for the separation of consumptive patients from all others in any hospital for diseases of the chest. One line of inquiry you will not, I fear, be able to follow here, and that is whether tubercular disease, like anthrax, can be annihilated by protective inoculation. And yet, if the microbe theory of phthisis, pure and simple, be established, there seems no reason why protective inoculation should not prove as successful in the one murrain as the other. To this end I presume another Pasteur or Koch Institute will be needed. And assuredly the man who shall succeed in placing consumption in the same category with anthrax will beat the record of Jenner and the small-pox. Any one who has seen much of consumption must have found reason to doubt the correctness of the common belief that mere feebleness of constitution alone is the main determining cause; or, on the other hand, that robustness of frame and constitution alone is a preservative. How frequently do we see, as in the instance quoted, vigorous, athletic men, leading a healthy, active life, develop tubercular disease running a rapidly fatal course. If there be an essentially tubercular habit of body, as in the case of gout, ought we not ere this to have acquired more knowledge of its characters than we possess? It is quite true that an experienced eye in numerous instances finds such physical and constitutional characters, in apparently healthy persons, as to convince him that in all probability they will die of phthisis, and are inadmissible as candidates for life assurance. But I have again and again passed lives for assurance whose physique, personal and family history, and social position and habits were free from objection, who have nevertheless died prematurely from consumption. In conclusion, I would venture again to impress on you the advantages here presented for acquiring strictly clinical information and therapeutic knowledge as distinct from pathological investigations, and the rich field you have for advancing our knowledge of the etiology of phthisis and such questions as heredity. That the clinical lectures and demonstrations which you propose to give will be appreciated and prove of the utmost value to those who may avail themselves of them I have not the least doubt, and cordially wish you success in your good work. If I have disappointed your expectations, as I fear, in occupying your time, by what you may call conversational chit chat on a variety of topics rather than by scientific discussion of any one of the grave problems you are called to study, I can only cast myself for forgiveness on your good nature and friendly disposition.

THE PATHOLOGY OF CHOREA: A SUGGESTION.

By ARCHIBALD E. GARROD, M.A., M.D., M.R.C.P.

THE manifestations of rheumatism may be arranged in certain groups, the members of which are apt to occur in association in the same patients, and in one such group are included erythema, sore-throat, and arthritis. It is a well-known fact that in cases in which an eruption of erythema is the most conspicuous feature of a rheumatic attack joint lesions of greater or less severity are usually present, whilst endocarditis and pericarditis are comparatively rare; and the same is true of rheumatic sore-throat. There is, moreover, an intimate connexion between sore-throat and erythema, for at the commencement of an attack of erythema some soreness of the throat is often complained of, even when there are no articular pains.

Now, in its rapid development, and equally rapid resolution, as well as in the manner in which it disappears after death, often leaving no trace of its presence, the arthritis of acute rheumatism has many points in common with cutaneous erythema, and it is interesting to note that Monneret long ago described this form of arthritis as an erythematous inflammation. The rheumatic sore-throat, which may either assume the form of injection and swelling of the palate and pharynx or of well-marked tonsillitis, was regarded by Laségue as an erythema of the fauces, analogous to cutaneous erythema. It would seem then that there is some reason for thinking that these lesions so often occur in association, because they are processes of similar nature,

although involving different structures. This conclusion receives considerable support from the study of another group of rheumatic lesions, of which endocarditis may be selected as the typical example. The lesion most intimately associated with endocarditis is the formation of those remarkable subcutaneous nodules of which M. Meynet of Lyons was the first to recognise the rheumatic origin; and, as Drs. Barlow and Warner have shown, there is not only a clinical association between nodules and endocarditis, but, further, the changes in the subcutaneous fibrous tissues, of which the nodules are the outward signs, are closely analogous to those which result in the formation of vegetations upon the valves of the heart. Similar changes have been described in other fibrous structures, such as the pericardium, and in a note published in a recent number of THE LANCET, Dr. Angel Money suggested that the formation of endocardial vegetations and of subcutaneous nodules are merely two phases of a much more general process which may involve any of the fibrous structures of the body. There is good reason for believing that chorea is in many cases a manifestation of rheumatism, and, like nodule formation, it is intimately associated with endocarditis; for chorea and endocarditis are often present together in cases in which no joint lesions are developed under observation, and no history of previous arthritis can be obtained, and in such abarticular cases subcutaneous nodules are sometimes present. Again, the class of patients most subject to chorea is precisely that in which there is most tendency to nodule formation, for both chorea and nodules are almost confined to children and young adults, and both are far more commonly met with in girls than in boys. Lastly, the duration of an attack of chorea is usually somewhat the same as that of the process of nodule formation.

These clinical observations seem to afford some basis for the hypothesis that we have here yet another example of the association together of lesions of similar nature, and that possibly chorea and endocarditis so frequently appear simultaneously because chorea is the outward sign of a lesion of this same group, and has its origin in a temporary overgrowth of connective tissue in the nerve centres.¹

This hypothesis has the advantage of assimilating the pathology of chorea to that of certain diseases in which tremor is a conspicuous symptom; and at the same time it offers an explanation of its so frequent connexion with the rheumatic state; whilst, unlike the embolic theory, it does not involve the presence of antecedent endocarditis. Some observers have noticed increase of connective tissue in the brain and spinal cord in fatal cases of this condition, and I would suggest that such changes should be further sought for by those who have opportunities of examining the nerve centres of patients who have died during an attack of chorea.

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EFFECTS OF SULPHONAL.

By R. PERCY SMITH, M.D., M.R.C.P.

OF the value of sulphonal as a hypnotic there can be no question, its beneficial use having been recorded in numerous cases, especially in insanity; and the long-desired hypnotic which should leave no bad after effects and should not interfere with the patient's appetite would appear to be almost attained. Few instances of any action other than simply a hypnotic one have been recorded, but giddiness has been mentioned by some observers, and in the *British Medical Journal* for April 20th last is mentioned an observation by Dr. Perregaux of Montreux of "ataxic disturbance of certain fine movements of the hand," and the question raised whether a prolonged use of the drug can be altogether harmless in regard to the cerebral cortical functions. Dr. Samuel Garnier publishes in the *Annales Médico-Psychologiques* for January and March of this year a paper giving his experience of the drug; and, referring to its action on locomotion, mentions two cases, in one of which "la malade présentait une démarche maladroite et même chancelante," and in the other "il y avait dans la station un aspect non équivoque d'ivresse légère." He asks the question whether these phenomena were due to a

¹ The possibility of such an origin was suggested by Dr. Cheadle in his Harveian Lectures, 1888, p. 67.