

The General Medical Council has virtually given a free hand to the medical schools to reorganize the curriculum, and while experimenting there can be little harm in trying methods used in other countries.

The time has come to realize that the clinical student is no longer a schoolchild but an adult at one of the most impressionable periods of life, and, while the majority of teachers appreciate this, there are still many people who believe that those on the very bottom rung of the ladder should be seen and heard only when spoken to. The transition from student to doctor should be almost imperceptible, not suddenly on obtaining some letters after one's name.

## Nova et Vetera

### GRAY'S ANATOMY THE FIRST HUNDRED YEARS

Biologically, survival for a hundred years is sufficiently rare to be regarded as a curiosity, but in the world of books there are creations so timeless as to be unaffected by a century more or less of human regard. *Gray's Anatomy*, which was first published on September 1, 1858, can by no stretch of the imagination be included among these immortals. In earlier times, when age lent authority to medical as well as theological doctrine, it was commonplace for students to be examined on texts almost as ancient as their own civilization. That the same work should have served so many generations of medical students in a century which has seen greater advances in medical knowledge than had the thousand which preceded it is so extraordinary a fact as to rank with the curiosities.

What is the reason for it? Has anatomy stood still while all else has been on the march? Or is it so little regarded that the same manual which instructed our great-grandfathers will serve for our sons? What is so special about this book, that, in an age and in a department of knowledge where the very latest information is eagerly sought, it should reach the solitary eminence among current textbooks of celebrating its centenary? The answer must be that, like other centenarians, it owes its survival to the intelligence and skill with which it has been treated, at critical times, by its medical attendants, in this case a succession of distinguished editors and gifted draughtsmen. They have amputated, excised, grafted, and injected to such effect that Gray himself would regard with amazement the prodigy which has grown from his own modest offspring, although a closer inspection would enable him to recognize its original features.

#### Henry Gray

The son of a Court Messenger, Henry Gray was born in 1827 and enrolled as a student at St. George's in 1845. Painstaking industry, rather than brilliance, won him an important prize from the Royal College of Surgeons in 1848, and at the age of 25 he was elected a Fellow of the Royal Society, a distinction less notable then than it is to-day. For a dissertation "On the structure and use of the spleen" he was in 1853 awarded the Astley Cooper prize of 300 guineas. He was, then, a young man of promise and some achievement—but not the greatest or even the most knowledgeable anatomist of his day—when he set out to provide the student, within the covers of a single volume, all that he needed to know of human anatomy in order to pass his examinations and to practise competently as physician or surgeon.

His duties as demonstrator and lecturer on anatomy at St. George's, and as curator of its museum, gave him the experience and material necessary for such a work. Within his own circle of friends and colleagues he was fortunate in

having a first-class draughtsman, Henry Vandyke Carter (1831-97),<sup>1</sup> who had also held the post of demonstrator of anatomy at St. George's, and an unusually skilled literary mentor, Timothy Holmes (1825-1907),<sup>2</sup> who was also a surgeon-anatomist. Gray's debt to his illustrator is plain for all to see, and the early success of the book has been attributed to the excellence of Carter's drawings. Of these there were 363 in a volume of 750 pages. The greater part of them were entirely original, but some were borrowed—with acknowledgment—from the works of Quain, Arnold, Breschet, Mascagni, and others, the black-and-white of the woodcuts being relieved by colour only in the sections on the blood vessels, where blue and red indicate veins and arteries. The order is similar to that of modern editions,



FIG. 1.—Henry Gray (1827-1861), from an original photograph taken by Henry Pollock. By courtesy of the Wellcome Historical Medical Museum.

but sections originally dealt with separately are now grouped together under the comprehensive headings of angiology, neurology, and splanchnology. Notable by their absence are the now familiar introductory sections on histology and embryology.

The publisher, John W. Parker, included many of the great Victorian authors in his list. He was printer to Cambridge University and is remembered for the introduction of the steam-press against considerable opposition, especially when it was employed in printing Bibles, a proceeding regarded as faintly sacrilegious. His imprint also appeared on the second edition in 1860, but in 1863 he retired and sold his business, with all his copyrights, to Longmans, whose name is found on the title-page of Gray's third edition in 1864.

Work must have begun on a second edition almost immediately, for it was published at the end of 1860 with a number of revisions and corrections by Gray and with 32 additional illustrations, 27 of them from new and original drawings by John Guise Westmacott (1811-84). This was the last edition for which Gray himself was responsible. In June, 1861, while attending a nephew suffering from small-pox, he contracted the disease and died within a week. He was 34.

### Later Editors

It was fortunate for the future of Gray's book that his friend Timothy Holmes, who had just begun publication of his *System of Surgery*, agreed to take over the third edition, which was published by Longmans in January, 1864. Few changes were made at first, but for the fifth edition (1869) Holmes supplied an introductory section on general anatomy and development "so as to furnish the student with a very succinct, but it is hoped sufficient, introduction to Microscopic Anatomy." He also included a description of the ovum and structures characteristic of the foetal state, "a subject passed over in previous editions." As he thought it

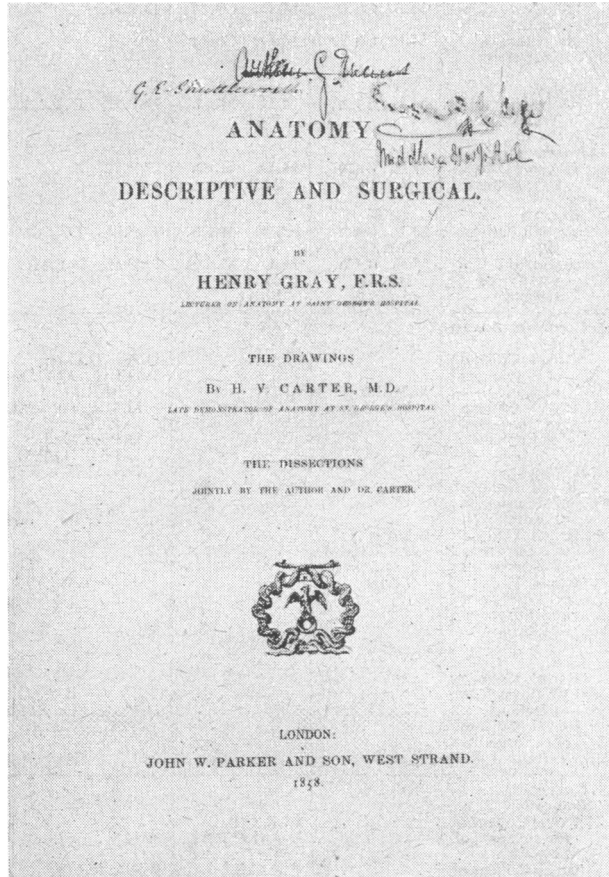


FIG. 2.—The title-page of the first edition, from the copy in the Wellcome Historical Medical Library.

"useless to manufacture new drawings" to accompany this additional text, suitable illustrations were borrowed from Kölliker, Todd, Bowman, and others. In subsequent editions, until the ninth (1880), the last which he edited, Holmes continued to pay particular attention to the section on histology, and additional illustrations were added from Klein's *Handbook for the Physiological Laboratory* and the same author's *Atlas of Histology*. The section on visceral anatomy was also thoroughly revised with the aid of Professor Darling, of New York, and the account of the anatomy of the kidney was rewritten by E. J. Spitta.

Even when Holmes felt that it was time for him to hand over his task to another the link with Gray was still unbroken, for the new editor, Thomas Pickering Pick (1841–1919), was not only a St. George's man but had actually learnt his anatomy from Gray himself. Under his care the stately progression of editions continued unabated, each larger and more comprehensive than the one preceding. The tenth edition (1883) had some new drawings made from fresh dissections carried out at St. George's; the thirteenth (1893) drew on the resources of the Hunterian Museum of the Royal College of Surgeons and new dissections were

made there by Professor Pearson, who also helped in the preparation of the drawings, some of which were printed in colour. Pick retired in 1900, but he collaborated with his successor, Robert Howden (1856–1940), in preparing the 15th and 16th editions (1901, 1905). To judge by the glowing portrait of Howden, written by the late Professor Grey Turner when Howden died, he was a very different character from Pick. Howden, who was professor of anatomy at Durham University, "made the subject of anatomy of living and surpassing interest" to his students. Pick "was rapid and correct, but not very inspiring, for he followed the lines of *Gray's Anatomy* so closely that he was popularly reputed among the students to know that elaborate treatise by heart." Pick had introduced the use of rather unsatisfactory half-tone blocks into the illustrations. In the 16th edition (1905) a return was made to woodcuts and line drawing, ostensibly "to lighten the weight of the book," which now had 1,248 pages and 811 illustrations. In the course of his 25 years as editor of the *Anatomy* Howden carried out innumerable dissections for the purpose of new illustrations and constantly strove to keep the book up to date. According to Sir Thomas Oliver, "when he was about to bring out a fresh edition he had the artist for weeks by his side in the college, so careful was he about the minutest details." It was at Grey Turner's suggestion that a reminder of its original author was given to the reader in the 23rd edition (1926), the last which Howden edited, in the form of a brief biographical memoir and portrait of Gray.

It would take up too much space to name all those who have had a part in producing the various twentieth-century editions. The book has followed a parallel course in America, where one of its most important editors was W. W. Keen. When Professor T. B. Johnston, of Guy's Hospital Medical School (later assisted by Dr. J. Whillis), took over the editorship from Howden in 1930 the book was again drastically revised and partly rewritten, and the 24th edition of that year had grown to 1,466 pages and 1,301 illustrations, of which 607 were coloured. The Centenary Edition—the 32nd—which is noted elsewhere in this issue, must therefore be looked upon as the mature product of many minds and many hands. A close analysis would enable us to determine exactly how much of Gray is left in it, but it would be a pointless task. He was once the author of a book, but he might more truly be regarded as the founder of an institution.

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### REFERENCES

- <sup>1</sup> For an account of his subsequent career and a portrait see Bishop, W. J., *Med. Biol. Ill.*, 1954, 4, 73.
- <sup>2</sup> *The Dictionary of National Biography* and *Plarr's Lives of the Fellows of the Royal College of Surgeons of England* have good biographical accounts of Holmes.
- <sup>3</sup> *Brit. med. J.*, 1940, 2, 885.
- <sup>4</sup> *Lancet*, 1919, 2, 499.
- <sup>5</sup> *Ibid.*, 1940, 2, 826.

"It has always seemed to me that the best of all ways to convey an idea is with chalk. Not only does the speaker get a doubling of the receptive channels—the visual added to the auditory—but the progressive adding of each element to the structure of the drawing drives home, piece by piece, a thing not quickly or completely grasped as a whole from a previously prepared, complete drawing. In teaching the medical student the primary requisite is to keep him awake; obviously you cannot teach anything to a sleeping man. Like the exhaust of the airplane the patter of words of a read paper is soporific. Chalk-talking arouses the drowsy. When a late-hour student seemed to be on the verge of succumbing, he could be brought back by speeding up the drawing or by changing to a correlated subject. For example, the sleepy student could not resist a chalk demonstration of tracheotomy, in which the patient, first shown as apparently dead of asphyxia, is changed by a few strokes to a smiling, grateful patient, and is quoted as saying, 'Thank you, Doctor Jackson.'" (From *The Life of Chevalier Jackson—An Autobiography*. Macmillan Company, New York, 1938.)