at the points on a scale opposite the height of each parent, and read on another scale the most probable height of son and daughter, as well as the range of variation within and outside of which there is an even chance of his or her appearance.

At first sight, this law seems opposed to the current conceptions of heredity, by which like breeds like, and qualities gather strength as they are handed down from parent to child; but, while the tendencies of the two laws are opposed, this opposition is not a contradiction. There is still room for the appearance of qualities in families, because the exceptional father is still more likely than the mediocre one to have an exceptional son; only the chances are not in favor of having a son equally as exceptional as he himself is. This is true because the rate of regression towards the mean is a ratio, and affects all alike. However, owing to the far greater number of mediocre parents, it is more likely in a given case that an exceptional son is the exceptional child of "average" parents than the "average" of exceptional parents. The law tells heavily against the continued inheritance of particular traits, both beneficial and pernicious ones, and regards as typical the oft-observed decadence of eminent families.

The variations in eye-color, the presence or absence of the artistic temperament, — which is shown to be more prevalent in women than in men, — the tendency towards types of disease, are treated according to the same plan, and the assumption of the validity of the law is found to accord with the facts. Mr. Galton has even attempted an experimental verification. The seeds of sweet-peas differing in size were grown, and the numbers of resulting seeds of each size were obtained, with the result that the seeds were less exceptional in size than the parent-seeds, and also in about the ratio of one-third.

Besides this chief result, the volume contains a number of minor studies, all of which will be of interest to students in various scientific pursuits. The effect of marriage selection in continuing individual traits; the distinction between traits that blend, such as the mulatto issue of black and white, and those that do not blend but exist side by side; the possible shifting of the average result by a general amelioration of the race; the means of defining quantitatively nearness of kinship, — these form some of the minor points discussed.

In leaving the volume, one is impressed with the great value of method in statistical work, with the power of mathematical treatment to give clearness to results, with the enormous labor necessary to obtain results in this definite form, and with the great possibilities that this study holds out to our posterity as a means of racial and social improvement.

AMONG THE PUBLISHERS.

E. & F. N. SPON announce "A Practical Treatise on the Strength of Materials, including their Elasticity and Resistance to Impact," by Thomas Box; "Steam Boilers, their Management and Working on Land and Sea, Thirty Years' Experience," by James Peattie; and "The Voltaic Accumulator, an Elementary Treatise," by Emile Reynier, translated from the French by J. A. Berly, C.E

— Ginn & Co. announce, in the College Series of Greek Authors, "Homer's Odyssey," Books I.–IV., based on the edition of Ameis-Hentze, edited by Professor Perrin of Adelbert College, Cleveland. The German edition has been freely changed to adapt it to the needs of American college-classes, but record is made in the appendix of all important deviations from the opinions of the German editors. References are rather liberally given to the leading American grammars, and also to Monro's "Homeric Grammar." As the gist of matter referred to is always given in the current note, such references are usually meant for those who desire to collect further illustrative material. Much attention has been paid to the indication or citation of *iterati*, conventional phrases, and metrical formulæ. The student should realize in some measure both the bulk of this material and its bearing on the critical analysis of the poem. The latest accepted views in Homeric archæology are presented. The appendix gives not only strictly critical data, but also material which should enable a student with limited apparatus to understand the historical and literary status of controverted views.

— The latitude of the Detroit Observatory, Ann Arbor, Mich., has been determined by the Zenith telescope, and discussed by the method of least squares, by Ludovic Estes, Ph.D., of the University of Michigan. The results are published in pamphlet form by the author.

— P. Blakiston, Son, & Co., announce that the edition of "The Hygiene of the Nursery," by Louis Starr, M.D., is exhausted. A new edition is in press, and will be published about April 1. The author has taken this opportunity to rewrite certain parts of the work, and to make some additions.

— On or about April 6 will commence the publication of a weekly journal, devoted to the petroleum and natural-gas resources of the whole country, entitled *The Journal of Oil and Gas*. Situated midway between the great gas-fields of Pennsylvania, Ohio, and Indiana, and in the heart of Ohio oil-producing territory, with every facility for the publication of a first-class journal, the publishers (Fremont, O.) will spare no effort to make it the recognized authority on gas and oil matters.

— The admirers of "Little Lord Fauntleroy" will welcome the leading article in this month's *St. Nicholas*, by Mrs. Lillie, telling of little Elsie Leslie Lyde, the child who is now interpreting the character to New York audiences. There is an article meant for boys, and describing with drawings and pictures "Ancient and Modern Artillery," by Lieut. Hamilton, and (to thousands of competitors a most interesting feature) the report awarding prizes in the "King's Move" Puzzle.

LETTERS TO THE EDITOR.

***Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.*

The editor will be glad to publish any queries consonant with the character of the journal.

Twenty copies of the number containing his communication will be furnishea free to any correspondent on request.

The Robinson Anemometer.

IT seems likely that there are now to be some rather interesting developments in regard to the movement of this anemometer. As to the use of an equation for representing the relation between the wind-movement and travel of the cups, I think it a serious waste of labor. Even if we have the equation given in last *Science*, it cannot help us in obtaining the relation till we have solved it, and obtained a table or the figures given in my letter published in *Science* of March 15.

Professor Marvin's explanation of the effect of a uniform wind blowing across a whirler, upon which an anemometer is being tested, is very surprising and entirely untenable. The anemometer is certainly *not* going *with* the wind during one half of its revolution, and *against* it during the other half. Suppose we carry an anemometer on a locomotive due north, and a wind is blowing from the north: the velocity registered by the anemometer will be the sum of the two. But if the wind is from the south, the anemometer will record the difference between the two. If the wind blows either east or west, it will add its effect to the motion of the locomotive. We see, then, that, during less than one-fourth of the revolution of the whirler, a uniform current will be balanced on opposite sides, but during more than two-fourths of the revolution the uniform current will act continuously in augmenting the anemometer travel; or, in other words, the anemometer will be accelerated during more than three-fourths of the rotation, and retarded during less than one-fourth of it. This also explains why the helicoid anemometer used in England did not show variable results, as it had a vane to keep it normal to the wind: the effect of the wind would just be counterbalanced at opposite sides of the whirl, and there would be no acceleration, as in the case of the Robinson anemometer.

Professor Marvin raises an interesting question as to the theoretical behavior of the cups in an intermittent wind. It has generally been considered that while these cups never respond instantly to the wind, and continually lag behind while the wind is rising, yet their momentum keeps them up, and about counterbalances this lagging while the wind dies down. During the experiments with the whirling arm it occurred to me that the wind might have a different effect, and that it was necessary to make the final comparison in the open air.

On March 23 a comparison was made between the regular Signal Service anemometer, weighing sixteen ounces, and one with paper cone-shaped cups of about the same dimensions, and weighing two ounces and a half. The results were very surprising, as the paper cones gave very nearly twenty per cent less velocity than the spherical; also, with the lowest velocity, these cups gave relatively the least wind. On watching the cups, it was plain that this diminution occurred with a uniform wind as well as with an intermittent one. The cups were then weighted with lead to four times their previous weight, and there was no difference in the result, showing that the trouble was with the shape, and not with the lightness of the cups. Paper cups were then made of a spherical form; and these gave almost exactly the same velocity as the metallic cups, though having only one-seventh their weight. It was noticed, that, with the most intermittent wind, the paper cups gave the most increase, amounting in one case to eleven per cent over the metallic. The higher the wind, in general, the more nearly did these cups agree. We may rest satisfied, then, that the heavy metallic anemometer, instead of giving too much wind, really gives too little; and the more gusty the wind, the less the movement recorded by the heavy cups.

H. A. HAZEN.

Washington, D.C., March 30.

An Earthquake in Pennsylvania.

IT occurred to me that it might be of interest to the readers of *Science* to know that an earthquake occurred at this place, Lancaster City, Penn., on the 8th of March, at about 6 hours and 40 minutes P.M. This tremor was felt also at Harrisburg, York, Philadelphia, and Reading, as well as at many other places within the community of these places. Never having felt an earthquake-shock myself, it did not at once occur to me that this was really an earthquake, and therefore I did not at once take the time of its occurrence. That evening and the next morning I tried to find persons who did look at their time-pieces at the moment when it occurred in order to find the time as accurately as possible. Altogether, seven persons were found who claim to have looked at their watches when it occurred. Of these, two are quite different from the others, and must be considerably in error. But five of them agree fairly well. I compared each one of those time-pieces with my own, which was compared with the Scholl Observatory clock. Making in this way all possible corrections, the mean of the times was found to be 6 hours 40 $\frac{3}{10}$ minutes P.M., with a probable error of only about two-tenths of a minute. This is 75 Meridian time. If the tremor did not have too high a velocity, and similar observations have been gathered at other places, it may be possible to get at an estimate of the velocity and direction of the shock.

The tremor or trembling of the earth, according to my estimate, lasted about ten seconds. A number of persons agree with this estimate. Others, however, insist that it lasted about fifty seconds, as actually noted by the watch. The direction of the tremor seemed to be in a line a little north of west to south of east. Others also give it as north and south.

JEFFERSON E. KERSHNER.

Lancaster, Penn., March 26.