animal vigour is here meant not so much bodily strength, as its higher representatives—tenacity of purpose, industry and energy. Premature intellectual development is a sign of inferiority. For lower animals are almost born into the fulness of their mind, but it is chiefly automatic mind—instinct. The inferior races of man reach their development, such as it is, earlier, but never arrive at the development of the superior races. Again, precocious children are not those of whom a high kind of mental ability is expected in after years. Their higher qualities approach too much their lower, in the general sense of being more automatic; they show skill and cleverness, rather than varied ability and originality of view. Too early education, especially if rigidly kept to a few things, is narrowing, and tends to hinder the higher development of mind. There is some truth even in the exaggerated practice of Mr. Weller senior, who turned his son into the streets to pick up his education. Not the least valuable part of a man's culture is from that which he picks up for himself; and this is strikingly so in our profession, one which, indeed, is very valuable, in that its emergencies compel the idlest man to act and think for himself.

DEATH OF "MASTER MAGRATH."

By the REV. SAMUEL HAUGHTON, M.D. Dubl., D.C.L. Oxon.,
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No. II.

HAVING received communications from many correspondents in consequence of the publication of my account of Master Magrath, my first duty is to thank my friends for their kindness, and my next duty is to add such additional explanations to what I have already published as shall clear up one or two points which may have been left obscure.

I have to thank Dr. Pittcock of Ramsgate for an account of an examination recently made by him of a greyhound which died on the night following a coursing match, of a ruptured blood-vessel. Dr. Pittcock states that this animal, which was a valuable one, had tubercles in both lungs; and this I regard as an important confirmation of my own opinion respecting Master Magrath.

Dr. Clifford Allbutt of Leeds informs me that his experience of *post mortem* examinations of "puddlers", "strikers", and other workmen who earn their bread by extreme muscular exertion, proves that their hearts, although quite healthy, are greatly hypertrophied, weighing in some cases as much as sixteen ounces. Another correspondent reminds me that the heart of Eclipse weighed fourteen pounds, which is a remarkable size for a blood-horse.

Dr. Black, staff-surgeon, coincides with my opinion as to the possibility of the coexistence of pulmonary tubercle with great muscular exertion, and states that athletes and pedestrians are frequently affected by it. In reply to other correspondents I should add, what I find I omitted to state, that the stomach and bowels and their contents were carefully examined and found perfectly healthy and natural.

Two points are suggested to me by reading my correspondents' letters; first, as to the hypertrophied heart; and, secondly, as to the extent of pneumonic congestion in the lungs.

1. *Hypertrophied Heart.*—Many of my correspondents seem to consider that an hypertrophied heart is necessarily a sign of disease. No doubt it often is so, but it may be a condition produced by muscular training, and an indication of the maximum perfection of health. It is the balance between respiration and circulation that measures the degree of health; and, provided an animal possesses large and healthy lungs, the endowment of a large heart is a benefit instead of the reverse. But when lung-disease, even slight, occurs in such an animal, the power of the heart becomes at once an evil, and congestion of the right side of the heart and venous system quickly supervenes. The balance is destroyed, and death occurs more readily than in an animal possessed of a less powerful heart. Thus in medical experience we often see a patient, whose heart and lungs are both diseased, outlast a patient with diseased lungs and a healthy heart, for the simple reason that the balance between circulation and respiration is less disturbed in the former case than in the latter.

2. *Pneumonic Congestion in Carnivores.*—My experience in the dissection of carnivora that die of pneumonia leads me to the conclusion that a much less amount of consolidation will kill a carnivore than is necessary to the death of an herbivore, and that complete consolidation of even one lung is exceptional. I have found death caused in a full-grown lion or tiger by a nodule of pneumonic congestion in one lung not larger than a Seville orange; and I have no doubt that none of the larger carnivores could survive an attack of double pneumonia with or without consolidation. The explanation of this fact is to be sought in

the circumstance, that in the carnivores in general the balance between circulation and respiration is pushed (as was remarkably the case in Master Magrath) to the extreme limits compatible with health, so that even a slight disturbance in their equilibrium will rapidly prove fatal.

"Si quid novisti rectius istis,
Candidus imperti; si non, his utere mecum."

ON THE PRODUCTION OF ARTICULATE SOUND (SPEECH).*

By OAKLEY COLES, Esq.

SOME brief explanation is perhaps necessary as to the origin of the present paper. Two or three years ago, when paying special attention to the treatment of defects of the palate, I first found the difficulty of teaching those whom I had treated, to speak correctly, or to put their organs in such a position that articulation should be possible. Much care with my pupils led to much vexation. I could find no book that gave such information as was necessary for such cases; and a mere repetition of instructions was very confusing to the patients. Added to this, I was in doubt in many instances as to the way in which certain sounds were produced. Beyond this, no small difficulty seemed

Reduced drawing of one of the diagrams shown at the reading of the paper. The parts on the palate, tongue, lips, and free border of the soft palate, that are shaded in cross lines, indicate those portions of the mouth which are brought into contact for the articulation of the letter *s*. The cross lines take the place of the red surface on the diagrams.

to exist as to the parts that were involved in the production of the elementary sounds.

After thinking the facts of the case carefully over, I determined on

* Read before the Odontological Society, Feb. 5th.