

LETTERS TO THE EDITOR.

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Automatic Actions.

IN the interesting paper on "Reflex Action" by Dr. W. Benthall, published in your issue of September 5, he speaks of acquiring some feat of manual dexterity in which, with practice, the required muscular action becomes automatic. It seems to me that the same rule applies to many operations which are generally regarded as purely mental, such as in the use of the first four rules in arithmetic, in writing grammatically and spelling correctly, and in speaking any language. If you think, the action becomes laborious and in all cases the result is uncertain. In the case of spelling this seems to occur to every one, so that if you have to look up one word in a dictionary, which shows that you have begun to think about spelling, you have immediately to look up a number of others. Many people who are employed as clerks, &c., no doubt in adding a column of figures have their minds completely blank without their knowing it. In my own case, both at school and afterwards, I was very slow at this process and very uncertain of the results if the figures were numerous, as in a money column, but I found out, more than twenty years after I left school, that by thinking, not of the figures, but of nothing, the process was easy and rapid and the results correct. In speaking, say, French, if a person has to think of grammatical rules, the gender of nouns, &c., he can never speak fluently; to do so he must think of what he intends to convey and let the words take care of themselves.

Lower down Dr. Benthall quotes Dr. Lewis Robinson, who says: "The horse roamed in a wild state, over plains of more or less long grass and low bushes. When a horse is alarmed he throws up his head to get as wide a view as possible. The cow, on the other hand, keeps her head low, as if to peer under the boughs which covered the marshy grass of her jungle home." Cases of terror are only occasional occurrences amongst domesticated animals, but in the wild state the necessity of caution in the first movements on awakening from sleep, for fear of attack by some lurking foe, is evident. Now when a horse rises he gets on his fore feet and lifts his head high, whilst the cow rises on her hind legs first and keeps her head low. The horse being naturally a timid animal and rather unweildy in the process of getting on his legs has learned to sleep mostly standing and so be ready to move off at once, or kick as required; hence a stableman always speaks to a horse before approaching him from behind to make sure that he is awake and so unlikely to kick.

WILL. A. DIXON.

Sydney, October 14.

Does Man use his Arms in Locomotion?

THE letter by Mr. Martin under this heading in your issue of November 28 raises the two interesting questions, (1) whether the swinging of the arms in walking and running serves any useful purpose as an aid to progression, and (2) whether this movement is a vestige, as Mr. Martin suggests, of the progression on all-fours of man's ancestors.

The following considerations may be of interest, though they are probably not put forward for the first time.

The movement of the legs in opposite directions in different planes involves a reaction, in the form of a couple, upon the trunk, tending to rotate it alternately in opposite directions about a vertical axis. That such a rotation does take place normally, when the arms are at rest, can be seen if the latter are folded upon the breast over a long light horizontal rod to serve as an indicator. This is very obvious when running. Now the swinging of the arms, each in unison with the leg of the other side, introduces an opposing couple which more or less completely balances, about a vertical axis, the reciprocating motion of the legs. The importance of the efficient "balancing" of the reciprocating and revolving parts of a railway locomotive, if steady and economical running is to be obtained, is well known.

That children and even adults, when compelled to crawl upon all-fours, naturally and unconsciously adopt the movements of the limbs common with four-legged animals is generally considered an indication that man has retained the instinct for

this mode of progression, though the conditions for its adoption may seldom occur. It seems reasonable to suppose that the swinging of the arms in walking and running is a modification of this instinct for a modified purpose.

C. O. BARTRUM.

17, Denning Road, Hampstead, N.W., November 30.

Folklore about Stonehenge.

I HAVE been waiting for more able pens than mine to corroborate Rev. Osmond Fisher's letter on the *culthes lapidum* in a recent issue of NATURE.

The same tradition about a loaf being placed on each stone to facilitate counting occurs in other places where sarsens have been objects of reverence in bygone ages. In April, 1895, Mr. Albany F. Major (hon. sec. Viking Club) and myself went on a visit to Kits Coity House above Aylesford, Kent. At the foot of Blue Bell Hill on the way to Kits Coity there are a number of sarsens in a field. On inquiring of a rustic as to their whereabouts, in directing us to them he informed us that a baker had made a bet he would count them and placed a loaf upon each stone in order to count them correctly. This is a slight variant of Mr. Fisher's statement about Stonehenge, but the underlying idea is the same.

R. ASHINGTON BULLEN.

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PRESERVATIVES AND COLOURING MATTERS IN FOOD.

THE report of the Departmental Committee upon this subject was issued last week and will be assuredly welcomed by all interested both in the public health and also in the trades concerned. The work of the Committee has been noticed at length in the lay Press and we think, speaking generally, has given satisfaction. Here we shall refer more particularly to the scientific aspects of the report. The Committee was practically a committee of experts, and we venture to think this precedent might be followed more frequently in the appointment of committees upon kindred subjects; trade interests are safe in the hands of impartial experts, and the exclusion of the trade from a committee of the kind saves time and, we think, also tends to the attainment of a most important desideratum, viz. unanimity.

For some time past there has been a large and apparently influential party of alarmists with regard to the use of preservatives. These have all been heard at length by the Committee which has just reported. Their evidence consisted for the most part of elaborate *a priori* argument, in support of which the most profound erudition was occasionally produced; but, as the report politely says, the opinion expressed was not always based directly upon fact. In fact, if an inquirer turns the 500 pages of the Blue-book over in search of unequivocal instances of injury to health from preservatives or, indeed, colouring matters in food he will be lucky if he finds a single one. There is no doubt some difficulty in fastening definite injury upon so subtle a cause, especially since heretofore the presence of preservatives has not even been declared. Yet, nevertheless, for the last two years practically the whole medical profession has been well alive to preservatives in food being a possible source of injury to health, and yet no definitely ascertained case, or practically none, has been forthcoming. Upon such data it is obvious that the prohibition of preservatives *en masse* was out of the question, and the recommendations of the Committee practically resolve themselves into the regulation and control rather than the prohibition of preservatives. There are, however, two exceptions to this; formaline or formic aldehyde is prohibited altogether, and all preservatives and colouring matters are prohibited in milk. The decision with regard to formic aldehyde might strike the casual observer in that nowhere in the report is it directly stated that this substance in the quantities necessary is injurious to health; a peculiar difficulty, however, arises with regard to it, viz., the practical impossibility of quantitative control. It is obvious that a substance of such