The Bicentenary of John Hunter.

By Sir ARTHUR KEITH, F.R.S.

CONSIDER for a moment the unenviable position of John Hunter's two executors in the year 1793—his nephew Dr. Matthew Baillie and his young brother-in-law, Mr. (later Sir) Everard Home. Hunter's sudden death on Oct. 16, 1793, in his sixty-sixth year, left on their hands a huge establishment running from Leicester Square to Charing Cross Road—just to the south of the site now occupied by the Alhambra Music Hall. The income of the establishment had suddenly ceased; a sum of more than £10,000 a year was needed to keep it going. A brief search showed them that the place was in debt; bills had to be met. Hunter's carriage 'blood-horses' and coach had to go; Mrs. Hunter, brilliant and fashionable, had also to part with her coachman, her carriage, her horses, and sedan chair. Pictures, books, furniture had to be sold to provide Mrs. Hunter and her daughter with a modest shelter in Brighton. The weekly wage bill had to be reduced; the staff, numbering more than a score, was reduced at a stroke to one—Mr. Hunter's young museum assistant, William Clift.

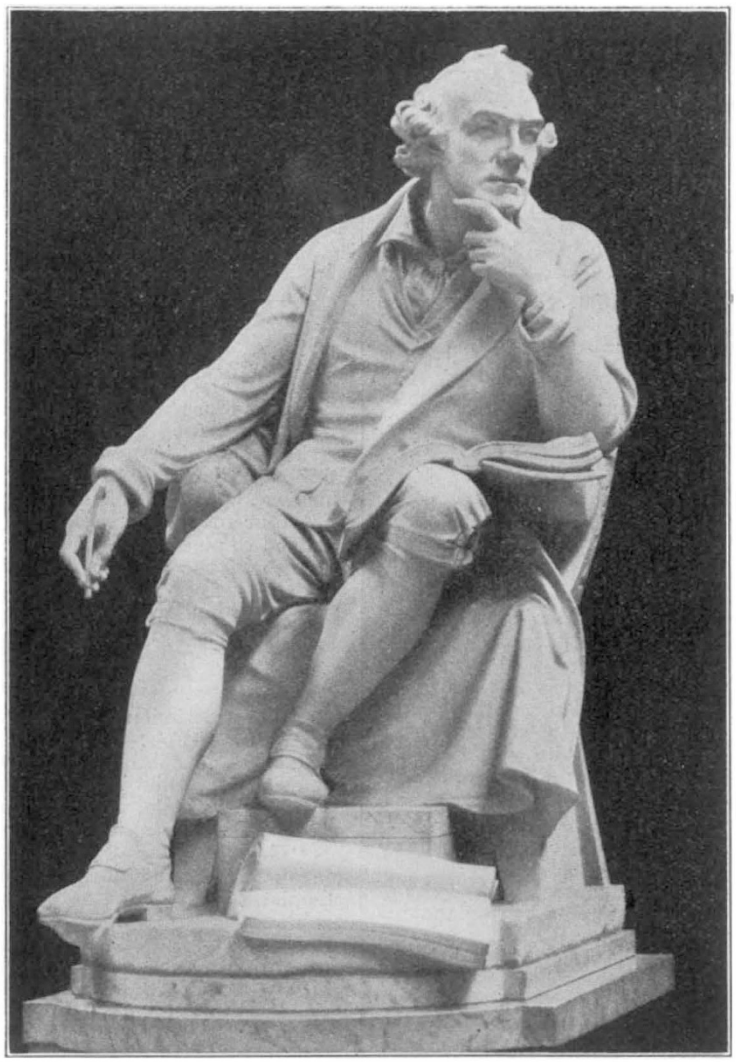

FIG. 1.—The statue of John Hunter, executed by Weekes and erected in the Royal College of Surgeons, London, by public subscription in 1858.

What was to be done with the Museum which Hunter had erected in the yard or garden of his premises? On this treasury he had lavished every sovereign he could earn or borrow, and every hour he could steal from practice, hospital, and sleep. It was the harvest of an intense lifetime. After seven years of 'lobbying,' the two executors succeeded in persuading a government in search of money to wage successful war with France, to buy Hunter's museum for £15,000. The collection was handed over to the Corporation of Surgeons in 1800; that body obtained at the same time a new charter, became the College of Surgeons, and established itself and its museum on the south side of Lincoln's Inn Fields—where both still flourish.

The two executors continued to believe in Hunter's greatness, as may be seen from the following quotation taken from the issue of the College calendar for the present year:

"In the year 1813, Dr. Matthew Baillie and Sir Everard Home, Bart., executors of John Hunter, 'being desirous of showing a lasting mark of respect' to the memory of the late Mr. John Hunter, gave to the College the sum of £1684 : 4 : 4, three per cent. Consolidated Bank Annuities for the endowment of an annual oration, to be called the Hunterian oration, and to be delivered in the theatre of the College on the 14th of February, the Birthday of John Hunter, by the Master, or one of the Governors for the time being, or such other member of the Court of Assistants as should be appointed—such oration to be expressive of the merits in Comparative Anatomy, Physiology, and Surgery, not only of John Hunter, but also of all such persons as should be from time to time deceased, whose labours may have contributed to their improvement or extension."

The first oration was given in 1814 by Sir Everard Home; last year it was delivered by the president of the College, Sir Berkeley Moynihan; this year Sir Holburt Waring is Orator, and will take the opportunity of measuring the debt which modern surgery owes to discoveries made by chemists and by physicists. Hunter's two executors were interested

parties; were they justified in launching on succeeding generations this act of Hunter worship? Is Hunter's memory being kept alive by a species of 'artificial respiration'? Many younger surgeons would return a frank affirmative; what Hunter thought and did, they hold, has no bearing on the surgical problem of the twentieth century. With whom lies the truth? With the executors, or with these modern critics?

Before seeking to measure our indebtedness to Hunter, let us first inquire how a youth—the youngest of a family of ten, bred on a bleak upland farm some eight miles southward of Glasgow, succeeded in establishing himself in London as the leading surgeon of his day. John Hunter's career was determined in 1736; "Jockie," then a spoiled boy of eight, was running wild at home, while his brother William, ten years his senior, had finished with the University of Glasgow and was thinking of the Church as a career. It was in this year that a young practitioner — William Cullen by name— settled in the neighbourhood. In due time he was to become the great Dr. Cullen and hold in medicine much the same position as his contemporary Samuel Johnson held in literature, but in the meantime we are concerned with him merely as medical attendant on the Hunter family. He recognised William's ability; took him into his house as pupil-apprentice; put him in touch with the medical problems of the time, and showed him how the leading minds of Europe were seeking to solve them. We are indebted to Cullen for the medical Hunters.

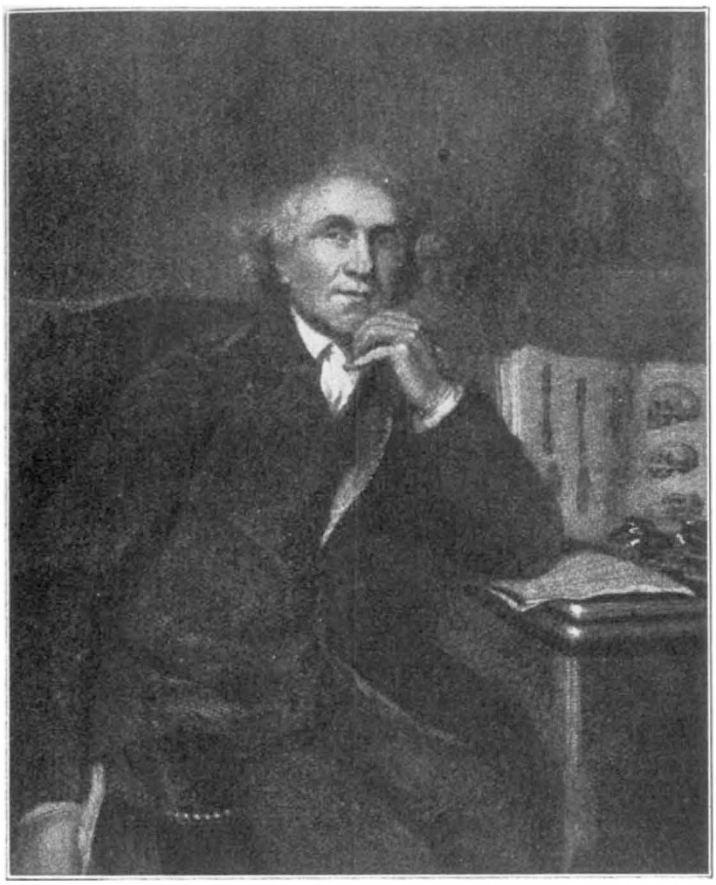

FIG. 2.—Portrait of John Hunter, from Sharp's engraving of the original picture painted by Sir Joshua Reynolds in 1788, when Hunter was sixty years of age.

William Hunter's ambition was thus fired; in October 1740 he visited London and found a pretext for not returning to Scotland. There were great hospitals in London then, but no medical schools were attached to them as is the case now. Such schools as existed were in private hands. William established one in Covent Garden, laying himself out for practice at the same time. He was careful in dress, suave in speech, and cultured in manner; he had an eye on Court and on the main chance; he was a scholar, a brilliant teacher, kept himself closely in touch with the best that was being thought and done in medical Europe, and made observations for himself at first hand.

In October 1748, William found his school in a prosperous state; his dissecting room was crowded; the preparations which he had made and preserved to illustrate his lectures began to form an imposing museum. His youngest brother, John, although twenty years of age, was still idling at home; he had grown into a short, thick-set fellow, with sandy hair and freckled face. William brought him to London and set him to work in the dissecting room. John took to the life as a duck takes to water; he had hands and could use them; he never really cared for books; he preferred to decipher the hieroglyphics of life at first-hand; he chose to register his discoveries in museum jars rather than in printed pages. It was only when he turned lecturer that he was compelled to reduce his observations, thoughts, and experiments to words. He was careless of dress, unconventional in manner, and uncompromising in speech. An unceasing search into the nature of life became his religion. He was resolved to win on merit; and in the long run, sheer merit was victorious. Cullen launched William on the sea of medicine, and in due course William launched his brother John—now the subject of seventy-four Hunterian Orations.

So I come back to my main question: What did Hunter do for medicine that we should continue to be mindful of him? Great men, as a rule, are so easily labelled—Jenner, Hunter's pupil, discovered the efficacy of vaccination; Charles Bell demonstrated the action of spinal nerves; Marshall Hall discovered reflex action; Lister, antiseptic surgery. In not one of these cases is the label adequate, but the public demands that its great men must be ticketed. There is no tag for John Hunter; to do him justice we must give him a hundred.

It has been said that Hunter was the founder of scientific surgery. If by this is meant that surgery will become a science only when all the secrets of life have been revealed and mastered, then Hunter has a just right to such a title. For the obsession of his life was the discovery of the mechanism of living matter; he perceived that life was the same in all its forms; an organised blood clot in a patient in St. George's Hospital was for him the same thing as the hydra which he grew in his vivarium at Earl's Court. He applied the same method of study to both. He knew nothing of oxygen, oxidation, or of the chemical nature of combustion, but he measured the 'amount of life' by the 'vital' heat generated, using the most delicate thermometer obtainable, to give him a standard for comparison. He knew nothing of those living units we now call cells or corpuscles; he measured the processes of 'simple life' in the mass. He subjected it to all degrees of temperature and noted its reactions.

In this way Hunter tried to get at the secrets of that reaction of living matter which is called inflammation. He used his thermometer to tell him what was happening in the hibernating hedgehog, his beehives in winter, and the trees of his garden when frost was deep in the ground. He realised to the full that if we are to understand life we must first study growth, and that of all the tissues of the animal body, bone was the one which best lent itself to an exact inquiry. He carried out an experimental study of the growth of bones, extending over many years, in fowls, pigs, asses, and deer; he used the modern methods of vital staining and of experimental operation. He regarded antlers as bony tumours; he sought to understand how Nature produced them and particularly he desired to discover the secrets of the bloodless operation by which she removed them annually—without fee. Living matter, by itself, had mastered the art of healing; if men were ever to become surgeons they must learn their art by studying the surgical ways of living matter. That was Hunter's message to his day and generation; for this reason he turned experimental embryologist, experimental botanist, experimental zoologist, experimental physiologist, experimental pathologist, and experimental surgeon. What he did and what he thought can never cease to be a source of inspiration to those who inquire at first hand, for the problems he sought to solve are still those which envisage us—the basal problems of life.

Why, then, do the younger surgeons of to-day neglect Hunter or brush him aside as out-of-date? It is because of the unbounded success of Lister's discovery; the Listerian revolution has led them to concentrate their whole attention on the cleanliness of their wounds and the technique of their operations. Their attention is occupied with the organisms which may invade wounds and they forget a fact ever present in Hunter's mind—that the powers of healing are resident in the living flesh. No one who notes what is happening now in the most progressive lines of biological inquiry—experimental embryology and experimental biology, as represented by tissue culture, tumour grafting, transplanting of living organs and parts—can fail to see that after a century and a half we are again returning to the Hunterian outlook and the Hunterian methods of approach.

Hunter's published works are contained in six volumes—the four volumes which are included in Palmer's edition (1837) and the two precious volumes of "Essays and Observations" published by Sir Richard Owen in 1861. A study of these volumes shows how dangerous it is to say wherein Hunter was wrong or mistaken; he made many grave errors of inference—none of observation. But in the majority of instances time has proved that it was not Hunter who was in the wrong, but his editors.

There is one aspect of Hunter's life which his annotators have refused to mention, or if they have alluded to it, explained it as an aberration of a great mind. The truth is that Hunter's inquiries had made him a pagan; he could not harmonise what he found in the realms of Nature with what his inquiries revealed to his own eyes. He silently and resolutely thought and wrote as if the book of Genesis had never been in existence. The last paper he ever penned was "Observations on the Fossil Bones presented to the Royal Society by His Most Serene Highness the Margrave of Anspach." In this paper the council of the Royal Society was alarmed to find that Hunter, in order to explain certain changes, postulated "thousands of *centuries*," and ultimately succeeded in getting the estimate reduced to thousands of *years*, thus bringing the estimate within the limits of Biblical chronology. In the meantime Hunter died, and his brother-in-law, Sir Everard Home, readily sanctioned the desired change. Even Sir Richard Owen in 1861 is an apologist for Hunter's heretical beliefs. In the 'advertisement' to "Essays and Observations" he wrote:

> "Some may wish that the world had never known that Hunter thought so differently on some subjects from what they believed, and would have desired him to think. But he has chosen to leave a record of his thoughts and, under the circumstances in which that record has come into my hands, I have felt myself bound to add it to the common intellectual property of mankind."

There would have been no record left if Sir Everard Home had had his way. That any record was preserved at all of Hunter's real thoughts is due to Owen's father-in-law, William Clift. Home burned Hunter's original manuscripts, the usual explanation being that he had pilfered from them. A close study of the conventional character of Sir Everard Home and of the circumstances which surround this infamous act of vandalism have convinced me that the accepted explanation is not the true one. Home shared implicitly in the religious beliefs of his time and never doubted that by destroying all evidence of Hunter's heretical convictions he was performing an act of piety on behalf of the world in general and for the memory of his brother-in-law in particular. The world has still much to learn from John Hunter.