FIG. 1.—Composite photograph and drawing showing the present College and the Nuffield College of Surgical Sciences.

THE ROYAL COLLEGE OF SURGEONS OF ENGLAND

ONE HUNDRED AND FIFTIETH ANNIVERSARY

BY

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The Royal College of Surgeons looks back with pride over 150 years of service to the science and art of surgery, while it looks forward with new vigour to fresh and wider enterprise, on which it has already embarked. The College was disastrously damaged by the war, but, thanks to the energy of the immediate past president, Lord Webb-Johnson, plans for rebuilding and extension have been prepared and the restoration fund has already attracted a high proportion of the amount invited, in donations from all over the world which range from those of humble affection to others of princely munificence. In addition, during his presidency the scientific departments of the College have been very richly endowed by the late Sir William Henry Collins, and soon the new Nuffield College of Surgical Sciences, a residential college for a hundred postgraduate students, will rise beside the restored College. Without waiting for the possibility of rebuilding and expanding, the newly assumed duties of organized postgraduate teaching and of promoting collegiate life among students, Members, and Fellows have been put actively in hand. The College has drawn to itself, too, the kindred professions of anaesthetics and dental surgery, formed into special Faculties within it.

The Royal Charter

A hundred and fifty years ago the Company of Surgeons of London had been wound up after irregularities in the conduct of its business. The reforming spirits among the London hospital surgeons reincorporated themselves not as a City company but under royal charter as the Royal College of Surgeons in London, and proceeded to assume the duties and functions of the old Company. Thus the College has direct continuity with its predecessors and inherited its records, its plate and possessions, and its newly acquired house in Lincoln's Inn Fields. The Company's Library, formed at the instigation of John Hunter, had been dispersed, and Hunter's own museum, entrusted to the

Company by Parliament in 1799, had not yet been taken over.

The prime duty inherited by the College was that of granting qualification to practise, and the Court of Examiners, which to-day has under its control admission to the most coveted surgical degree in the Commonwealth, if not in the world, is the direct successor of the Court appointed in 1800. At first the College was chiefly concerned with the qualification of surgeons for London and for the armed Forces. Gradually the possession of a Member's Diploma was recognized throughout the country as a necessary hallmark of surgical proficiency, and it became clear to the more far-seeing that a higher surgical degree was called for to establish a standard of special attainment.

Benjamin Brodie successfully instituted the new order of Fellows of the College in 1843. Examination for the Fellowship became the most important duty of the College, and the requirements for it and their correlation with those of kindred bodies have been frequently reviewed and reformed. Originally the Council of the College was a self-perpetuating body with life tenure, but by the new charter of 1843 it was opened to all Fellows, appointment being through election by the whole body of Fellows for a fixed term. The national status of the College was emphasized at the same time by substituting "England" for "London" in its title. In very recent years the Council has further widened its character by co-opting members to represent the related specialties and general practice. Specialist diplomas have been granted jointly with the Royal College of Physicians for more than 60 years, and it is 90 years since the College established its Licence in Dental Surgery. Since 1947 it has granted a Fellowship in Dental Surgery, and since 1948 a Fellowship of the Faculty of Anaesthetists.

The Influence of Hunter

The conditions of the Hunterian Trust include the delivery of lectures in comparative anatomy and surgery, and in 1810 the first lectures were given by Everard Home and William Blizard. By this time the successors of Hunter, men who had learned directly from him, were assuming control of College affairs. Thenceforward the lectures have been continued, and appointment to a Hunterian professorship is still eagerly sought by younger surgeons as a recognition of their scientific achievement

FIG. 2.—Drawing of Dance's building by T. H. Shepherd, 1828.

and by established men to demonstrate their latest advances. The Arris and Gale anatomy lectures, whose endowments date from the seventeenth century, were revived, and in the course of years the College has established other lectureships, all intended for postgraduate instruction. They

FIG. 3.—Barry's Building, 1838. From an engraving by W. O. Celler.

have long been an attraction of the surgical year; and certain College lectures delivered by visiting American surgeons a few years ago drew audiences which doubly overflowed the lecture theatre. A Hunterian lecture by a past president of the American College of Surgeons, Dr. A. W. Allen, has been a prominent feature of the 150th anniversary celebrations. Since the war the College has also established integrated courses of practical postgraduate instruction, for admission to which competition is keen. Several prizes are in the College's gift, the one held in most honour being the famous Jacksonian.

With the rise of Hunter's pupils to control the College a great impetus was given to productive work. In 1813 the first specially built College House went up, but it was entirely rebuilt twenty-five years later to accommodate the growing Museum and Library. The great cost of the museum buildings was borne very largely out of College funds. The care of the museum was in the hands of Hunter's last and most loyal assistant, William Clift, the living transmitter of the Hunterian tradition. Clift was conservator from 1800 to 1842; he was no mean anatomist and artist, and achieved election into the Royal Society. But he was, in Keith's phrase, "a meticulous gatherer of small facts," not a man of organizing power. In the late eighteen-twenties the presidential chair was held in succession by John Abernethy, Astley Cooper, and Anthony Carlisle, who realized that the Council was legislating in the void without officers of capacity to carry through its decisions.

Richard Owen, a young Member of the Collège, was appointed by Abernethy in 1826 to assist Clift, and quickly assumed direction of the museum; he married Clift's daughter, and succeeded him as Conservator in 1842. Under Anthony Carlisle, who was himself a bibliophile and a benefactor of the library, Robert Willis, M.D., the outstanding English medical scholar of the day, was appointed librarian. Willis laid down the lines and formed the basic collections from which the library has developed; he made it a working scientific library for the museum staff, open like the museum to bona-fide scientists and advanced students, and a repository of historical surgical

literature. Reorganized in the 'eighties, it was then the best medical library in the country; but the growth of many other libraries has enforced the need for its specialization, and to-day it takes a prominent place as the surgical library among the interrelated special libraries of medicine.

Richard Owen's Work

Owen was a man of genius. In the first years of his assistantship masterly catalogues of the Hunterian collection and its accretions began to appear, and he was all the time examining and making known specimens which Hunter had put up but left unrecorded. Throughout these years he was himself making a vast series of studies of the finest quality in comparative anatomy and palaeontology. It is to Owen more than any other that the scientific prestige of the College is due. Owen's courses of Hunterian lectures extended from 1837 to 1856, and are recorded in his writings, such as the unsurpassed *Odontography*. He was succeeded as Hunterian professor by no less a man than T. H. Huxley, the champion of Darwinism, who was (it is sometimes forgotten) a surgeon and a Fellow of the College.

What bearing, it may be asked, had Owen's work on the progress of surgery? Had he, as the scientific spokesman of the College, any influence on the major developments of surgery which were the glory of the nineteenth century? Directly, he had none; but indirectly his influence was all-pervading. Owen put into general circulation that knowledge of all natural form and function which Hunter had seen to be the essential groundwork for a true comprehension of the structure and function of the body of a man. In Owen's early years at the College, the Council, and in particular Astley Cooper, had been deeply concerned about the training of teachers of anatomy. Owen set a standard of achievement in anatomical research and teaching which has not since been equalled. He made the museum a storehouse of material for the solution of fundamental anatomical problems, unique in the world in its size

FIG. 4.—The Royal College of Surgeons Museum as it appeared in May, 1941.

and display. Gradually Owen himself grew more interested in the non-surgical aspects of his work, and the Council rightly decided not to support him in turning the Hunterian Museum into the national museum of biology. He withdrew to new triumphs in the Cromwell Road, but the Hunterian Museum continued to be directed by outstanding men, and at the time of the air-raid disaster of 1941 was

the greatest anatomical and pathological museum in the world, purposely equipped to be, as it were, an advanced surgical textbook, comprehensive in scale, illustrated by the actual objects of research or discovery. Already, thanks to the generous support of its friends, the revived museum is taking shape on similar lines, and adapted to the needs of the day.

While Owen dealt with "the physiological series of comparative anatomy," as it was always called, the pathological museum was catalogued by James Paget, afterwards the leading surgeon of late Victorian London. Paget spent seven years at the task, educating himself far more deeply than he expected, and enormously widening the knowledge of pathological conditions available to his generation. Thirty years later he returned to the museum and personally re-examined every specimen for the revised catalogue. Study of the teeth became fully represented in the museum when the Odontological Society's collection was deposited in 1907. This collection has been notably developed by Sir Frank Colyer, and was ultimately presented to the College; it has survived the destruction of 1941.

Heyday of the Hunterian Museum

No part of the museum fell behind current knowledge. New material was continuously added and made the subject of regular demonstrations and lectures. A vivid account of the scope and nature of the work in what has been called "the heyday of the Hunterian Museum" may be read in Sir Arthur Keith's recent *Autobiography*. Keith's predecessors, William Flower and Charles Stewart, had devised excellent methods of teaching through museum display. Flower had a gift for such work and was also an anatomist of the first rank, his discoveries many and of high value. He was particularly interested in the evolution of man, and laid the foundation of the collection of skulls on which Keith laboured to such good effect. Stewart made his mark as a great lecturer, and the importance of this side of the work was brilliantly maintained by Keith. Stewart was also a founder of the Anatomical Society, which was thus for many years brought into close contact with the College, just as Owen and Flower had forged an enduring link with the Zoological Society. Recently it has been the policy of the College to bring the specialist surgical societies into amicable concordance.

Keith, whom Sir D'Arcy Power called "John Hunter Redivivus," described with frankness the difficulties as well as the achievements of his conservatorship. The permanent head of the scientific department appeared to his staff and to the profession as the directing spirit of the College; yet he found himself without a voice in decisions of policy or expenditure. The organization of the College for research and teaching has been only one aspect of the duties of the Council. As the representative corporation of the Surgeons of England it has watched and guided every contact between the profession and the State, from the Anatomy Act of 1832 through the Medical Acts of Victorian times to the vast legislation of to-day. In this public activity successive generations on the Council have acted with cautious liberalism. This has been reflected in the gradual extension of College privileges first to the whole body of Fellows, then by the admission of women to equality with their brethren, and, most recently, by the gathering in of the related specialties to the surgical centre.

Under the dynamic impetus of Moynihan, and with the support of generous benefactors, the College inaugurated between the wars a department of surgical research. Re-

search had always been a main activity of the museum staff, but now the College was able to provide opportunity and training for young men and women in experimental surgery. Nerve grafts, traumatic shock, cardiovascular surgery, the biochemistry of the blood system in relation to the post-operative state, problems of bone sarcoma, are only a few of the subjects usefully investigated, while a research chair in ophthalmology was founded in 1942 jointly with the Royal Eye Hospital.

In celebrating its 150th anniversary the College draws inspiration from all this good work of the past. It intends, by increased activity in teaching, in research, and in the provision of collegiate life with all the valuable amenities of its social contacts, to promote "Arts which," in the words of the College motto, "are useful to all."

NATURAL HISTORY OF SURGICAL INFECTION

MOYNIHAN LECTURE

The Moynihan Lecture was delivered before the Royal College of Surgeons on June 19 by Professor F. M. BURNET, director of the Walter and Eliza Hall Institute of Medical Research, Melbourne. His subject was "The Natural History of Surgical Infection."

Professor Burnet said that since 1922 he had been a "laboratory man." He had spent his time in Melbourne on a wide range of experimental work within the broad general field of infectious disease. On top of these laboratory studies he had done his best to look at the general problem of infections. He proposed to address himself in this lecture to the natural history of some types of surgical infection. He mentioned first the difficulty of classifying infections into medical and surgical types. Infection by the organisms of malaria and trypanosomiasis, of scarlet fever and typhoid, for example, must be regarded as medical. In his own field of virus infections, the province of the surgeon was rather small—perhaps only granuloma inguinale could be regarded as a typical surgical infection as against a vast number of medical ones.

Of all the agents of surgical infection the only one with which he had worked at all extensively had been the staphylococcus. His introduction to this organism in 1928 came about owing to the deaths of twelve children and the severe illness of six others in a district of Queensland, following immunization against diphtheria. What was then the orthodox prophylactic agent had been used, a mixture of toxin just neutralized by antitoxin. Each of the surviving children developed a staphylococcal abscess at the point of inoculation. An exhaustive investigation failed to indicate any possible cause of death other than staphylococci conveyed by the needle. From the skin of one of the children first inoculated a strain of the organism must have been cultured. On inoculation into other children it provoked in some cases a fulminating toxic condition and in others a severe local sepsis. A similar differentiation was always found in epidemics, where some infections were so slight as to be recognized only by serological tests, while others caused an acute and fatal illness. This held good equally for protozoal, bacterial, and viral infections.

Evolutionary Approach

It was probably generally accepted by microbiologists interested in these problems that at an early stage of evolution a certain standard pattern of living structure was developed. Of present-day forms the closest approach to such a prototype might be one of the robust bacteria grown in a simple medium. This bacterial structure was built up essentially of proteins composed of a certain number of amino-acids, but it also contained other elements common to all living matter. Perhaps the primitive bacterium was the most successful in its ability to convert the largest fraction of its environment into living structure.