

rather than social, ethos: 'care of the community' is neither sentimental nor existential in the twentieth century usage of those terms. However, one would like to think it is both, in the original: 'Everything clever and agreeable' devoted to 'That existential good'.

If at the end the similarities rather than the differences in the novels strike home - if indeed, they seem to exemplify the same, rather than different, outlooks - this is a reflection of their success in portraying reality, as Sterne travels his emotions and Sartre his mind. Both authors end on an odd note, Sterne's closing line; 'So that when I stretched out my hand, I caught hold of the Fille de Chambre's—' is open to whatever interpretation the reader chooses to attach to it, but if nothing else - spes phthisica - it is a grasp of hope from a dying man at the continuing joys of existence. It is profoundly and positively existential. At the close of *La Nausée*, Roquentin, after a failure to win back the affections of Annie in Paris, returns to Bouville to wind up his affairs and make his farewells. In the café, the Nausea having left him, Madeleine plays him out to a new life in Paris with the same tune on the gramophone that ended the first

acute episode, 100 pages earlier: 'Some of these days, You'll miss me honey'.

For the proto-existentialist journey it is a curiously sentimental ending.

M G H Bishop

Department of Dental Radiology
Kings College Hospital, Denmark Hill
London, UK

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Rudolf Virchow - father of cellular pathology

It is just over 90 years since the death of Rudolph Virchow (1902). Virchow was not only the most famous pathologist of the nineteenth century but also throughout his working life a prominent left wing politician. He was at the barricades in Berlin during the revolution of March 1848. He was one of the founders of the German Progressive Party and led the opposition to Bismarck in the Prussian Diet and served in the Reichstag of the new German Empire from 1880-1893. Following an assignment to study the medical situation in Upper Silesia during the typhus epidemic earlier in 1848, he maintained an interest in public health, particularly in relation to the living conditions of the population. As a result of his left wing opinions he had to leave Berlin and was appointed initially to the chair of pathology in Wuerzburg in Bavaria and it was only later that he was appointed to the chair in Berlin as a result of his developing international reputation^{1,2}.

Virchow was no doubt what is now known as an 'upwardly mobile' young man. In his late twenties together with a colleague he started a journal of pathology, the *Archiv für pathologische Anatomie und Physiologie und für klinische Medizin* which was later known as *Virchows Archiv*. Virchow acted as editor of the journal until his death in 1902. The journal is still active as the top German pathology journal although it is now published in the English language.

From more than 2000 publications Virchow is best remembered for his 'Cellular pathology' written in 1858³. Virchow was not the first to use histological material as a basis for the study of Pathology. James Paget, 5 years earlier, had published his *Lectures on surgical pathology* which leant heavily on microscopic observations. It is interesting both Paget and Virchow together with Pasteur were the invited speakers at the evening banquet of the Eighth International

Medical Congress in Copenhagen in 1884. Whereas Paget approached pathology from surgery and the Hunterian tradition, Virchow approached his pathology from the physiological tradition, especially Schwann's contributions to histology. Virchow belonged to a continental tradition that was looking actively for the cause of disease and especially tumour formation. The book was based on a series of lectures given at the newly formed Institute of Pathology that was established for him in the University of Berlin earlier in 1858. These lectures were aimed at furnishing an explanation of the 'theory of life' and out of this a construction of the science of pathology.

He begins by comparing the structure of animal cells with that of plant cells quoting extensively from the work of Schwann. He then surveys different tissues from the physiological point of view. After introducing the concept of tissues, he then discusses epithelium followed by connective tissue, including cartilage and fat, from this point he goes on to enlarge on muscle, nerve, blood vessels and blood, before entering into the nature of pathological change. Here he starts with neoplasms, among which he considers cancer and tubercles, and then discusses malignancy. The difference between hyperplasia and hypertrophy are mentioned as is degeneration. Under the title of nutrition and its channels he discusses the vascular system especially the vascular supply to bone and then he turns to connective tissue especially elastic tissue. He goes onto the structure of arteries, arterioles and veins, and the nature of hyperaemia. He introduces the term dyscrasia giving as example scorbutic purpura and talking about syphilitic dyscrasia as a result of the circulation of a 'virulent substance'. Then he launches into a discussion of the blood starting with fibrin formation and coagulation. After this he introduces the cellular elements beginning with red cells which may form rouleaux and the effect of lysis releasing 'haematine' which in its crystalline form he calls 'haematoidine'. Other crystals he calls haemine and haemato-crystalline. He recognizes the similarity of white blood cells

(colourless corpuscles) to pus cells. During blood flow, they marginate and adhere to the vessel wall. Leucocytosis and leukaemia are discussed and are described as is the haemorrhagic diathesis found in cases of leukaemia, which is also associated with enlargement of the spleen and lymph nodes. He distinguishes two forms of leukaemia, the ordinary splenic, and the lymphatic, form which are not infrequently combined. He distinguishes the cortex from the medulla of lymph nodes, in the periphery of the former he observes follicles which are particularly developed in pathological enlargement of the nodes. The drawings of pus cells treated with acetic acid show typical polymorphonuclear leucocytes. After describing pus from gonorrhoea he goes on to describe inspissated pus or cheesy infiltration found in pulmonary tuberculosis and cold abscesses. Drawings of the cells derived from this material show a mononuclear appearance. The phagocytic role of lymph nodes is shown by the deposits of pigment in nodes proximal to the area of a tattoo in an individual tattooed 50 years previously. Lymph nodes are recognized as a site of malignant tumour deposition, as also the site of disease in syphilis. Wherever there is lymph node enlargement of this type he finds an increase in white cells in the peripheral blood. In Scrofula when the glands are destroyed as a result of ulceration or calcification the leucocytosis ceases. He recognized that Peyer's patches, tonsils, the thymus and the malpighian corpuscles of the spleen are part of the lymphatic system.

The mechanism of thrombosis, its relation to phlebitis and embolism (he himself introduces the use of the term embolus) are discussed and embolic phenomena are considered at length. He draws analogy between the metastatic spread of cancer including melanoma and other embolic processes. He goes to the formation of red cells indicating that there are reduced numbers produced both in leukaemia and chlorosis (iron deficiency anaemia). He then enters the field of neurosciences discussing the microscopic structure of nervous tissue a subject very much in vogue at that time. He passes onto theories as to how nerve irritability and irritation might affect inflammation.

The subject now changes to degeneration, necrobiosis, and induration. Faulty degeneration is a subject that causes him some considerable interest. This leads him to atheromatous changes in the arteries. He identifies crystals of cholesterol in the plaques which go onto sclerosis and ossification. He compares the changes in heart valves due to atheroma with those due to rheumatism.

This discussion leads onto a wide discourse on 'amyloid' a term which he is the first to use. He describes his own observations of the reaction of amyloid with iodine and interestingly enough this was in the brain, then later in the spleen, liver and kidney. With this background he can embark on a study of inflammation dividing it into purely parenchymatous and secretory (exudative). From this he explains about 'pathological new formations' particularly in tuberculosis and typhoid fever, theorizing as to their mode of development. In this connection, he introduces the concept of 'epitheloid new development' drawing analogy between the hyperplastic development of the cells in these

conditions and the differentiation of cells in developing epithelium.

In the section on pathological new formations he first discusses papillomata and then he goes on to discuss condylomata and cauliflower tumours of infective origin (syphilitic). He then goes onto tuberculosis where he talks about tubercular infiltration and tubercular granulation. Tubercle development in the pleura is illustrated; the cells being derived from connective tissue with a central area of fatty necrosis. This is the commencement of the cheesy metamorphosis which subsequently characterizes the tubercle. The tubercle is referred to as a granule, the forerunner of the term granuloma which is used in subsequent publications. Small tuberculous granules are referred to as 'miliary'. He also recognizes the correspondence between the cells, the tubercle and those of lymph nodes, discussing its lymphoid nature.

Also among the pathological new-formations are epitheliomas or epithelial cancers, and tumours of connective tissue which he designates sarcomas. There are also myxomas and chondromas.

Virchow's other great contribution was his three volume book on tumours *Die Krankhaften Geschwuelste* published 5 years later in 1863⁴. In this, the term granuloma was introduced to describe the well circumscribed swellings consisting of 'granulation tissue found in tuberculosis, leprosy and syphilis'. However, despite the inclusion of granulomas many of the chapter headings and much of the contents parallel more recent texts of oncology. Virchow's major works were completed before the discovery of the role of microorganisms in disease. However, he continued to work through the period of their discovery and published on the role of cells in combating bacterial infection and was particularly pleased when he published Metchnikoff's work on Phagocytosis^{5,6}. In disproving the dogma of the hereditary nature of leprosy during his visit to Norway in 1859, he cleared the way for the discovery of the leprosy bacillus by Armauer Hansen⁷.

Apart from his major contribution in the introduction of the field of 'cellular pathology' recently expanded to include the new field of molecular pathology, Virchow should be remembered every time the words embolus, amyloid and granuloma are used in medicine.

J L Turk

*Department of Pathology
The Royal College of Surgeons of England
35-43 Lincoln's Inn Fields
London WC2A 3PN, UK*

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