circles was in chunks and hard as if sun-dried or slightly baked.

Warren K. Moorehead.

QUESTIONS REGARDING HABITS AND INSTINCT.

For purpose of extended comparison we wish data as to habits, instincts or intelligence in animals, above all, minor and trifling ones not in the books, *useless or detrimental* ones, and the particular *breed, species* or *genus* showing *each.* Examples; Purrings licking; washing face; kneading objects with forepaws, humping back, and worrying captured prey (like the cat); baying at moon (or otherwise); urination and defecation habits (eating, covering up, etc.); disposition of fæces and shells in nest; rolling on carrion; cackling (or other disturbance) after laying; eating 'afterbirth' or young; sexual habits; transporting eggs or young; nest-sharing; hunting—partnerships, or similar intelligent associations; hereditary transmission of peculiar traits; rearing young of other species with resulting modification of instinct; feigning death; suicide; 'fascination' *and any others.* Circular of information will be sent and full credit given for data used, or sender's name will be confidential, as preferred. Answer as fully as possible, always stating age, sex, place, date (or season), species, breed, and whether personally observed.

G. Stanley Hall.
R. R. Gurley.

Clark University,
Worcester, Mass.

NEWLY HATCHED CHICKENS INSTINCTIVELY DRINK.

Editor of Science: In your issue of March 6, 1896, appears an excellent and accurate note by Wesley Mills, calling attention to an error of statement made by Prof. Morgan in Science (issue of February 14, 1896).

With due deference to '*The Writer of the Note,*' who follows Mr. Mills, and who says that Morgan's argument is satisfactory—that "a chick might die of thirst in the presence of water," I desire to say that this is not my understanding of the case. I have been, during the last thirty-five years, a breeder of fowls as an amateur, and I have given the hatching and rearing of chickens close and continued attention.

I have repeatedly placed a shallow water dish before the bars of a coop in which a newly hatched brood had been placed the day previous, taken there directly from the hatching nest, and in which they never had food or water offered. Repeatedly, before these small chickens, not twenty-four hours from the shell, and before they had been offered food, I have filled their shallow water tray, and observed them toddle out to it, peck at it, or at once thrust their bills into it, *to drink at once by uplifting their heads,* as all adult fowls do, the hen never putting her head out from the bars, or showing these young chicks how to do what they instinctively did. I have made the same experiments repeatedly with food, with the same result, *i. e.*, that chicks instinctively drink and eat without any example being set by the mother hen.

Henry W. Elliott.

Lakewood, Ohio, March 11, 1896.

SCIENTIFIC LITERATURE.

Moderne Völkerkunde, deren Entwicklung und Aufgaben. By Thomas Achelis. 1 vol., 8°, pp. 487. Stuttgart, Ferdinand Encke. 1896.

The author of this work is a 'doctor juris' in Bremen, and the writer of several treatises on the development of the modern science of ethnology, properly so called. In the present volume he proposes to define the true aims of that branch of research by an investigation in the first place of its historical development; secondly, of its contents; and thirdly, of its relations to other departments of knowledge.

He expressly states that the words 'Völkerkunde' and 'Ethnologie' mean one and the same science (p. 300), the aim of which is 'to set forth the development of mankind in its different branches and their various stages of culture, and thus obtain, as nearly as possible, a correct picture of a complete and organic whole.' These stages of culture must be regarded as the constituent elements of a continuous mental process or growth, and thus reveal the unfolding of the universal human consciousness.

In this manner, ethnology leads up to philosophy, which thus enters into the category of the inductive sciences, and wins for itself a sub-

stantial foundation in objective and experimental truth, through the lack of which, up to the present time, it has failed to render any permanent and serious contributions to human knowledge.

The author draws a sharp line between ethnology and physical anthropology. The former concerns itself with man exclusively as a social being, in his relations to other men, in his life in societies, peoples or nations; the latter finds its proper field in studying the individual, and solely from his anatomical and physical side, strictly excluding psychic phenomena. This distinction, to which the author rigidly adheres, is, we believe, erroneous, inconsistent with natural relations, and a serious blemish in this otherwise excellent construction of ethnologic science. Modern psychology cannot be divorced from physiology and anatomy, neither in the individual nor in the folk; and that Dr. Achelis so constantly underrates their essential connections can be explained only by the fact that his professional studies have been legal and not medical.

In his psycho-physics, he depends chiefly upon Wundt, unquestionably an authority of the first rank, but whose analysis of self-consciousness, and whose rejection of the capacity of self-observation, have been amended by later specialists in this branch. Another point of incompleteness in his developmental theory is the deficient appreciation he manifests of the relation of degeneration to progression. Indeed, he would exclude retrogressive metamorphosis from the primary factors of social evolution; whereas, it is an indispensable condition of such evolution in most, if not all, instances, just as it is in organic forms.

Having thus set forth the author's theoretical positions, the method of their presentment may be considered.

The science, he argues, began with ethnographic pictures, such as those offered by Lafitau and Cook, which were worked up politically by Montesquieu, Rousseau and others, philosophically by Herder and Schiller, geographically by Ritter and Reclus, etc. These gave the foundation for ethnology as the science of sociology, in which the names of Spencer, Quatrefages, Bastian, F. Müller, Waitz, Tyler, Post and others are familiar to most readers. Three hundred pages of the volume are devoted to careful epitomes of the labors of these scholars, and then the author feels himself ready to present his own definition of ethnology and description of its aims. These have already been briefly mentioned, and it is enough to add that he supports them by an analysis of the material and intellectual culture of humanity, such as arts, languages, religions, laws, commerce, etc.

The third division of the treatise exhibits the bearings of ethnology on other sciences, especially geography, archæology, history, religion, philosophy and sociology. It is brief, not forty pages in all, and unsatisfactory. It shows signs of haste and inadequate treatment, as anyone can see by reading the three pages on anthropogeography.

In spite of the defects which we have freely pointed out, the work as a whole is admirable, breathing the spirit of advanced thought, representative of the leading school in the study of man, and rich in suggestions for further investigation. The style is clear, the language forcible, and the presentation popular. It deserves a marked success.

The Child and Childhood in Folk-Thought. (*The Child in Primitive Culture.*) By ALEXANDER F. CHAMBERLAIN, M. A., Ph. D., etc. Pp. 464. New York, Macmillan & Co. Price, $3.00.

This work supplies a want in the literature of folk-lore, and supplies it well. It must have been a pleasant occupation to the author to collect the mass of material he presents us, from the family and folk-talk of all times and all peoples, to illustrate how they regarded the little creature, the child, for whom alone, indeed, the family has any reason of existence.

It is astonishing to note what an important part he has played in the life and opinions of his elders, and what diverse powers he has exhibited or been credited with. Two hundred pages of the book are filled with descriptions of the child as a builder of society, as a linguist, actor, poet, teacher, judge, oracle-interpreter, weather-maker, healer, priest, hero, fetich, divinity, God. Six chapters are filled with the

proverbs, sayings and saws about the child in its various relations to the family; and the volume opens with three chapters replete with attractive examples of the child's tribute to its mother,— delightful exemplifications of the deep and holy impress which maternal love has left on the soul of the race.

Childhood is spoken of as the golden age of life, 'a moment of God,' 'a time of June,' its days as 'halcyon days,' a 'heaven on earth;' a belief, says the sanguine author, 'shared alike by primitive, savage and nineteenth century philosopher.' We wish, indeed, this were so; but, alas! our own observation is that out of a dozen persons asked, ten will tell you that the period of their childhood was by no means the happiest portion of their lives. In sad truth, the golden age of childhood is as much a popular delusion as the golden age of the world. We think of it as such merely because we forget the numberless little miseries which we then endured, and which at the time were grave and great to us.

But apart from this question of fact, about which the author's opinion in no wise injures the excellence of his labors, the thorough sympathy he has with children, their thoughts and doings, beautifies his pages and renders them charming reading as well as sovereignly instructive. He is no gleaner of dry stubble, but delights in the literary and poetic sides of his inquiry, and brings under contribution the bards, the dramatists and the moralists of the world. His reading has been wide, and not at second-hand, or through translations, but in the originals of a dozen tongues; as we might expect from one who has already made his mark as a comparative linguist.

A most useful bibliography of 549 titles and two ample indexes close his volume, and add vastly to its value to the serious student of folk-lore.

D. G. Brinton.

Practical Inorganic Chemistry. By G. S. Turpin. London and New York, Macmillan & Co. 1895. Pp. 158+viii.

This little book is evidently intended for the use of pupils in secondary schools. The first four chapters contain directions for weighing and measuring solids and liquids, for determining specific gravity, for measuring gases and observing their behavior under changes of temperature and pressure. The study of chemical action begins with an examination of the effect of air upon different metals. In these experiments the students find out that the balance is of very great service in interpreting the nature of chemical changes. The results of one experiment suggest the making of another experiment and so the work goes on step by step until the pupil finds it possible to separate the active and inactive constituents of the air and this leads him naturally to a determination of its volumetric composition. Oxygen and nitrogen are then studied more thoroughly and a quantitative analysis is made of potassium chlorate. Water and hydrogen are examined in a similarly thorough manner, and in connection with the latter the equivalent weights of a number of the metals are determined.

Only a few of the more common nonmetallic elements are dealt with. The chief merit of the book lies in this, that due attention is everywhere given to the quantitative side of chemical phenomena. It is shown how with very simple apparatus beginners can determine the relative quantities of substances that interact, and can acquire a knowledge of important laws of the science. The only criticism that might be made is that the apparatus and methods used in some of the quantitative work, as, for instance, in measuring gases by the volume of water displaced, are so very simple that by means of them only roughly approximate results can be obtained. An improvement in this direction would be made by collecting the gases in graduated gas measuring tubes, and correcting the gas volumes for the tension of aqueous vapor.

Taken altogether, the course of laboratory work here given is a most excellent one. It is refreshing to meet with a laboratory manual that is not simply a collection of qualitative tests for substances. This little book can be heartily recommended to all who are engaged in teaching elementary chemistry.

E. H. Keiser.

Chemical Experiments—General and Analytical. By R. P. Williams. Boston, Ginn & Co. 1895.