

tion. What is its import? The following conclusions may, I think, be fairly drawn from the published results of these experiments :—

*First.* Nothing is proved by them except in regard to the species of animals upon which they were performed. It is well-known that the anatomical and physiological organization of many of the lower animals bears so close a resemblance to that of man, that often the study of the phenomena taking place in the human body may be materially aided by experiments upon the brute. But it is equally true that there are great varieties in the relative importance of organs, not only between man and beast, but in different species of the latter; so that what is in one an organ of high development and great importance, in the other is of far inferior organization, serving hardly more than merely to point out the general plan upon which the different members in the animal kingdom are constructed. Recognising this fact, we should be very cautious in applying to the human organization conclusions drawn from experiments upon the lower animals in regard to an organ of the functions of which we are entirely ignorant. As regards the supra-renal capsules, their size and anatomical relations are such in the animals experimented upon, as to induce the belief that they are of equal comparative importance in them as in man. Consequently the evidence afforded by observations upon them may materially assist researches in other directions, but they never can decide the question.

*Second.* In several species of the lower animals, certainly in cats and rats, the functions of the supra-renal capsules are not essential to life. This, it seems to me, may be considered as an established fact, and for the following reasons: First, the different courses of experiments made to elucidate this point were carried on chiefly by four different observers, M. Brown-Séquard, Dr. Harley, M. Philipeaux, and M. Gratiolet, all men of high reputation. Of these four, three obtained results coinciding with each other in all essential points, which results all bear testimony to the truth of the above statement, while one only is led to the opposite conclusion. Second, in the progress of these experiments, the fatal results grow less and less frequent, until, at last, in many instances, none such follow, a fact which naturally gives rise to the impression that, in the earlier operations, they might have been owing, to some extent at least, to lack of experience and practice in the operator? Third, the facts established by the experiments of the three observers who obtained similar results are, so far as they go, definite and positive, while those established by the experiments of the fourth are purely negative in character.

The former prove that certain animals live without any apparent diminution of health, or alteration of function, when their supra-renal capsules have been either destroyed by disease or removed by vivisection; while from the latter all that can justly be asserted is, that in certain animals the removal of these organs has, in a succession of instances, been followed by death, but whether in consequence of the loss of the capsules as such, or from some concomitant injury of the operation, does not appear. That the latter was more probably the case seems likely from Dr. Harley's operation upon the cat, whose capsules were found already disorganized without having occasioned any apparent alteration in health, and yet death rapidly followed their enucleation.

Having now given a brief résumé of the results of inquiry into the question of the pathology of this disease, I would before leaving it, make mention of a few facts which may aid in its decision.

One of these was mentioned to me by Professor Jeffries Wyman, of Harvard University. It is that in anencephalous fœtuses the supra-renal bodies are undeveloped, remaining of a most insignificant comparative size; and I find in Rokitansky's Pathological Anatomy, that, in such cases, other organs are frequently deficient. Again, cases are reported of complete absence of these organs. Rokitansky says "the supra-renal capsules are occasionally deficient, especially when there is a deficiency in other organs also."