like Weismann's, is an attempt to explain how these inborn traits are transmitted.

EFFECTS OF PARENTAL DISEASE.

Had, then, Professor Adami proved that parental diseases, etc., affect offspring subsequently born in some way other than by causing them to reproduce parental acquirements, he would still have been very far from proving his case. As a fact he has not even proved the little that in this instance he sought. His assumption is apparently reasonable. We have abundant evidence that the germs of unicellular organisms are capable of being altered by environmental influences, and it seems only reasonable to expect the germs of multicellular organisms are equally capable of alteration (for example, by toxins circulating in the blood). Nevertheless the evidence is still to seek. Indeed it seems probable that the germs of multicellular organisms are much less capable of modifications than lower types. For did environmental influences (toxins circulating in the blood) so injure germs as to enfeeble offspring, a race that used alcohol for instance, or was affected by malaria would by the accumulation of the injury grow more and more enfeebled generation after generation till by the accumulation of injury it would tend towards extinction. I am not aware that South Europeans who have used alcohol for thousands of years are more degenerate than the lowest savages, the Terra del Fuegians, for instance, who have never used it. Again were Professor Adami's reasoning correct races that have long suffered privation and hardship should be degenerate whereas races that have lived in ease and plenty should be the reverse. If anything the contrary is the case.

THEORIES OF EVOLUTION.

All theories of heredity are in essence theories of evolution. If the Lamarckian doctrine be true, if acquirements are transmissible then all agencies which beneficially affect the individual, good and plentiful food, sunlight, fresh air, exercise and so forth must also benefit the race, must during the lapse of generations become causes of evolution, whereas all agencies which injuriously affect the individual must equally injure the race, must be causes of degeneration. On the other hand if acquirements are not transmissible then agencies which benefit the individual cannot be causes of evolution, which must be attributed wholly to injurious agencies that by weeding the unfittest leave the propagation of the race to the fittest. The two doctrines are thus fundamentally and violently opposed. It follows, by watching the course of racial change, that we are able to decide which of the two doctrines is true. Let us then turn to Nature. Does she furnish a single instance of racial change due to the transmission of acquirements? Not one. It is true instances by the hundred have been alleged, but all without exception have broken down on investigation. Does she furnish instances of racial change due to the weeding out of the unfittest, of the accentuation of variations by selection (natural or artificial)? She furnishes them without number. The effects of disease selection in rendering races resistant to disease, and the effects of artificial selection in evolving our domesticated animals and cultivated plants are alone decisive.

Moreover this line of argument furnishes conclusive proof that agencies that affect the parent do not as a rule in any way affect the offspring subsequently born; otherwise in this case also beneficial agencies would lead to evolution, injurious agencies to racial degeneration. As we see the contrary is the fact. Professor Adami quotes Paul to prove that plumbism in the parent almost invariably results in the death of offspring subsequently born. I am not prepared to impeach Paul's results off hand. It is possible that lead specially poisons germ cells just as strychnine poisons nerve cells. But in that case it is a very remarkable poison. It does not destroy the delicate sperms; it merely destroys the offspring which arise from the sperms many months, even many years after. In other words plumbism does not destroy the cells which are exposed to its influence, but only their very remote cell-descendants when long removed from its direct influence. Considering the number of mare's nests of this description that reinvestigation has exposed it is probably wise to suspend judgment until this particular case has been reinvestigated. In any case one swallow does not make a summer. If ever

deleterious agencies acting on the multicellular parent do affect the germs, the instances in which they do are evidently so rare as not to affect the general question.

THE OBJECT OF THE ESSAY.

The main object of this essay is an endeavour to place heredity on what I hope is a scientific basis for medical readers. Heredity ought to be a science. Already we have excellent data on which to found very important conclusions. The fact that offspring take origin, not from the whole of the parent's body, but only from the microscopic germs renders the transmission of acquirements exceedingly improbable. Doubt is converted into certainty by the fact that though all high organisms acquire millions of traits in no case has the transmission of an acquirement been proved. This line of argument is extremely simple and absolutely clear and conclusive. But it has been almost quite ignored. One may wade through volumes devoted to the subject and get no hint of it. Instead we are treated to theories of *how* characters are transmitted—to treatises on pangenesis, physiological units, the continuity of the germ plasma, and so forth. We are led through a fog of vague conjectures into the darkness of the unknown. "What might be a science is converted into a tumbling ground for whimsies." Let us keep to the facts we know. We shall not then be able to explain how a man transmits a head to his offspring, nor why a man has for offspring another man and not a dog or a tree, nor indeed why he has offspring at all. But we shall be able to formulate certain "laws" from the facts of our common experience. We shall be able to say that while inborn traits are transmissible, acquirements are not transmissible, and having done that we shall have stated a truth of enormous importance to all men, but to none more than to medical men.

DIRECT INTRODUCTION OF PURGATIVES INTO THE LARGE INTESTINE IN CASES OF OPERATION FOR SEPTIC PERITONITIS.

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I WISH to draw the attention of the profession to a method which I believe is of great utility in the surgery of septic peritonitis—the direct introduction of purgatives into the intestines at the time of operation. It is not too much to say that in many of these cases the patient's life hangs on the possibility of overcoming the paralytic obstruction and the free evacuation of gas and faeces. The worse the case the more difficult is this to bring about, since the patient vomits everything he takes by the mouth.

I have hitherto only used this method in cases of perforative appendicitis, and here the performance of the injection is very simple. The nozzle of a small syringe—the hydrocele-injecting syringe is a convenient form—is introduced into the "stump" of the appendix and the solution directly thrown into the caecum. Three drachms of magnesium sulphate, with ten drops of tincture of nuxvomica, and a drachm of glycerine in an ounce of water is the formula I have generally employed. Two hours afterwards a turpentine enema is given, and the result has been excellent.

I have employed this method in 5 bad cases of septic peritonitis associated with perforative appendicitis. In every case the results have surprised me. And though the number is too small for a pronouncement as to the establishing intracæcal purgatives as a definite line of treatment, yet the cases are sufficiently striking to justify me in urging a trial of it upon my professional brethren.

It is obvious that in other cases the solution could be easily and safely thrown into the colon by means of a hypodermic syringe obliquely introduced. Further experience may elicit better purgatives than magnesia. The amount of magnesium sulphate is difficult to estimate. In one very bad case I introduced four drachms, and I think the dose should be proportional to the age of the patient and the extent of the peritonitis.