The Pathology of Tabes in Relation to General Paralysis: a Discussion at the Pathological Society of London. (*Brit. Med. Journ., November 25th, December 9th, 23rd*, 1899.) *Mott, Bruce, Buzzard, Gowers, Savage, Ferrier, Hale White, Beevor, Head, and others.*

Dr. Mott opened the discussion by pointing out that the question had arisen as to whether tabes could be looked upon as the same morbid process as general paralysis, only affecting a different part of the nervous system. It was recognised that (1) tabes might begin with mental symptoms, or such might form crises; (2) tabetic symptoms may occur in general paralysis, and atrophy and sclerosis of the posterior columns and roots may be found post mortem; and (3) cases of tabes may afterwards develop well-marked symptoms of general paralysis. He and Sherrington had found symptoms and morbid changes of general paralysis in seven out of eight cases of tabes dying in asylums. Ætiologically, the two conditions were closely associated by syphilis. Various symptoms characteristic of tabes he had seen in general paralysis, such as grey atrophy, ocular paralysis, perforating ulcers, etc. Further, the most important physical sign in general paralysis, as well as in tabes, was reflex iridoplegia, only met otherwise in syphilitic brain disease. "He considered that the pathological process in the two diseases was identical, namely, a primary progressive degeneration of the neuron, with secondary sclerosis and inflammation or subinflammatory condition in the vessels or adjacent membranes, due to irritation caused by the products of degeneration, and a formative proliferation of the glia elements." In tabes, the process affected almost exclusively the posterior columns, corresponding, when complete, to the effects of section of the posterior roots. One of the most marked effects of the latter, was loss of muscular tonus—an important factor in the production of ataxy. Dr. Mott showed specimens from cases showing changes typical of tabes, and also, to a more or less marked degree, typical of general paralysis.

Dr. Bruce discussed the question from a histological standpoint, maintaining that the lesions in ataxia were not due to a primary sclerosis affecting neuroglia, but that the disease commenced in the continuation of the posterior nerve-roots within the spinal cord, affecting exogenous fibres, the endogenous escaping. He did not support Marie's hypothesis that the degeneration was due to the nutritional changes in the cells of the posterior root ganglions. He adopted the view of Obersteiner and others that the nutritional powers of the ganglion cells were cut off by pressure upon the fibres at their entrance into the spinal cord by such causes as meningeal thickening, which might be syphilitic or otherwise.

Dr. Buzzard contributed some remarks from clinical experience. He could not call to mind examples of cases in which tabes began by mental symptoms. He agreed with Dr. Mott as regards the part played by syphilis in general paralysis and tabes, and also with the latter's statement of the pathological process, but he thought that in some cases (frequently in insular sclerosis) the primary degeneration and those stated to be secondary changes may go on side by side.

Sir W. Gowers agreed with Dr. Mott regarding the importance of syphilis as an ætiological factor. He confirmed Dr. Buzzard's statement that the symptoms of tabes usually precede those of general paralysis

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when the two conditions are combined. He failed to support Dr. Bruce's remarks on the extra-neural commencement of the degenerative process, since it failed entirely to account for some of the most remarkable facts of tabes. He did not think that a common causation created identity of diseases which differed so widely in symptoms as the cerebral form of general paralysis and the pure form of tabes. "If so, they ought to regard a scrofulous tumour of the brain and pulmonary phthisis as one disease." He had long maintained that the essential secret of these degenerations was the lowered durability of the nerve elements allowing some other factor to induce a premature decay. "Disease" was commonly connected with an aggregation of symptoms rather than with their discerned causation.

Dr. Savage remarked that similar results did not necessarily mean similar causes. Clinically, toxic agents, as a rule, affected similar parts and tissues in similar ways. "They saw all the symptoms of general paralysis of the insane in the various stages of alcoholic intoxication; and with lead, and even with influenza, they saw similar symptoms." Syphilis was associated in the production of both general paralysis and tabes. He recognised that tabetic symptoms frequently preceded those of general paralysis by years, but he must also say that he had seen a good number of cases of tabes and insanity which did not develop general paralysis. He had seen also acute maniacal attacks in tabes, and taught that any one symptom of tabes might give rise to insane delusions. He gave his experience of tabetic symptoms in general paralysis, male and female, and noted their rarity in the latter. It might be fanciful, but it had struck him that there might be more than one tabes. "Was it possible that there might be at the same time a double process going on in the highest cortical centres, and also in the cord, to which the tabes might to some extent be secondary?" He was not convinced that general paralysis and ataxia were the same, though they probably had similar causes and results. He agreed with Dr. Mott that degeneration, followed by secondary inflammation, were parts of the diseased process in both. He thought the chief cause toxic, and that toxine most commonly syphilis, though he believed that an auto-intoxication from acute delirium might be the origin in some cases.

Dr. Ferrier said that his experience led him to the same conclusions as Dr. Mott. He thought that civilisation was comparatively unimportant when compared with syphilisation. He rather, if anything, because of the absence of pain, was inclined to go against the primary vascular and interstitial origin.

Dr. Hale White had for some years taught the same views as Dr. Mott had expressed.

Dr. Beevor stated that "he considered that general paralysis and tabes were dependent very largely, if not entirely, on the action of syphilis on the nervous system; but as it seemed to be the exception rather than the rule for tabes to be followed by general paralysis, he thought that until in the majority of cases of tabes changes in the cerebral cortex were found he would not like to look upon them as two separate diseases occurring in the same person at the same time, and he thought that the prognosis of tabes would have to be con-

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sidered more unfavourable if the majority of cases were liable to become general paralytics."

Dr. Head gave some highly interesting and important points regarding the structure of the posterior nerve-roots and ganglions in the different levels of the cord and the destination of the fibres, the result of work not yet concluded or published. He finally gave adhesion to Dr. Mott's views that both tabes and general paralysis were parasyphilitic affections, identical processes affecting different portions of the nervous system.

Other speakers followed, and Dr. Mott replied. J. R. LORD.

The Ætiology of General Paralysis (*Allgem. Zeits. f. Psychiat., B. lvi, H.* 6, 1899.) *Sprengeler.*

Dr. Sprengeler, in a paper of 35 pages, gives the results of a laborious statistical inquiry into the causes of this malady. His observations were made at the asylum at Wehnen, near Göttingen, upon 337 paralytics, 295 of whom were men, and 42 women. He found the proportion of male to female paralytics to be about 7 to 1. Most of the cases occurred about the thirty-sixth to the fortieth year of life. The average duration of the disease was two years and eight months; about 74 *per cent.* of his patients died in the first three years. With women, general paralysis took a slower course, the average duration being about three years and five and a half months. The duration of the disease was the same whether it occurred at an early or late period of life. He gives statistics, the condensed results of many (46) observers, as to the occurrence of syphilis as an ætiological factor in general paralysis.

[Excluding Voisin and Nicoulan, who state that the percentage is 1·6 and 3·96 respectively, twenty of these observers arrive at percentages between 12 and 50·8; the remainder publish figures varying from 53 to 93 *per cent.* The total number of cases tabulated is 8731, 3624 being syphilitic.]

Dr. Sprengeler sums up thus:—"I must recognise syphilis as by far the most important cause of general paralysis whether it acts directly or indirectly, but it is not the only cause. I should give the second place to alcoholic intoxication, and the third to heredity. Besides these, injuries to the head, fright, wretchedness and want, sexual excesses and lead poisoning, insolation and radiated heat, may also, either alone or conjoined, become causes of general paralysis. I cannot find that over-great mental exertion alone can induce the disease." General paralysis being the most specific of all forms of insanity, it seems incongruous that it should be caused by influences so diverse as syphilis and fright. Onanism is also given as a cause in one place.

Writers on insanity are stated to be far from agreed as to the part to be assigned to heredity in the causation of this disease. Clouston and Meynert give little; Krafft-Ebing found that from 15 to 20 *per cent.* of his cases had hereditary tendencies; Muller gives as much as 46·2 *per cent.* with male patients and 64·5 with females, and Kraepelin 61 *per cent.*

Näcke thus states the predisposing causes of general paralysis:—A certain general born constitution of the brain, the particular nature of

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