again a few well selected clinical records would have driven the lesson home more certainly and perhaps have helped to convince the sceptical.

One closes the book finally with regret that its writer has just failed to kindle that divine spark without which the most learned work remains uninspiring.

NOTES ON BOOKS.

WE have received a *Synoptic Chart of Cardiac Examination*,⁷ by Dr. JOHN D. COMRIE, which consists of a diagrammatic representation of the human chest on a large card, and by an ingenious arrangement on pulling certain tapes the names of various diseases appear at an opening, with at the same time their physical signs at the appropriate positions on the diagram. The idea is very completely worked out and a full range of chest conditions is given. Accompanying the chart is a pamphlet on the physical examination of the heart, with a brief description of the more recently introduced methods of examination. In conjunction with and not as a substitute for his clinical work in hospital this chart should be valuable to the student working for his final examinations.

In the early years of this century, even before the war, there was a remarkable poetic efflorescence. The emotions stirred by the war, the sacrifices it demanded, and the hope it inspired of a better future, moved new writers to find expression in verse, and gave a fresh direction and earnestness to the thoughts of others who had already felt the impulse. Mr. KEITH MONSARRAT, we judge, belongs to the latter category. The poem which gives its name to his volume, *The Red Halls and Other Verses*,⁸ is a finely imaginative expression of the dream of a better world after the war, but the author's inspiration is in his reverence for Nature, his love for her in her varied moods, from the uplift of the hills to the happy security of the orchard. In a piece entitled "The Children" the author gives in melodious verse his philosophy of life from its beginnings, through the placid certainty of the simpler creatures, to man's aspirations, and his alternate doubts and certainties.

⁷ *Synoptic Chart of Cardiac Examination*. By John D. Comrie, M.A., B.Sc., M.D., F.R.C.P.E., Assistant Physician, Edinburgh Royal Infirmary. London: John Bale, Sons, and Danielsson, Ltd. 1920. (4s. 6d. net.)

⁸ *The Red Halls and Other Verses*. By K. W. Monsarrat. London: Erskine Macdonald, Limited. 1920. Pp. 48.

BALANCE IN NUTRITION.

THE HUXLEY LECTURE BY PROFESSOR F. G. HOPKINS.

THE Huxley lecture on recent advances in science in their relation to practical medicine was delivered by Professor F. GOWLAND HOPKINS, F.R.S., of Cambridge, at Charing Cross Hospital, on November 24th. Sir FREDERICK MOTT presided, and, before introducing the lecturer, said that he wished Huxley were alive to-day to controvert in the way that he alone could do some of the things which were now being said in belittlement of the evolution theory.

Professor HOPKINS said that the tragic years of war had made the life and times of Huxley seem disproportionately remote, but in the natural course of events the Huxley lecturers of the future, unlike those of the past, must be men who had not enjoyed—as he himself had not—the advantage of personal association with the man in whose honour the lecture was founded. For mid-Victorian science Huxley's gifts provided both shield and buckler, and it was unfortunate that in Huxley's particular position as the champion of scientific aims he had had no quite adequate successor. All that was now needed to put our race in the van of scientific progress was some national awakening to the fact that the investigator no less than the administrator was necessary to the public weal.

Professor Hopkins went on to say that he intended in the lecture to present the subject of nutrition from a somewhat special standpoint. Recent acquirements of knowledge were changing the angle from which the needs of the body must be viewed. While he did not undervalue the results of accurate calorimetry as applied to man, he considered that the data were insufficient. The war, which made the study of alimentation urgent, proved that we possessed still far too little knowledge of the energy requirements of troops in the field. Such advice as could be given was also lacking in precision for another reason—

namely, that either we had too little knowledge of or too little faith in chemical considerations as applied to the science of nutrition. Only by the full consideration of chemical details were adequate criteria made available for dietetics. Energy contents could not be the sole criterion in the case of any diet. An animal might receive, digest, absorb, and in a sense fully metabolize a diet consisting of all the recognized basal foodstuffs, in sufficient or more than sufficient quantity to provide energy, and yet its nutrition might be so abnormal that neither growth nor health could be maintained.

He then entered upon a discussion of isodynamic equivalence: it was Ruebner who developed the doctrine that the energy exchanges of living matter gave a higher and more significant criterion of human life than could be provided by any mere estimation of material changes. In his endeavour to arrive at some criterion of life other than the material, Ruebner sublimated the conception of energy, and the lecturer noted that from the more philosophical point of view this was supported by Bergson. The standpoint of energetics, wherefrom the chemical materials on which life was based appeared to be relatively of small importance, was still dominant in some of the highest quarters. The basis of the doctrine was that one foodstuff could replace another without disturbance to the nutrition so long as the energy supply was maintained. This involved a *suggestio falsi*. No one of the fundamental foodstuffs could replace another. A minimum of each basal foodstuff was essential to the body. If the term "law" could be used in biological science at all, it might be said that in the dynamics of nutrition the law of the minimum overrode the law of isodynamic equivalence. It was even true that a certain minimum of carbohydrates was required to secure full utilization of fat, and the converse also seemed to hold good—that a certain minimum of fat was necessary for the proper utilization of carbohydrates. The law of isodynamic equivalence, so far from having that absolute character which would give it a theoretical importance, might very well also fail as a guide in practice.

The complex molecule of protein consisted of some twenty structural units assembled in what might be called the molecular pattern of the protein. They all belonged to one chemical genus, since all were residues of amino-acids, but each represented a separate species, since each had elements of molecular structure which differentiated it from all the rest. In the molecular patterns of diverse proteins any individual unit might recur, in one case seldom, and in another many times. In digestion the pattern of the protein consumed was destroyed; the processes in the alimentary tract liberated the constituent units, and these for the most part, if not entirely, were free and individual when by way of the blood they reached the tissues. The body could dispense with certain parts of its food protein, usually with the amino-acids of simple structure; some it dispensed with less easily, and others, usually the more complex in structure, it found wholly indispensable.

Nutrition might wholly fail even when the supply of protein, no less than that of fats, carbohydrates, and minerals, was perfect. In that case a vitamin deficiency would be looked for. The subject of vitamins was no longer in any strict sense new, but its practical importance still needed appraisal. There was as yet no other definition of the vitamin as a nutrient than that which was based on its indispensability, its very low effective concentration, and ignorance of its nature. This was not a case of the known masquerading as the unknown, for the technique employed in exploring vitamins had by now attained considerable accuracy. At least three vitamins were known, and it was quite possible that others existed, and that other deficiency diseases might be traced to their absence. In view of the evidence, the endeavours which were being made to bring scurvy into the category of intoxications could only be due to an obsession that some positive element—some intruder, so to speak—must always dominate etiology. No doubt the term "negative cause" was abhorrent in formal logic, but the objection to a term was a small matter. There were some, however, whose objection went beyond the term, and who thought that the production of phenomena like the symptoms of a disease could only be due to some positive factor. There were those who appeared to think it logical to attribute a condition to some cause of excess; but illogical to attribute

it to some cause of deficiency. He maintained that the reason for scurvy was the absence of the unstable anti-scorbutic vitamin, and that it was a sufficient reason. Deficiency might be a real element in etiology.

Before closing, Professor Hopkins referred again to the possibility that an ill-balanced supply might be the reason for failure in health even when the actual supply was sufficient, and he dealt with the evidence forthcoming in cases of pellagra in support of this view. The recognition of specificity in proteins was of more than academic importance. If the application of all these considerations to practical medicine bore only upon the production of actual disease they would be important enough, but not so important as he believed they really were. A deficiency which in its extreme form produced a disease that could be labelled would almost certainly, when less extreme, produce some failure in health or development. From a better grasp of these principles we might be led to make the failure of health and development in children a little more referable to nurture instead of to Nature, to environment instead of to heredity, and therefore more capable of direct remedy.

On the proposition of Sir JAMES GALLOWAY, seconded by Sir HERBERT WATERHOUSE, a cordial vote of thanks was passed to Professor Hopkins.

POST-GRADUATE TEACHING IN LONDON.

THE annual meeting of the amalgamated Fellowship of Medicine and Post-Graduate Medical Association was held at the house of the Royal Society of Medicine on November 25th. The President, Sir GEORGE MAKINS, was in the chair.

The annual report, read by Mr. HERBERT PATERSON, one of the honorary secretaries, stated that since the beginning of the year 365 persons had availed themselves of the various courses, and that the majority took tickets for two or three months—some for five or six. Of the total, 153 came from the British Isles, 77 from the Dominions, and 29 from India; 12 officers of the Medical Service R.N. 10 of the Indian Medical Service, and 11 of the Colonial Services had attended. Of the foreign members 38 came from the United States of America, 5 from Switzerland, and 4 each from Norway and Holland; various other countries, including Spain, Serbia, and Japan, were represented. The number in 1919, owing to the exceptional conditions of that year, was very much larger, but the total for this year was, in the circumstances, considered to be encouraging, indicating very clearly that there was a demand. During the year five additional hospitals had offered facilities for post-graduate study. Dr. Eric Pritchard had given three courses on infant welfare at the St. Marylebone General Dispensary, and Mr. J. M. Hepburn a course of demonstrations in ophthalmology at Moorfields; a series of special "gynaecological talks" had been given by Mr. Victor Bonney at the Middlesex Hospital on Saturday mornings, and special lectures had been given at the Cancer Hospital. It was proposed to arrange at these and other hospitals similar short courses, lasting two or three weeks, in various branches of medicine and surgery, and it was hoped to have at least one such course in progress at any given time. Two special courses at the National Hospital for the Paralysed and Epileptic had been thrown open to members of the Fellowship; courses were given also at the National Hospital for Diseases of the Heart, St. Mark's Hospital, and the North-East London Post-Graduate College. The report was adopted, together with a cordial vote of thanks to the Royal Society of Medicine for its generosity in placing an office at disposal.

A discussion ensued, during the course of which suggestions were made for the organization of teaching in special hospitals. Dr. BLACKER, Dean of University College Hospital Medical School, said that in place of looking to the teaching hospitals, steps should be taken to organize teaching in special hospitals. There was a movement on foot, shortly to be considered by the staffs, of the special hospitals, for post-graduate courses in obstetrics and gynaecology; it would be possible for these hospitals and for other special hospitals to reserve appointments as residents and clinical assistants for post-graduates. Dr. EISENDRATH, Secretary of the Chicago University Medical School, gave an account of the arrangements

which are being made there. The university had received large capital gifts from the Carnegie and Rockefeller trustees, and part of the money would be devoted to establishing a first-rate post-graduate school. It was proposed to reserve two hospitals for this purpose, and to have three kinds of courses: (1) A course lasting three years in some speciality, a successful candidate receiving a degree; (2) a shorter course of instruction in a speciality, the candidate receiving a certificate; and (3) so-called "brush-up" or revision courses lasting short periods—from a few days to a few months. Probably 75 per cent. of those who joined the school would take these short courses. It was proposed that the school should have a central meeting place, where there would be an office for supplying information. Sir STCLAIR THOMSON insisted upon the need for organizing courses at special hospitals; taking obology as an example, he said that the course should begin with instruction in the anatomy of the part, it should pass on to the pathology and diagnosis of the diseases by which it was affected; and would conclude with practical instruction in manipulations. Dr. HURST suggested that such courses in certain subjects might be arranged at teaching hospitals. The CHAIRMAN observed that it was necessary to have a post-graduate centre in London; it should be obtained as soon as possible. Negotiations to acquire a hospital to serve as such a centre had so far not come to anything.

Sir ARBUTHNOT LANE, treasurer, presented the annual financial statement, which showed that after meeting the cost of administration and of the publication of the weekly *Bulletin* there remained a sum of £600 out of which to make provision for the remuneration of teachers; it was resolved to leave to the Council the allocation of this money among the various hospitals. During a brief discussion the inadequacy of the sum was recognized, and it was pointed out that the Chicago school had found it necessary to obtain an endowment. Assuming that there was no prospect of raising an endowment fund here it was asked whether it might not be feasible to obtain an annual subsidy from the Treasury, such as is, under certain conditions, paid to undergraduate schools.

PRESENTATION TO DR. J. A. MACDONALD.

THE following further subscriptions have been received from October 19th to November 27th, in response to the appeal published in the *JOURNAL* of July 24th (p. 129), towards a presentation to Dr. J. A. Macdonald on the occasion of his retirement from the office of Chairman of Council of the British Medical Association which he had held for ten years. Subscriptions of any amount not exceeding five guineas should be made payable to "The Macdonald Presentation," and sent to the Medical Secretary, British Medical Association, 429, Strand, London, W.C.2.

TENTH LIST OF SUBSCRIBERS.

[illegible]

THE late Sir Frank Mappin has by his will bequeathed £5,000 each to the Royal Infirmary and the Royal Hospital, Sheffield, and £2,000 each to the Jessop Hospital for Women and the Sheffield Children's Hospital.