumer by the production of specialised colours not available elsewhere, would be driven out of business. On the advice of the Import Duties Advisory Committee, Treasury Orders coming into force on December 27 will be issued, removing dyestuffs to the free list and imposing additional duties, making the duty 20 per cent in all, on pigments which are synthetic organic colours or colouring