

workman. There is no possible doubt that apprentices to trades require facilities to study the technics of their trades, and that these facilities ought to be found in every manufacturing town, besides which, both parents and employers should make it a duty to see that the opportunities are not thrown away. On the other hand, the fact should not be lost sight of, that it is only possible to follow practice, *i.e.*, practical work, in the works.

The following chapters on this subject are by different authors, and deal with the progress of technical education in this country and abroad, then we have an elaborate description of polytechnics by Mr. Quintin Hogg, and the last chapter gives a fair idea of technical education in the colonies. All these chapters together give the reader much information about this all-important subject.

Although it has not been possible to note more of the contents of this volume, yet we can say that it is one of a series of most useful books, and if subsequent volumes are kept up to the standard of Vol. I. they will constitute a valuable Encyclopædia of Technical Education.

N. J. L.

Wetterbüchlein. Von wahrer Erkenntniss des Wetters.
By Leonhard Reynman. (Berlin: A. Asher & Co., 1893.)

THIS is the first number of a series of reprints of rare books relating to meteorology and terrestrial magnetism, edited by Prof. G. Hellmann, and, owing to the support of the German Meteorological Society and to a large amount of gratuitous labour on the part of Dr. Hellmann, the works, of which only a very limited number will be printed, are to be issued in a very cheap but elegant form, and will no doubt be much valued by students of those subjects and by persons interested in early literature. The *Wetterbüchlein* is the oldest purely meteorological work printed in the German language. The first edition was published in 1505, but inquiries made by Prof. Hellmann of 115 libraries in Europe have failed to discover a single copy, and of the second edition printed in 1510 only one copy can be found, viz. the one in Dr. Hellmann's library, of which a facsimile is now reprinted, together with an introduction of forty-two quarto pages, giving a most interesting and masterly account of this work and of all the other editions excepting two, of which no copy can be found. The *Wetterbüchlein*, which ran through seventeen editions in fourteen years, was exceedingly popular in its day, and contains in fourteen chapters a large number of weather prognostications, some of which are of an astrological character, but by far the greater part are based on optical and natural phenomena. The chapters are naturally of unequal value, but some of them contain results of importance deduced from a large number of actual observations. Many of the chapters have been traced by Dr. Hellmann to be based upon proverbs known to the old classical writers, and the author has also quoted freely from a work by Guido Bonatti, an Italian astrologer, which was printed in 1491, and from one by Firmin de Bellevall, a French writer, which appeared in 1485; but no clue can be found as to the origin of a chapter entitled "Das wetter zu wissen durch die vier quart des jars / als Liechtenperger setzt." If any of our readers can discover the origin of this section we shall be glad to hear of it. The *Wetterbüchlein* was, to a great extent, reprinted in various editions of the "Bauern-Practick," which appeared in the sixteenth century and had a much greater sale. It also found its way to this country, an almost literal translation appearing in "The Boke of Knowledge of Thynges Vnknown . . ." published in London in 1585.

LETTERS TO THE EDITOR.

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Prenatal Influences on Character.

THE popular belief that prenatal influences on the mother affect the offspring physically, producing moles and other birth-marks, and even malformations of a more or less serious character, is said to be entirely unsupported by any trustworthy facts, and is also rejected by physiologists on theoretical grounds. But I am not aware that the question of purely mental effects arising from prenatal mental influences on the mother has been separately studied. Our ignorance of the causes, or at least of the whole series of causes, that determine individual character is so great, that such transmission of mental influences will hardly be held to be impossible or even very improbable. It is one of those questions on which our minds should remain open, and on which we should be ready to receive and discuss whatever evidence is available; and should a *primâ facie* case be made out, seek for confirmation by some form of experiment or observation, which is perhaps less difficult than at first sight it may appear to be.

In one of the works of George or Andrew Combe, I remember a reference to a case in which the character of a child appeared to have been modified by the prenatal reading of its mother, and the author, if I mistake not, accepted the result as probable, if not demonstrated. I think, therefore, that it will be advisable to make public some interesting cases of such modification of character which have been sent me by an Australian lady in consequence of reading my recent articles on the question whether acquired characters are inherited. The value of these cases depends on their differential character. Two mothers state that in each of their children (three in one case and four in the other) the character of the child very distinctly indicated the prenatal occupations and mental interests of the mother, though at the time they were manifested in the child they had ceased to occupy the parent, so that the result cannot be explained by imitation. The second mother referred to by my correspondent only gives cases observed in other families which do not go beyond ordinary heredity.

"I can trace in the character of my first child, a girl now twenty-two years of age, a special aptitude for sewing, economical contriving, and cutting out, which came to me as new experience when living in the country amongst new surroundings, and, strict economy being necessary, I began to try and sew for the coming baby and for myself. I also trace her great love of history to my study of Froude during that period, and to the breathless interest with which my husband and I followed the incidents of the Franco-German war. Yet her other tastes for art and literature are distinctly hereditary. In the case of my second child, also a daughter (I having interested myself prior to her birth in literary pursuits) the result has been a much acuter form of intelligence, which at six years old enabled her to read and enjoy the ballads which Tennyson was then giving to the world, and which at the age of barely twenty years allowed her to take her degree as B.A. of the Sydney University.

"Before the third child, a boy, was born, the current of our life had changed a little. Visits to my own family and a change of residence to a distant colony, which involved a long journey, as well as the work which such changes involve, together with the care of my two older children, absorbed all my time and thoughts, and left little or no leisure for studious pursuits. My occupations were more mechanical than at any other time previous. This boy does not inherit the studious tastes of his sisters at all. He is intelligent and possesses most of the qualifications which will probably conduce to success in life, but he prefers any kind of outdoor work or handicraft to study. Had I been as alive then as I am now to the importance of these theories, I should have endeavoured to guard against this possibility; as it is, I always feel that it is perhaps my fault that one of the greatest pleasures of life has been debarred to him.

"But I must not weary you by so many personal details, and I trust you will not suspect me of vanity in thus bringing my own

children under your notice. Suffice it to say that in every instance I can and do constantly trace what others might term coincidences, but which to me appear nothing but cause and effect in their several developments.

"I will pass on to quote a few passages from letters written to me by two highly intelligent mothers, whom I asked to give me their experiences on this subject, if they had any.

"Mrs. B— says: 'I can trace, nay, have traced (in secret amusement often), something in every child of mine. Before the birth of my eldest girl I took to ornithology, for work and amusement, and did a great deal in taxidermy too. At the age of three years I find this youngster taking such insects and little animals as she could find, and puzzling me with hard questions as to what was inside them. Later on she used to be seen with a small knife, working and dissecting cleverly and with much care and skill at their *insides*. One day she brought me the tiniest heart of the tiniest lizard you could imagine, so small that I had to examine it through a glass, though she saw it without any artificial aid. By some means she got a young wallaby and made an apron with a pocket inside which she used to call her "pouch." This study of natural history is still of interest to her, though she lacks time and opportunities. Still, she always does a little dissecting when she gets a chance."

"I never noticed anything about P— for some years. Three months before he was born a friend, whom I will call Smith, was badly hurt, and was brought to my house to be nursed. I turned out the nursery and he lay there for three months. I nursed him until I could do so no longer, and then took lodgings in town for my confinement. Now after all these years I have discovered how this surgical nursing has left its mark. This boy is in his element when he can be of use in cases of accident, &c. He said to me quite lately, 'How I wish you had made a surgeon of me.' Then all at once the light flashed in upon me, but, alas! it was too late to remedy the mistake.

"Before the birth of the third child I passed ten of the happiest months of my life. We had a nice house, one side of which was covered with cloth of gold roses and bougainvillea, a garden with plenty of flowers, and a vineyard. Here we led an idyllic life, and did nothing but fish, catch butterflies, and paint them. At least, my husband painted them after I had caught them and mixed his colours. At the end of this time L— was born. This child excels in artistic talent of many kinds, nothing comes amiss to her, and she draws remarkably well. She is of a bright, gay disposition, finding much happiness in life, even though not always placed in the most fortunate surroundings. Before the birth of my next child, N—, a daughter, I had a bad time. My husband fell ill of fever, and I had to nurse him without help or assistance of any kind. We had also losses by floods. I don't know how I got through that year, but I had no time for reading. N— is the most prudent, economical girl I know. She is a splendid housekeeper and a good cook, and will work till she drops, but has no taste for reading, but seems to gain knowledge by suction."

If the preceding cases are fully and accurately stated they seem to afford grounds for further investigation. Changes in mode of life and in intellectual occupation are so frequent among all classes, that materials must exist for determining whether such changes during the prenatal period have any influence on the character of the offspring. The present communication may perhaps induce ladies who have undergone such changes, and who have large families, to state whether they can trace any corresponding effect on the character of their children.

ALFRED R. WALLACE.

Habits of South African Animals.

THE following extracts from a letter just received from Mr. R. R. Mortimer, of Hanover Road, Cape Colony, contain some observations which will, I think, be of interest to naturalists, and therefore worth recording in the pages of NATURE.

ALFRED R. WALLACE.

"Since reading 'Darwinism,' powers of observation have unconsciously been gained by me. Day by day nature has some phenomena quite new to me, which phenomena would probably never have been observed by me if I had not had the good fortune to have digested the principles of the Darwinian Theory so obviously explained by you. From the time of reading the

book till now I have observed peculiarities of organic beings in this part of the world. These observances I will relate: (1) The first observation I particularly remember was in regard to a peculiar action of a small bird, indefinitely termed by Colonials, snipe. What their specific or proper name is I cannot say, since the title of naturalist is not claimed by me. These snipe in question, or individuals of the variety, made their nests on mounds of dung which were practically the accumulated refuse of old sheep kraals. The shape of the nest was simply a hole scooped out on top of a mound. The colour of the refuse was a variegated dark brown and black. The eggs of such birds fully corresponded in colouration with the environment or surroundings. As a means of concealment, the colouration of the eggs was perfect. It required an extreme amount of careful inspection and search to detect the eggs in a nest on such mounds. When you came across the nest, you would find it was perfectly open and uncovered by any material; therefore you would presume the owners of the nest distinctly relied upon the colouration of their eggs to defy detection. But if by chance you detected a nest, and the owners were present, by holding yourself perfectly immovable and stationary, one bird would immediately approach its nest, and gradually cover it by scooping dust over the eggs with the action of its feet.

"This recourse to hiding its nest from view is only adopted on extreme occasions, when their sense-action gives them the knowledge that the enemy present has perceived its contents, or the nest itself.

"There must be a double selective agency in this mode of concealment at work.

"As far as my knowledge goes, our so defined snipe generally frequent localities where water is present. Now the same variety in question do make their habitat on banks of rivers, or where water is to be found; yet here have I noticed individuals of the same variety diverge from the specific character, take up a new area, if even only temporarily, where their eggs can be laid with more safety. It is an indisputable fact that the colouration of the snipe eggs is in union and harmony with the environment as a means of protection, yet here we find individuals of the same variety possessing the last possible resort of concealing its eggs—namely, covering them over with a material so as to defy any minute detective powers.

"Surely the struggle for existence must, in this case, be extremely severe, and the principle of natural selection in full activity.

"(2) Having had practical experience in farming with ostriches, and their domestication, I may say a few words on them.

"Ostriches have, so to say, no means of indirectly concealing their eggs; but the only means of concealing their nest is by their personal presence. The hen does her share of sitting in the daytime, her drab-coloured plumage being in harmony with the surroundings. The cock replaces her on the nest at evening time, sitting throughout the night, and generally on to 8 a.m., his black plumage corresponding with the shades of night; therefore you have some difficulty, sometimes very great, in detecting the nest of an ostrich.

"In addition to this remarkable adaptation of sexual colouration, the cock takes the rôle of a guard patrolling up and down some distance off the nest. When he perceives that mischief is bent upon the eggs by the approach of a person, he almost invariably charges him, and, woe betide if the person is destitute of some means of defence. To deliberately go up to a nest in the presence of its lord without some weapon or means of protection is considered by Colonials to be the height of foolishness and ignorance.

"But invariably again, on the other hand, when you have succeeded so far in reaching the nest, and handling its eggs, the cock quiets down.

"He loses all his viciousness, falls down alongside the nest, gives vent to, apparently, appeals for mercy, by continuously flapping his wings against the ground and giving forth sounds by means of his beak, of a peculiar dull clicking character.

"Domestication has made ostriches feel less fear for human beings, at the same time giving a more vigorous character to their viciousness.

"Some two years ago, among a troop of ostriches that were brought down to the farm where I was gaining my experience, there was one ostrich, a male bird in every respect in its external character and colouration of plumage. It was to all possible appearance a cock, and yet it had been seen on two occasions