LETTERS TO THE EDITOR.

Deafness in white cats.

I AM engaged upon an investigation concerning the causes of deafness; and I have therefore naturally been much interested in Mr Lawson Tait's paper concerning deafness in white cats, published in *Nature* (vol. xxix. p. 164), and in the letter of Mr. Joseph Stevens, published in the same journal, concerning his father's breed of deaf white cats (vol. xxix. p. 237).

I have myself come across three instances of white cats with blue eyes (two in Europe and one in America), and in each case the animal was deaf.

Mr. Tait's statement, that "congenital deafness is not known to occur in any animal but the cat" is a most extraordinary one, in view of the great prevalence of congenital deafness among human beings.

Of the 33,878 deaf-mutes in the United States, more than one-half are congenitally deaf;[1] and in Europe (excepting Germany) the proportion of congenitally deaf appears to be much greater, — about four to one, according to the late Dr. Harvey L. Peet (1854).[2]

Why should congenital deafness among the lower animals be confined to cats, and why only to white cats?

Mr. Tait notes also an apparent association between epilepsy and whiteness in animals. He says, "Every kind of white animal I have kept as a pet has been the subject of epilepsy; and the association is suggestive when we are told, as I have been frequently, that the disease is unknown among negroes."

It is worthy of note, that deafness also appears to be less common among negroes than among white people. According to the recent census, the total white population of this country amounts to 43,402,-970, and the total number of white deaf-mutes is 30,661. The colored population is given as 6,580,793, with 3,177 colored deaf-mutes (not including Chinese and Indians).

Thus, while we have one deaf-mute for every 1,416 of the white population, we have only one deaf-mute for every 2,070 of the colored people. It would be interesting to know whether the proportion of congenitally deaf is less among the colored than white deaf-mutes.

The pallid complexion of many deaf-mutes has often been commented upon by strangers as an apparent indication of ill health. While I cannot say that I have myself observed this as a common characteristic, still my attention has never been specifically called to the point. It would be easy to test the matter by collecting into one room all the congenitally deaf pupils of some large institution, excluding those pupils who became deaf from accidental causes. A cursory examination would probably show whether there is or is not, in the human race, an association between congenital deafness and the absence of coloring-matter from the skin and hair. I trust that some of your readers may be able to throw light upon these points.

ALEXANDER GRAHAM BELL.
Washington, D.C., Feb. 4, 1884.

Radiant heat.

In a letter to *Science* of Jan. 25, Mr. Fitzgerald thinks it is possible that I am misled as to the manner in which my rotating-screens work, by reason of the complication of the arrangement. I must nevertheless continue to assert, that I think I understand

[1] See Compendium of the tenth census (1880), part ii. p. 1664.
[2] See American annals of the deaf and dumb, vol. vi. p. 237.

how the process I have invented operates, and cannot admit that I am in error in this until such error is pointed out. Now, Mr. Fitzgerald's demand that I should show that the heat which originally came from B is returned to B *in the same direction* as the heat coming from A, would incorrectly lead the reader to suppose that I made some such statement or supposition in the original paper, and that consequently I was misled, as he suggests. But the most superficial examination of the paper shows that I have not for a moment supposed this; as I have simply proposed to so arrange the reflecting surfaces as to return radiations from B through some one or more of the apertures in the screen b, and not necessarily through the apertures from which they originated. It necessarily follows, that I did not suppose them to be returned in a direction parallel to the radiations from A.

I think, then, that Mr. Fitzgerald must certainly admit that I have not made the blunder which is implied in his letter.

Again: Mr. Fitzgerald takes it for granted, apparently, that this want of coincidence in direction would be fatal to the process; whereas, in my estimation, the only question is, whether the radiations which originally came from B are returned to B or not. What their direction may be appears to me entirely immaterial.

If it is possible to show that the want of coincidence in the direction of all the rays coming to B invalidates the process, as Mr. Fitzgerald implies, he will no doubt be able to give a direct proof of the fact. Such proof, however, seems to me impossible; for, after the energy reaches B, the path by which it has arrived is of no consequence.

It goes without saying, that in this view of the matter it is quite impossible to substitute the process proposed by Mr. Fitzgerald in place of mine; as in his process these directions necessarily coincide, which in mine cannot coincide.
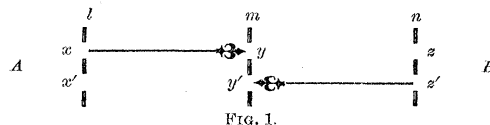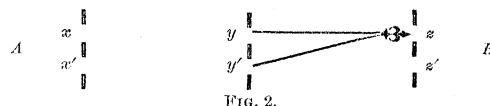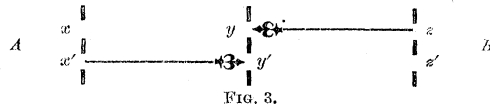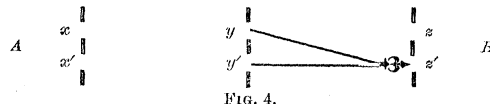

FIG. 1.

FIG. 2.

FIG. 3.

FIG. 4.

It does seem possible, however, to employ two sets of openings such as Mr. Fitzgerald has proposed, in such a way that they shall together accomplish what neither of them can effect singly. For example: let there be three fixed screens, *l*, *m*, *n*, with two sets of openings, *x y z*, *x' y' z'*, which can be opened or closed instantly; and let them all be closed except when the contrary is explicitly stated. Let each of the four equal intervals of time which we shall speak