Lamarckism is up. Evidence in favour of Lamarckism is pouring in from all quarters. I direct his attention to the recent work of Metalnikoff in the Institut Pasteur, who, experimenting with the caterpillars of the genus Galleria, showed the inheritability of acquired immunity. This work was continued for nine generations under standardised conditions with adequate controls.

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DURING the past twenty years I have made several contributions to the evidence in favour of the chromosome theory of heredity, the last in 1926. I am not nearly so sure as I was of the universal validity of that theory, and I hope that even in my callow youth I was never so dogmatic about it as is Prof. J. S. Huxley in his review of Prof. Noël Paton's book (NATURE, Dec. 25, p. 902). I feel that some protest should be made lest the constant repetition of certain dogmatic statements by Prof. Huxley and others of the same school should lead to a general belief that these statements represent proven facts accepted by all biologists who are familiar with this particular branch of knowledge.

When the mode of distribution of the chromosomes to the daughter cells during the production of the gametes is compared with the manner in which the Mendelian characters appear in breeding experiments, the coincidence seems at first sight to be overwhelmingly in favour of the chromosome theory, so much so that it appears to have blotted out every other point of view to many people. To me, however, it appears to give us no more than the right to assume that the appearance of certain characters or groups of characters may possibly be determined by certain chromosomes. Prof. Huxley has stated before, and states again in his review, that the "hereditary constitution of at least all higher organisms consists of a number of units (factors or genes), each of which may exist in a number of forms (allelomorphs); these genes exist in definite proportions, and are arranged in a definite order; the whole gene-complex is divided up amongst the separate chromosomes." He states these as proven facts which are thoroughly established, and not questioned except by those who are unaware of these claims, amongst whom he apparently places Prof. Paton.

Anyone who has dissected a chimpanzee must have been struck by the extraordinary similarity between its characters and those of man, similarities that extend to small branches of particular blood-vessels and nerves and to folds in the skin. If we believe in evolution of any kind we must believe that the bulk of our characters have come to us from remote prehuman ancestors through countless generations, all the individuals of which developed these characters in turn, and that the appearance of these characters depended upon their "hereditary constitution." I must point out, at the risk of being platitudinous, that it is only the capacity for developing a character under certain very limited conditions, and not the character, that is inherited.

Now to me it is difficult to imagine how all the characters in a complicated organism such as man can be conveyed by units or genes which are contained in individual chromosomes. The very mechanism that makes the theory fit so well with the appearance and disappearance of certain characters in successive generations in Mendelian experiments, is an obstacle when the fact is kept in mind that most characters are common to all individuals of the race. In the one case a given character appears in a certain proportion of the offspring and does not in the rest; in the other the character appears in all.

It may be claimed that what I describe as characters are not characters in the sense intended by Prof. Huxley. In what, then, are they different except in degree? To me it appears that the presence of a head, of ten fingers, extra digits, the colour of the eyes, the shape of the section of the hair, the colour of the skin, and such diseases as hæmophilia in man are all of them due to the hereditary constitution of the fertilised ovum and the action upon it of the environment. But it also appears to me that we cannot place all these characters in the same category as regards their mode of inheritance. Some might be due to units carried by individual chromosomes, others would of necessity appear to be conveyed by a potentiality in the cell elsewhere than in the chromosomes, when we consider how these are distributed during the production of the gametes.

My own belief is that the Mendelian mode of inheritance is confined to comparatively recent variations, and this belief is the more acceptable to me in that it provides for the ready elimination of the useless variations, as important a factor in evolution as the preservation of the useful.

I see that Prof. Huxley in his review limits himself to "at least all higher organisms" as regards his view of the chromosome theory, a limit I have not noticed that he has made previously. I quite appreciate why he has done this, but I think that it would have been wise to have pointed out that there is a number of organisms in which the distribution of the chromosomes is such that they could not possibly convey a Mendelian character (Dobell, *La Cellule*, t. 35, 1 fasc. 1924, and others.) This being the case, the function of the chromosomes in these organisms must be something entirely different from what it is in the higher organisms, to me an entirely unwarrantable assumption.

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Television.

THE article headed "Television" which appeared in NATURE of Jan. 15, contains the following statement: "a difference of phase of only one degree is capable of spoiling definition." Were this statement true, my television system, depending as it does on synchronism, would certainly, as the writer states, be faced with a very serious barrier. It is, however, a misstatement of fact. Phase difference between receiver and transmitter has no effect whatever upon definition, the whole effect being a displacement of the image as a whole.

Later in the article a statement is made: "The recent claims to have transmitted 'outlines' by infra-red rays mark no advance toward television with diffusely reflected light." This is an erroneous statement. I have on no occasion made claims to have transmitted 'outlines' by infra-red rays. What I have actually demonstrated is the transmission of real images of living faces in complete darkness, using diffusely reflected infra-red rays.

An open invitation was extended to members of the Royal Institution to witness these results, and on Dec. 30, 1926, some forty members of the Institution were given demonstrations at our laboratories. Among those who have witnessed demonstrations I may mention Dr. Russell, Mr. R. W. Paul, and Mr. Creed, who are, I think, sufficiently well known in the scientific and engineering world. In these demonstrations one party remained in a totally dark room; the second party, in a different, were then shown the faces of any of the first party who cared to sit in front of the transmitting apparatus in the dark room.