scapula. The tumour, when I operated, was about as large as a child's head, non-adherent to the integument, and the scapula was freely movable over the structures normally in relation with it.

On account of its rapid development I decided to remove the entire scapula at once, but I particularly desired to preserve the clavicle and humerus, as the scapulo-humeral articulation was evidently uninvolved. Accordingly, on Oct. 2nd, I operated as follows:—With the view of preventing hæmorrhage, I first cut down upon the subclavian artery, and directed an assistant to compress this vessel against the first rib, and to be ready to grasp the first flap should the bleeding be very severe. Next, I directed a second assistant to *extend* the arm forward with one hand, and to compress the axillary artery as *high* up in the axilla as he could with the other, in order to control the subscapular artery, which in this instance was easily detected, as it was thrown up by the growth. I thus prevented any large amount of blood from passing into the arm, and calculated on arresting any return current by the second manœuvre. My first incision extended from the tip of the acromion to the base of the spinous process, and the second along the spinal border of the scapula, involving integument only. I then nipped through the acromion. The tissues gaped sufficiently to expose the entire mass, which bulged into the wound. Next, I divided the muscular attachments to the spinal border, and passing my knife beneath the separated acromion, disarticulated the humerus. Grasping the mass with my left hand, I dragged it downwards and outwards towards the axilla, and divided the muscular attachments to the upper border of the bone, having now the tumour entirely under control. I now swept the knife along the axillary border, and the scapula and its growth were removed. The cutting part of the operation occupied but a few minutes; strict antiseptic precautions were adopted, and the wound healed by first intention. In a few days, unfortunately, the site of the acromion showed signs of recurrence, and accordingly on Oct. 28th I proceeded to remove it. I found that the disease was progressing downwards past the apex of the axilla, and evidently infiltrating all the tissues. Any further operation I regard as useless mutilation. My scapular excision was an attempt at conservatism, and in the face of a round-celled sarcoma an attempt merely.

The main points I desire to call attention to are the bloodlessness of the operation and the ease of removal of the mass. I have had the experience at present of but one case in my own practice, but I have seen others, and have been struck with the apparent difficulty of the operation. Of course, there may have been greater complications; but it would seem to me that by getting well under the scapula from its spinal border, and tilting it outwards and downwards towards the axilla, a large amount of leverage is obtained, and disarticulation may be performed with great rapidity, a factor of importance when hæmorrhage is expected.

The lad has complete control over the arm and forearm, and the divided scapular muscles seem already to have acquired some kind of attachment.

If I ever have the occasion of removing the scapula for a "growth" again, I shall take care to avoid any attempt at the preservation of the symmetry of the shoulders, supposed to be gained by leaving the acromion, and excise the bone *in toto* to the scapulo-clavicular articulation, on the chance of the disease being confined to the bone itself. Further, I should certainly not undertake it in the event of *immobility* of the scapula, or any decided failure in its "excursion" over the ribs.

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NOTE ON HEMIN, OR SO-CALLED HYDROCHLORATE OF HEMATIN.

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ON page 116 of the "Physiological Chemistry," by Dr. Gamgee, occurs the following statement:—"It is held by Thudichum that hæmin contains no chlorine, and he therefore looks upon it as crystallised hæmatin."

In the journal of the Chemical Society for September, 1876, will be found a paper by myself and my then assistant, Mr. C. T. Kingzett, entitled "On Hemin, Hematin, and a Phosphorised Substance contained in Blood-corpuscles." In the research embodied in this paper the following was proved. Hemin, prepared by one of us, by a modification of Wittich's process (Eleventh Report of the Medical Officer of the Privy Council, 1869, p. 155), entirely crystallised in very minute bluish-black rhombic plates was analysed and found to contain 7·651 per cent. of iron, 3·021 per cent. of chlorine, and 0·608 per cent. of phosphorus (mean of three analyses). We then say: Hemin has been considered as a hydrochloride of hematin; by others, again, as a basic hydrochloride, or mixture of hydrochloride of hematin with free hematin. Our researches show that it contains besides these two bodies a considerable amount of a crystallised phosphorised substance. It is thus proved that the crystallised state of substances of such high atomic weight as the body before us is no guarantee of chemical purity or definite composition.

We then describe experiments intended to saturate the hemin with hydrochloric acid. Of this 3·3 per cent. were added to the hemin. This experiment shows that crystallised hemin is by no means saturated with hydrochloric acid, but contains hematin in the uncombined state; this latter probably takes up some of the hydrochloric acid added. But the possibility that the myelin (phosphorised substance) contained also in the hemin may also take up some hydrochloric acid cannot be lost sight of, and is raised to a probability by the known bearing of myelin from brain matter. In the next division, treating of the action of nitric acid upon hemin, we disprove a statement of Preyer, made in the little pamphlet on blood-crystals, so copiously used by Gamgee, that he had found suboxide of iron (ferrous oxide) in a solution containing excess of nitric acid. In the fourth division we show that hemin, subjected to treatment with concentrated sulphuric acid, yielded cruentin, the body first described by one of us in the Report of the Medical Officer of the Privy Council for 1867 (p. 228) and 1868 (p. 161). The fact that this body (cruentin), with many salts and varieties, was first discovered at the time, and first described in the publication mentioned, is not stated by Dr. Gamgee, who describes it as the discovery of a continental chemist, although the observations of the latter were not published until four years after those just quoted. We then proceed in the fifth division to describe experiments intended to effect the extraction of iron from the hemin by the process of C. Paquelin and L. Jolly,[1] and get as a result (after extraction and isolation of the phosphorised body) a hematin in which the iron had not only not been diminished, but which contained more iron than had ever before been found in any preparation of hematin. Its analysis led to the formula $C_{32}H_{32}FeN_4O_6$. We then disprove a statement of Hoppe-Seyler, who had explained an inconvenient excess of nitrogen found by him in his analyses of hematin as due to an absorption of ammonia from the air, by showing that mere vestiges of ammonia make hematin soluble in water.

In the last division of the paper we describe the isolation, properties, and analyses of the phosphorised body, and its cadmic chloride compound, and show that it is an amidated myelin, almost identical in composition with an amidated myelin isolated by one of us from the brain. This is the first and only analysis of the phosphorised body from blood-corpuscles ever made. It is not given in Dr. Gamgee's text-book.

On page 114 of his treatise Dr. Gamgee says that hemin, which he terms hydrochlorate of hematin, can be transformed into hematin by solution in potash and neutralisation of this solution by hydrochloric acid. The washings are to be tested with solution of silver nitrate. At the conclusion of the paragraph he quotes Hoppe-Seyler as his authority, and at the foot of the page the place, "Beiträge zur Kenntniss des Blutes des Menschen und der Wirbelthiere. Das Hæmatin. Med. Chem. Untersuchungen," Heft iv., 1871, s. 523.

Now, in that publication, and at that place, Hoppe-Seyler prescribes that the dissolved hemin shall be precipitated with *sulphuric acid*, and shall be washed with water (not "boiling water," as Gamgee says) until *barium chloride* leaves the washings clear.

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[1] Comp. Rend., No. 79 (1874), p. 918.