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throughout the ages remained that it was the office of the pulmonary veins to bring air to the left heart and take away the smoky products of combustion. Today it is fully justified to point out how far Galen had really advanced and that on the basis of some of his first principles (such as the arterial blood content) he could and should have arrived at a transit of the arterio-venous pulmonary blood, but that he fell short of the final synthetic piece. This would have put him in possession of even a rudimentary knowledge of the transit ('lesser circulation'). We know nothing about the reason for his failure. We may conjecture several such reasons. First that it was his decentralising attitude towards the blood—the several portions of blood and bloods which he saw in connexion with several organs of origin (liver, heart, lung) rather than in uni-directional movement. More directly influential was probably his pre-occupation with *pneuma* and its provision for the heart by the lung. This would explain his definiteness concerning the entry of air as against his reticence about that of blood. In this respect perhaps the most revealing passage occurs in the treatise *On Anatomical Procedures* (VIII, 14; ed. Kühn, II, 638; tr. Ch. Singer, London 1956, p. 195). This deals with reports of all the arteries becoming motionless on ligaturing the pulmonary vein. The reason for this, Galen says, is obviously their *deprivation of the supply of spirit* that should fill them (*hos an delonhoti ten choregian tou plerountos autas pneumatos apheremenas; tanquam suppeditatione spiritus ipsas replentis destitutae*; tr. Singer: being of course deprived of the supply from the lungs that fills them (omitting [why?] *pneumatos*).

We may finally mention Mrs. May's valiant defence of Galen concerning his reputed idea of an ebb and flow and pluri-directional movement of the blood in the veins (p. 301–2, note 43). This is admitted for the portal system and for the transport of pathological residues, but not as one of the general principles in Galen's cardiovascular doctrines. A plausible way towards a solution of the problem.

Seen in perspective the few points which we have singled out for discussion cannot claim any significance for the work as a whole. They show the difficulties which the interpreter of Galen may have to face and the magnitude of the task so well accomplished in the book under notice. Nor can our discussion imply any criticism. On the contrary it should enhance our admiration and gratitude to Mrs. May for providing easy and reliable access to one of the great and universal geniuses of classical antiquity—a genius who is 'modern' and indispensable in so many ways and yet not easy to grasp in view of his limitations, obscurities and apparent self-contradictions. All this gives the present book the stamp of permanent value as a source of instruction and a basis for discussion wherever Galen is mentioned—and can there be any field in historical anatomy, physiology and medicine where he is not?

WALTER PAGEL

The University of Edinburgh and Poland, ed. by WIKTOR TOMASZEWSKI, Edinburgh, Graduates of the Polish School of Medicine, 1968, pp. ix, 95, illus., 60s. [Copies from the editor, 2 Wilton Road, Edinburgh 9.]

This festschrift, celebrating the twenty-fifth anniversary of the opening of the Polish School of Medicine at Edinburgh University, records the close—if spasmodic—cultural and social links between Scotland and Poland from the sixteenth century

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to the nineteenth century, as well as the names of the staff and students and their activities during the years of the School's existence from 1941 to 1949.

The first part, which includes an account of the careers of two learned Scotsmen in Poland, Drs. John Johnston (1603–1675) and William Davi(d)son (1593–?1669) and a valuable English and Polish bibliography drawn from little-known sources, will be of some interest to medical historians. The details of the School's eight years at Edinburgh may be of use to historians in the future.

The whole forms a worthy memorial to an unusually imaginative act of co-operation, and is admirably edited, printed, and illustrated.

ROBIN PRICE

Lectures on the Comparative Pathology of Inflammation, by ELIE METCHNIKOFF, translated from the French by F. A. Starling and E. H. Starling, with a new introduction by Arthur M. Silverstein, New York, Dover Publications, 1968.

Immunity in Infectious Diseases, by ELIE METCHNIKOFF, translated by F. G. Binnie, reprinted with a new introduction by Gert H. Brieger, New York and London, Johnson Reprint Corporation, 1968, pp. xxxi, xvi, 591, illus., \$25.00.

The Dover reprint of Metchnikoff's *Lectures on the Comparative Pathology of Inflammation* is nicely supplemented by the Johnson reprint of his *Immunity in Infectious Diseases*. The *Lectures* first appeared in French in 1892, and *Immunity* appeared nine years later. In the period between Metchnikoff had been engaged in extending the territory claimed by his theory of phagocytosis and defending its already threatened borders. Although Metchnikoff's ideas had been frequently enough attacked in the 1880s the *Lectures* are unmarred thereby, and in reading them we share something of his original enthusiasm for his new insight into the mechanisms of the protective response up and down the scale of animal life. In contrast the *Immunity* reads somewhat like a legal document. It is crammed with claims, refutations and counterclaims: the reader breathes in an atmosphere that after a while becomes a bit stifling. Metchnikoff's tone toward his adversaries is usually mild, although the intensity with which he experienced their attacks may be measured by his later comment that the 'polémique à propos de la phagocytose aurait pu me tuer ou m'affaiblir définitivement bien plus tôt. Par moments . . . j'étais prêt à me débarrasser de la vie' (Elie Metchnikov, *Souvenirs*, Moscow, 1959).

The reader of *Immunity in Infectious Diseases* will find in it no brilliant new insight of the kind that illuminates the *Lectures*. For Metchnikoff's theory of immunity is co-extensive with his theory of inflammation. Both are aspects of his theory of phagocytosis, a theory comprehensive enough to embrace in addition the metamorphosis, healing, atrophy and ageing of tissues, the greying of hair, even macrobiosis and preventive geriatrics. It was his co-worker Alexandre Besredka who first pointed out in detail that the varied aspects of Metchnikoff's work in biology and medicine—even including his ideas on the effects of intestinal intoxication and his 'optimistic philosophy of life'—were unified by his conception of phagocytic digestive activity (*Histoire d'une Idée, L'Oeuvre de E. Metchnikoff*, Paris, 1921). In the *Lectures* Metchnikoff had defined inflammation as a protective process mediated by phagocytes, cells that engulfed, digested and disposed of animate or inanimate irritants entering the body other than as food materials. The task in the simpler