

Here we must note that even in the lower animals we find some of the conditions to the subsequent appearance of self-consciousness in the more gifted intelligence of man. The animal mind has a store of images to a certain extent independent of sensuous impressions. Animals dream, pine for absent friends, seem subject to hallucinations, etc. The brute, too, is able to "establish true analogies between its own subjective states and the corresponding states of other intelligences." The individual so far realizes its own individuality as to recognize that it is one of a kind, and thus has a rudimentary or nascent self-consciousness. This in the child is supplanted by a pre-conceptual self-consciousness, which is exhibited by all children after they have begun to talk, but before they begin to speak of themselves in the first person, or show that they realize their own personality. It is the recognition of self as an active and feeling agent, but involves no introspection. At this stage, then, the child has the characteristics just described as common to itself and the animal, but, in addition, has far better apparatus for sign-making, a better knowledge of others' states of mind, a better faculty of denotative utterance, and so on. Here the interval between denotation and denomination becomes so narrow that the step is easy. "The mere fact of attaching verbal signs to mental states has the effect of focusing attention upon those states; and, when attention is thus focused habitually, there is supplied the only further condition which is required to enable a mind, through its memory of previous states, to compare its past with its present, and so to reach that apprehension of continuity among its own states wherein the full introspective consciousness of self consists." Now, this step, though an important one, is not so important as to warrant our supposing it a step different in kind from the other steps of mental evolution, especially if we remember, that, even when self-consciousness appears, the human mind is in an infantile condition, and if we take into account the enormous difference in intelligence of a child and of a youth, where a difference in kind is out of the question.

We must add to this picture of individual development the parallel evidence of racial development. This evidence shows that the several distinctively human steps of thought were in ages past difficult or impossible. Of especial importance is the evidence of language. "The gradual evolution of articulate language has preserved for us a kind of paleontological record of the gradual evolution of conceptual thought, with the result of showing that in the life-history of the human species, as in the life-history of the individual child, this conceptual thought derived its origin from these preconceptual levels of ideation which have already been occupying our attention." In brief, then, Dr. Romanes concludes, that, on the basis of an exact psychological analysis, the differences between the intelligence of man and brute, though presenting marked contrasts, yet seem to be connected by intermediate stages, which should be regarded as differing in degree rather than in kind, and that this view is strengthened by considering the slow and painful steps of human intelligence, from its beginnings in savagery to its present lofty attainments, at first view so entirely separating, mentally, man from the rest of creation.

#### HEALTH MATTERS.

##### The Nutritive Value of Boiled Milk.

THAT the sterilization of milk, however important, is not without its disadvantages, has been shown by Randnitz and others. To determine the comparative assimilability of proteids and fats from boiled and non-boiled milk, Dr. Evsey V. Vasilieff of St. Petersburg undertook a course of most careful experiments on six healthy young men, aged from eighteen to twenty-three years. Each experiment lasted six days, during three of which the men received raw milk, and during the other three boiled milk, the daily amount of the article in either case varying between 1,850 and 4,200 cubic centimetres. The following, according to the *Provincial Medical Journal*, are

the conclusions deduced by the author from his very instructive researches:—

1. The assimilation of nitrogenous ingredients from boiled milk is invariably less than that from the raw article. In the case of raw milk the average percentage of non-assimilated nitrogen amounts only to 7.05, the maximum to 7.62, and the minimum to 6.42; while in the case of boiled milk the respective figures are 8.18, 8.79, 7.76.

2. The same holds true with regard to the assimilation of fats. When fat is ingested in a raw state, the average percentage of non-assimilated fatty acids is 3.89, the maximum 4.85, and the minimum 2.88. In the case of boiled milk, however, the figures rise to 6.01, 6.99, and 4.53 respectively.

3. Boiling seems to affect especially the assimilation of the fats of milk, since the percentage of fatty acids in relation to the total quantity of dried faeces in those fed on boiled milk is considerably larger than in those fed on non-boiled milk. In the former case, fatty acids constitute 19.03 per cent of the total amount of dry faeces; but in the latter, not more than 16.81. In other words, when a person ingests his milk boiled, every 100 grams of his dry faeces contain a surplus of fats amounting to 2.22 grams.

4. Therefore, as regards its nutritiousness, boiled milk represents a decidedly inferior dietetic article, compared with raw milk.

5. As far as proteids are concerned, the difference in their assimilation may find some explanation in Dr. I. Schmidt's researches, according to which, under the influence of boiling, cow's milk undergoes important chemical changes, nearly all the albumen and a part of the caseine being transformed into hemi-albumose. Schmidt's analysis proves that raw cow's milk contains 8.55 per cent of caseine, 8.4 of albumen, and 6.1 of hemi-albumose. Under the influence of ten minutes' boiling, the proportion of caseine sinks to 7.59 per cent, that of albumen to 0.7, while that of hemi-albumose rises to 23.4.

TRICHINÆ IN SWINE. — Professor E. L. Mark has recently published the results of the examination of 3,064 hogs raised in the vicinity of Boston, Mass. (*Report of Massachusetts State Board of Health*). The examination extended over the five years 1883 to 1888. The results show that 14.07 per cent of the males and 10.61 of the females were infected with trichinæ. Similar examinations of Western hogs have shown only from two to three per cent to be infected. Professor Mark reaches the conclusion that this difference is probably due to the character of the food given to those raised in the vicinity of Boston, and presumably in the vicinity of other large cities. Of the fifty-six raisers of the hogs examined by him, fifty-one fed city offal. The source of the infection he believes to be in the uncooked meat found in kitchen garbage. It would be interesting to know the condition, in this respect, of the large number of hogs fed upon this food in and about the other large cities, says the *Brooklyn Medical Journal*.

THE PSYCHOLOGY OF EPIDEMICS. — Every epidemic carries in its train curious exaggerations of many well-recognized characteristics, and these frequently call for appreciation and for treatment almost as much as the disease in which they originate. Perhaps one of the most striking of these mental perversities is to be found in the idea that the epidemic is to be treated by "common sense" or by *nostra* which have been largely advertised, or by specifics which are known to the laity mainly through their frequent mention in the daily press. Those suffering under this delusion feel that it is wholly unnecessary to seek skilled assistance, and they boldly dose themselves with remedies of whose power and properties they are absolutely ignorant. In Vienna, according to the *Lancet*, it has already been found necessary to forbid the sale of antipyrin, except under doctors' prescriptions, as no less than seventeen deaths were attributed to stoppage of the heart's action owing to overdoses. The freedom with which the prescription of this remedy has been assumed by the public has long since been viewed with anxiety by the medical profession, and frequent warnings have already fallen upon deaf ears.