Successive contrast is explained by assuming that when the colour-perceiving centre in the brain has just been perceiving rays of a certain kind, it and the retina are directly afterwards less responsive to those rays than to rays of a different degree of refrangibility, and so surrounding objects will appear to be deficient in that colour.

VI.—*Adaptation Corresponds to an Accumulation of Visual Purple in the Retina, thereby making it More Sensitive to Feeble Impressions of Light.*

It is obvious that all the facts which have been brought forward in evidence of their being a visual substance are in favour of the theory I have given. I have examined the retinas of several monkeys after they had been kept in a dark room, and found that the visual purple was to be found in the yellow spot, but situated between, and not in the cones. A bright light may fall upon the fovea without producing any sensation, and a perceptible interval elapses before we are able to see with the yellow spot, after the remainder of the retina the fovea being the last point to convey a sensation of light. The first fact we should expect, the cones not being directly sensitive to light; the second corresponds to the diffusion into the yellow spot of the visual purple.

THE ROYAL COLLEGE OF SURGEONS OF EDINBURGH;

ITS EARLY CONNEXION WITH MEDICAL TEACHING.

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It is singularly difficult, during a brief sojourn on the banks of the Nile, to settle down to fulfil a promise to contribute a few lines to the JOURNAL on the occasion of the great centenary of the Royal College of Edinburgh. The corn and oil we read about is not much in evidence now, while the wine of old seems largely to have given place to a liquid originating in Scotland. Ink dries quickly, with the temperature ranging about 100°, but one's ideas seem to dry up even more rapidly. It is, however, easy to comprehend why Rameses and those who have followed after him found it convenient to adopt the night shirt as a suitable dress for the day time, and it is even possible to envy them their costume.

Sitting in the neighbourhood of the tombs of the Pharaohs, in a land where everything is ancient, and among a people whose dress, whose habits, whose customs, and mode of life show but little change in a thousand years, in spite of the many innovations introduced by the foreigner, a period of 400 years appears a comparatively short span of time. On the other hand, in our more northern land, it is difficult, almost impossible, to realize the extraordinary changes that have taken place in the social, political, religious and scientific life of our country during the period that has elapsed since 1505.

An interesting account of the various charters granted to the College appeared in the JOURNAL of March 11th, from the pen of Dr. J. Smith, from which it appears that the College was founded in the reign of James IV, Henry VII being at the time King of England. Shortly afterwards an event of the first importance took place in the marriage of Margaret Tudor, sister of Henry VIII, to James of Scotland. The history of the times shows that Scotland was backward, was poor, was in constant trouble with its nobles, with the Highlanders, and with the sister country, and that frequent wars or rebellions interfered with the advancement of the country. James with all his faults did much to improve matters and to encourage literature and science.

John Knox, a name familiar in the religious history of Scotland, was probably born in 1505, the year the College was founded, although a recent controversy in which Andrew Lang took part, has tried to fix the correct date of his birth at 1513. It may help us to realize what life must have been with us 400 years ago, if we recall the fact that printing was first introduced into Scotland only in the year 1508, or three years after the foundation of the College, or again, that the Gunpowder Plot was discovered exactly 100 years later, when Guy Fawkes was put to the torture in London in order to make him confess the plot. Numerous other historical events will no doubt occur to our readers, calculated to assist them in realizing the vast difference between the times then and now.

In 1505, medical teaching was not even in its infancy and the great medical faculty of the University, which we may justly claim to be the offspring of our College, was not founded till 1728. It was the recognition of the necessity for some form of medical education which caused our enlightened forefathers to apply for a charter, and thus came to be formed the "craft" or "incorporation of surgeon-barbers." Much wisdom by the founders is shown by the founders in the objects kept prominently in view, as the following extract will show.

"... Item that no maner of persoun occupie nor use any poyntis of oure saidis craftis of Surregerie or barbour craft within this burgh bott give be first frieman and burges of the samyn and that he be worthy and expert in all the poyntis belang and the saidis craftis deligentlie and avysitlie examinit and admittit be the maisteris of the said craft for the honorabill seruyng of oure Sovereine Lord his liegis and nychtbouris of this burgh. And als that everie man that is to be maid frieman and maister amagis was be examit and previt in their poyntis following. Thatt is to say that he knaw anotomea nature and complexioun of every member in manis bodie. And in lykeways he knau all the vaynis of the samyn thatt he may mak flewbothomea in dew tyme. And als thatt he knau in quhilk member the signe hes domination for the tyme for every man aught to knaw the nature and substance of every thing that he wirkis or ellis he is negligent."

It is further evident that they recognized how, for the proper study of anatomy and surgery, practical opportunities were required. This explains the following request:

"... And that we may have anis in the yeir ane condemnit man efter he be deid to mak antomea of quhairthrou we may haif experience. Ilk ane to instruct utheris ..."

Nor was the necessity for preliminary education overlooked for the same deed contains probably the earliest reference to it. Even though it may hardly come up to the present-day requirements of the General Medical Council, it was a commencement:

"... Item that na maisteris of the said craft sall tak ane prenteis or feit man in tyme cuming to use the surregeane craft without he can baith wryte and reid."

For the protection of the general public against quacks and unqualified practitioners definite powers were granted, and if these powers have now expired, we could wish them reinstated in the present day. Quoting from the same deed we find it was:

"... Ordained for the good of the lieges that in the mater belonging to the arte of chirurgerie they be provydit witte skillfull and honest men and not left to the arbitrament and impostour of woman and ignorantis. ... Thairfore His M^{ajestie} with advyse foresaid discharges all and quhatsumevir persones (except they be friemen of the said craft in Edinburgh) to use and exerce any point of the arte of chyurgerie within the said burgh of Edinburgh or any suburbis about the samene or belonging thairto and jurisdictione thairof. With power to the Deacon and Masteris of the said arte present and to cum at all tymes convenient to pas search seik tak and apprehend all sich (such) persones exercising the said arte within the said burgh suburbis and jurisdictione thairof fairsaid not being friemen of the said arte within the said burgh and to caus thame set caution to desist in tym cumming and gif they failie to unlaw thame in the sowme of twentie poundis money toties quotes. ..."

One half of the fine went to the coffers of the College. It would appear that the benefits derived from these powers were such that William and Mary granted a fresh patent confirming the rights of the College, and extending the area of control, which patent was ratified by Parliament in 1695.

Up to this time almost the only means of entering the profession or of medical education was through apprenticeship to one of the Fellows of the College. In 1694, however, Monteith, one of the members of the College, applied for some unclaimed bodies to enable him to give anatomical demonstrations, while a week later the College itself made a similar request to the Town Council. The latter was granted on the condition that the College should build a theatre within three years. This was completed in 1697 and for several years various Fellows gave demonstrations in it, until in 1705 it was decided to appoint Robert Elliot "our professor of anatomy." In the same year he applied to the town for encouragement, and was in consequence appointed Professor of Anatomy at an annual salary of £15. In 1720 this chair became vacant, and the College records bear that "the hail calling being persuaded of the sufficiency of Alex. Monro, one of their number, did unanimously recommend him ..."

to be Professor of Anatomy in the University." Monro continued to lecture in the College theatre and was shortly joined by St. Clair, Plummer, Rutherford, and Tunes, who lectured on the theory and practice of medicine and chemistry. In 1725, during the body-raising riots, Monro became alarmed for the safety of his specimens and transferred his lectures to the University class-rooms. In the following year the other lecturers, with the addition of Gibson (midwifery), applied to have their subjects taught in the University, and were, as a result, appointed Professors in the Faculty of Medicine. It will thus be seen that the College first originated the School of Medicine which eventually became the foundation of the Faculty of Medicine.

These facts are briefly stated and do not profess to be more than a bare outline. They are, however, sufficient to demonstrate the position which our College has always taken up in every movement for the improvement of medical education. It should be noticed that the connexion between the lecturers and the University was at first so close that the position of each is often indistinguishable. The professors were appointed generally on the recommendation of the College, and largely depended on the College apprentices to give them a class. For long the College did not find it necessary to appoint a lecturer to replace the one made professor. The professor was as much available for the College requirements after his appointment to the University as he was before. The influence of the College is well shown in an application made to our College by Sutherland, First Professor of Botany. He requested us to assess our apprentices in a fee for the maintenance of the garden and instruction in Botany.

He at the same time acknowledged us as his patrons. Again, in 1705 the Deacon of the Surgeons complained to the Town Council that Sutherland "was very defective in his duty as to teaching chirurgion-apprentices the science of botany, which was a considerable part of his employment." The result was the withdrawal of his salary and his subsequent resignation.

The museum and library of our College were transferred in 1764 to the University. Our present museum is one of the finest collections in the kingdom and is maintained at considerable expense. It is open free to all medical students, and occasional demonstrations by the conservators have been also given. Lecturers take their students through the museum and illustrate their remarks with the specimens. The present collection was commenced in 1826 by the acquisition of the Bell collection by purchase and of the Barclay Museum by legacy.

The infirmary was started in 1729 in a small hired house and received both services and medicines from the surgeons. The college, finding the infirmary unable to cope with the number of cases, decided to build another hospital in 1736, which was known as "Surgeons' Hospital." Two years later it was decided to amalgamate the two buildings, and the surgeons handed over all their funds to the infirmary. They at the same time bound themselves to act as surgeons to the institution, and for more than sixty years they took duty there in rotation. It became evident, as the College increased in numbers, that it would be better to make more permanent appointments, and so the present system was gradually inaugurated.

Surgery was taught as early as 1772 by Rae. In 1776 he was recommended as Professor of Surgery, but owing to the opposition of Monro and the Faculty of Medicine, no chair was made until 1831. Monro claimed to be Professor of Anatomy and Surgery, a portion of his course was devoted to surgery. The fact that the College latterly refused to recognize Monro's lectures, owing to their not being a six-months' course of anatomy, seems to have had some share in bringing about the appointment of a Professor of Surgery.

Many subjects not included in the regular curriculum are lectured upon at Surgeons' Hall at the present time, and the College has been ever ready to encourage its Fellows to lecture upon special branches of medical science. In several cases the University has followed us by appointing a lecturer on his special subject as "Lecturer to the University."

Many improvements in teaching arrangements have been originated by the College. As illustrations of this we may point out that Barclay in 1797 was the first extra-mural lecturer, who devoted his whole time to anatomy alone, while it was not till 1846 that the University appointed Goodair as professor on a similar footing. Again, practical anatomy was made compulsory by the College in 1824, and it was not till 1833 that the University followed suit.

The celebration of the fourth centenary of the College will

shortly take place, and is an event of wide interest. Besides those who locally are making every endeavour to provide a successful and interesting series of functions, there are many in all parts of the world who will be anxious to recognize the debt which they owe to this ancient College. They may well feel proud of their connexion with the Royal College of Surgeons of Edinburgh—a College which can justly claim to have been a pioneer in improving the position of the profession and in advancing medical education. It has had a long and useful career in the past and would appear to be as active, as full of life and vigour as ever. No doubt many will join at the present time in wishing a long period of continued usefulness and prosperity to the ancient Royal College.

British Medical Association.

REPORT

OF

SPECIAL CHLOROFORM COMMITTEE.

FOURTH REPORT OF PROCEEDINGS (1904-5).

(For preceding Reports see (1901-2) BRITISH MEDICAL JOURNAL, July 12th, 1902; (1902-3) BRITISH MEDICAL JOURNAL, July 18th, 1903; and (1903-4) BRITISH MEDICAL JOURNAL, July 23rd, 1904.)

INTRODUCTION.

1. The Committee, consisting of the PRESIDENT OF THE BRITISH MEDICAL ASSOCIATION, and CHAIRMAN OF COUNCIL (*ex officio*), and Dr. BARR, Dr. BRODIE, F.R.S., Dr. DUDLEY BUXTON (Honorary Secretary), Dr. H. RADCLIFFE CROCKER (Chairman), Professor DUNSTAN, F.R.S., Mr. A. VERNON HARCOURT, F.R.S., Sir VICTOR HORSLEY, F.R.S., Dr. W. J. MCCARDIE, Professor SHERRINGTON, F.R.S., was elected by a resolution of Council, July 28th, 1904.

2. The Committee was originally appointed by the Council at the annual general meeting of the British Medical Association, July, 1901 (BRITISH MEDICAL JOURNAL, July 20th, 1901). The following is the reference of the Council. Resolved:

That a Special Chloroform Committee be appointed to investigate methods of quantitatively determining the presence of chloroform in the air and in the living body.

The ultimate object laid before the Council of the British Medical Association by Sir Victor Horsley was to determine, if possible, what is the minimal dose of the drug which will secure an adequate anaesthesia for operations and at the same time not endanger life.

3. The initial work undertaken by the Committee (the results of which will be found in the two first reports) was to examine critically the best-known methods of quantitatively measuring chloroform. Data will be found in these two reports for the quantitative determination of chloroform in air and liquids.

4. Last year the work undertaken was of a more practical kind, and the results are given in the SUPPLEMENT to the BRITISH MEDICAL JOURNAL, July 23rd, 1904.

Professor Sherrington, F.R.S., with Miss Sowton, examined the effect upon cardiac muscle of chloroform when perfused in saline, in blood serum diluted with saline, in blood diluted with saline, in Locke's solution (a) with (b) without the addition of dextrose. Their results showed that with solutions which partake more of the character of blood, chloroform acts less as a depressant, higher percentages being required to produce toxic effects.

Mr. Vernon Harcourt reported further work with his chloroform inhaler, and dealt with the important question how far variations in the rate and amplitude of respiration affected the quantity of chloroform which the patients received. The percentage of chloroform delivered at different rates of breathing is shown by a table giving the experimental results. He suggests, and has since acted upon the suggestion, that greater constancy can be obtained by increasing the distance between the necks of the Woulfe's bottle and the surface of the chloroform. The reduced rate of evaporation thus caused has been compensated by increasing the width of the bottle and the temperature at which the chloroform is set.

Mr. Vernon Harcourt and Sir Victor Horsley furnished