*Le Triumvirat littéraire au seizième siècle—*-are equally unworthy of their author and their subjects. Julius is simply held up to ridicule, while the life of Joseph is almost wholly based on the book of Sciop­pius and the *Scaíigerana,* A complete list of the works of Joseph will be found in his life by Bernays. See also J. E. Sandys, *History of Classical Scholarship,* ii. (1908), 199-204. (R. C. C.; J. E. S.\*)

SCALP (O. Dutch *schelpe,* a shell), in anatomy, the whole covering of the top of the head from the skin to the bone. Five layers are recognized in the scalp, and these, from without inward, are: (1) skin, (2) superficial fascia, (3) aponeurosis or epicranium, (4) lymph space, (5) periosteum or pericranium.

The skin of the scalp is thick and remarkable for the large number of hair follicles contained in it. The superficial fascia consists of dense bundles of fibrous tissue which pass from the skin to the third layer or aponeurosis and bind the two structures together so closely that when one of them is moved the other must needs be moved too. The fibrous bundles are separated by pellets of fat, and it is in this second layer that the vessels and nerves of the scalp are found. Here, as elsewhere, the vessels are arteries, veins and lymphatics, and the arteries are specially remarkable, firstly, for their tortuosity, which is an adaptation to so movable a part; secondly, for their anastomos­ing across the middle line with their fellows of the opposite side, an arrangement which is not usual in the body; and, thirdly, for the fact that, when cut, their ends are held open by the dense fibrous tissue already spoken of, so that bleeding is more free in the scalp than it is from arteries of the same size elsewhere in the body.

The veins do not follow the twists of the arteries but run a straight course; for this reason there is often a considerable distance between an artery and its companion vein. Accom­panying the veins are the larger lymphatic vessels, though there are no lymphatic glands actually in the scalp. From the forehead region the lymphatics accompany the facial vein down the side of the face and usually reach their first gland in the submaxillary region, so that in the case of a poisoned wound of the forehead sympathetic swelling or suppuration would take place below the jaw. From the region of the temple the lymphatics drain into a small gland lying just in front of the ear, while those from the region behind the ear drain into some glands lying close to the mastoid process. In the occipital region a small gland (or glands) is found at the edge of the scalp close to the point at which the occipital artery reaches it, that is to say about a third of the distance from the external occipital protuberance to the tip of the mastoid process (see Skull).

The nerve supply of the scalp in its anterior part is from the fifth cranial or trigeminal nerve (see Nerves, Cranial); in the forehead region the supratrochlear and supraorbital branches come out of the orbit from the first or ophthalmic division of the fifth, while farther back, in the anterior part of the temporal region, the temporal branch of the second or maxillary division of the same nerve is found. Farther back still, in front of the ear, is the area of the auriculo-temporal nerve, a branch of the third or mandibular division of the fifth cranial.

Behind the ear the scalp is supplied with sensation by two branches of the cervical plexus of nerves, the great auricular and the small occipital (see Nerves, Spinal), while behind these, and reaching as far as the mid line posteriorly, the great occipital, derived from the posterior primary division of the second cervical nerve, is distributed. Sometimes the posterior primary division of the third cervical nerve reaches the scalp still nearer the middle line behind.

The third layer of the scalp or *epicranium* is formed by the two fleshy bellies of the occipito-frontalis muscle and the flattened tendon or aponeurosis between them. Of these two bellies the anterior *(frontalis)* is the larger, and, when it acts, throws the skin of the forehead into those transverse puckers which are characteristic of a puzzled frame of mind. The much smaller *(occipitalis* or posterior) belly usually merely fixes the aponeurosis for the frontalis to act, though some people have the power of alternately contracting the two muscles and so wagging their scalps backward and forward as monkeys do. Both fleshy

bellies of the occipito-frontalis are innervated by the seventh or facial nerve which supplies all the muscles of expression.

Deep to the occipito-frontalis and its aponeurosis or epicranium is the fourth layer, which consists of very lax areolar tissue constituting what is now known in anatomy as a lymph space. The length and laxity of this tissue allow great freedom of movement to the more superficial layers, and it is this layer which is torn through when a Red Indian scalps his foe. So lax is the tissue here that any collection of blood or pus is quickly dis­tributed throughout its whole area, and, owing to the absence of tension as well as of nerves, very little pain accompanies any such effusion.

The fifth and deepest layer of the scalp is the *pericranium* or the external periosteum of the skull hones. This, until the sutures of the skull close in middle life, is continuous with the dura mater which forms the internal periosteum, and for this reason any subpericranial effusion is localized to the area of the skull bone over which it happens to lie. Moreover, any sup­purative process may extend through the sutures to the meninges of the brain. (F. G. P.)

*Surgery of the Scalp.—*In connexion with the treatment of surgical and other wounds of the scalp, it used to be thought that it was dangerous to treat them by suturing, because of the risk of the intervention of abscess or erysipelas. Now that one knows, how­ever, that these two conditions are dependent upon the presence of septic micro-organisms, the surgeon deals with the scalp as with other parts of the body, cleansing the surface before performing an operation upon it, and doing his best to free the region of all germs when he is called upon to treat a wound already inflicted on it. Unless the surgeon could render the scalp aseptic, it would be almost impossible for him to undertake any operation upon the interior of the skull. Before opening the skull, therefore, the scalp is cleanly shaved and dealt with by turpentine, soap and water and other antiseptics. A large horse-shoe shaped flap is then turned down by an incision right to the bone, and on the conclusion of the opera­tion the flap is replaced in position and secured by stitches.

As the result of septic infection by an accidental wound, abscess is likely to form beneath the scalp, and if it is left to increase in size unchecked it may detach a large area of the scalp. As soon, there­fore, as it is thought that matter is forming beneath the scalp, an incision should be made down to the bone, and provision taken for insuring free drainage.

*Naeυi* of the scalp are best treated by electrolysis or by removal by dissection. If they are supplied by large blood-vessels, each artery should be under-pinned or tied before the removal by dis­section is undertaken.

*Sebaceous cysts* of the scalp should be removed by incision under the ether-spray whilst they are still small, the whole of the cyst- wall being torn out, for unless the cyst is entirely removed, the tumour is likely to reform. If the sebaceous cyst is left it may cause a thinning of the overlying skin and, effecting its own dis­charge, may become the source of chronic suppuration. In some cases the chronic abscess of a sebaceous cyst becomes the starting- point of malignant disease. (E. O.\*)

SCALPING, the custom of removing the skin of the skull, with hair attached. Though generally associated with the North American Indians, the practice has been common in Europe, Asia and Africa. The underlying idea, as of similar mutilations of those slain in battle, is the warrior’s wish to preserve a portable proof or trophy of his prowess. Scalping was the usual form of mutilation from the earliest times. Herodotus (iv. 64) describes the practice among the Scythians. The Abbé Emmanuel H. D. Domenech *(Seven Years' Residence in the Great Desert of North America,* ch. 39) quotes the *decalυare* of the ancient Germans, the *capillos et cutem detrahere* of the code of the Visigoths, and the *Annals* of Flodoard, to prove that the Anglo-Saxons and the Franks still scalped about a.d. 879. In Africa it was, and doubtless is, as prevalent as are all barbarous mutilations.

Among the North American Indians scalping was always in the nature of a rite. It was common to those tribes east of the Rocky Mountains, in the south-west and upper Columbia; but unknown apparently among the Eskimo, along the north­west coast, and on the Pacific coast west of the Cascade range and the Sierras, except among some few Californian tribes, or here and there in Mexico and southward. Properly the scalp could only be taken after a fair fight; in more recent times there seems to have been no such restriction. To facilitate the opera­tion the braves wore long war-locks or scalping-tufts, as an