noticed signs of fear at an unexpected noise or strange face in the first weeks. Between the 3d and the 10th months, fright is caused more often by auditory than by visual impressions. A child of $3\frac{1}{2}$ months showed no sign of fear at a conflagration, though surrounded by flames, until the noise of the fire engine was heard, and then he trembled and cried. Thunder terrifies rather than lightning. This is referred to as hereditary and the result of anterior experiences, which have "rather predisposed the race to listen for dangers which are near at hand, than to be on the lookout for distant ones." The reverse is true of most animals.

Finally as an example of the logical powers of infants, that of generalization will serve. Dogs generalize; they bark at all beggars; yet they distinguish one beggar from another on nearer approach. A child had a tin box into which he used to delight to stuff things; he soon found that other of his toys had the power of holding things; then he tried to find an opening in everything, into a glass stopper because it was transparent; in short, he had acquired a general idea of an opening. Another child had a canary named 'Koko'; when he saw chickens in the yard or ducks in the pond, they were 'Koko' too. While these young children generalize before the acquisition of language, they do not compare. A child was shown a print and stretched out her hands for it; then a colored print was shown; her joy was beyond bounds. In a second experiment both were shown at once; she took them for one picture and threw herself towards both; her attention was not directed to the brighter one. These illustrations are doubtless sufficient to indicate the character of the volume.

The record of one or two infants is naturally unsatisfactory; individual peculiarities are certain to enter. What is wanted is a collation and average of many observations. For England, Darwin and Pollock, for France, Taine and Perez, for Germany, Tiedemann, for Austria, Preyer, for Italy, Ferri, have contributed to this study. May we not soon expect to hear as to the psychology of the American baby? J. Jastrow.

LEGAL OHM STANDARDS.

After the decision of the Paris electrical congress of 1884, that the standard resistance, or legal ohm, should be the resistance of a column of mercury of one square millimetre cross-section, and 106 cms. in length, at zero centigrade, it became necessary to construct standards that should represent this resistance. In France this task was intrusted by the minister of posts and telegraphs to M. J. R. Benoît; and in England Mr. R. T. Glazebrook, at the request of the electrical standards committee of the British association, undertook the same work.

M. Benoît attacked the question *ab initio*. From a large number of glass tubes, of about 120 cms. length, and 1 mm. diameter of bore, the four that had the most uniform bores were selected. These tubes were laboriously calibrated to determine the cross-section at every point, and each was then cut off so that the resistance of the column of mercury filling the tube should be as nearly as possible the same as that of the column defined as the standard. The points where the tubes were cut off were determined from the calibration. The resistance of each tube was then calculated from its dimensions, with the following results: —

Tube 1 = 0.999999 legal ohms.
2 = 1.000004 ,, ,,
3 = 0.999979 ,, ,,
4 = 0.999994 ,, ,,

The tubes were then cleaned by passing through them successively strong nitric acid, ammonia, and distilled water; then filled with pure mercury, and their resistances compared by balancing them against each other in a Wheatstone's bridge. This comparison showed, that, if the mean of the calculated resistances be the mean of the true resistances, the resistances of the several tubes are as follows: —

Tube 1 = 1.000018 legal ohms.
2 = 0.999996 ,, ,,
3 = 0.999959 ,, ,,
4 = 1.000003 ,, ,,

Accepting these as the true resistances, M. Benoît made a number of secondary standards, of glass tubes doubled upon themselves and bent into compact forms, and with cups at each end for making contact. The resistances of these tubes, when cleaned and filled to certain marks on the cups with pure mercury, were determined by comparison with the primary standards mentioned above.

Mr. Glazebrook considered it unnecessary, for the construction of the required standards, to go through the laborious process adopted by M. Benoît, for the specific resistance of mercury had been determined in terms of the British association standards, in several elaborate investigations by Lord Rayleigh, Mascart, Strecker, and others, and so based his standards on the value of the resistance of mercury adopted by the British association committee; viz., a column of mercury at zero centigrade, one metre long, and one square mm. cross-section, has a resistance of .9540 B. A. units.

Mr. Glazebrook has made a careful comparison of his legal ohm standards with those made by Benoît, and finds that there is a difference of .0005 ohms between them, the Benoît standards being less by that amount.

Two of these Benoît standards gave different results at different times. For instance, one whose resistance had been designated as 1.00045 legal ohms by Benoît, showed, when first filled, the same resistance in terms of the Cambridge standards; the next day its resistance was found to be 1.00071, and, on flowing the mercury back and forth through it, it rose to 1.00080. The tube was examined, but no trace of an air bubble was seen. It was then cleaned and filled again, and afterwards gave consistent results, the mean being .99990 legal ohms, though the same precautions were taken in the first filling as in the last. This result indicates the uncertainty of mercury standards, and the extreme care that is required to obtain consistent results. Every mercury standard should be made of such a form that the tube can not only be washed, but wiped out by some mechanical means. It is important to notice that the rate at which the resistance of mercury varies with the temperature has been examined lately by Mr. Glazebrook, and he finds that the rate of change diminishes rapidly as we approach 0°; the average change between 0° and 5° being .000834, while between 0° and 15° it is .000879.

CHOLERA PROSPECTS FOR ENGLAND.

IN regard to the prospect of the cholera reaching England this season, the *Lancet* of Oct. 24 says: We have now reached a period when we may fairly form a judgment as to the more immediate cholera prospects for England. Although cholera in Europe usually follows certain definite rules as to climate and season, yet it deviates from these sufficiently often to impart an element of uncertainty to any opinion concerning its movements. But notwithstanding this, the chances of any extension of the present epidemic to this country are now so remote that we may fairly conclude that we have for a third year escaped from the danger with which we have been threatened. It is true that in 1884 our greatest danger did not arrive until Paris had become infected, and that this did not take place until we were well into the first week of November; but, on the other hand, the extent and the area of diffusion of cholera in France was last year far greater than it has been this year, and cholera deaths occurred in 1884, both at Toulon and Marseilles, until about the end of November. This year, on the contrary, France has practically been free from cholera for some time, and the main risk we have to contend with lies in our shipping relations with Spain and Sicily, and these are limited both in amount and in the number of home ports concerned. So, also, we have had evidence that the vigilance and activity which have been exercised by our port authorities with regard to any such importations have been successful, even when, in a few occasional instances, there was reason to believe that isolated cases of the disease had found their way to our shores. And, further, the danger from places in the south of Europe, which are still infected, is every week becoming less by reason of a general subsidence of the epidemic. On the whole, therefore, we may with a considerable degree of confidence conclude that we have another season before us during which we may, unhindered by any element of panic, go on maturing our preparations to withstand such danger of cholera importation as may recur next year; and we have the satisfaction of knowing that the preparations needed are precisely those which will tend to diminish mortality from other causes than cholera, and that the needed expenditure will in the end tend to our prosperity.

ARTIFICIAL PROPAGATION AND CULTIVATION OF OYSTERS IN FLOATS.[1]

WITHOUT expressing any opinion as to the value of the process of 'fattening' oysters by placing them for a few days in cars floating in fresh water, I wish to point out that there is no similarity between this process and the process of propagation which is here described.

My attention was first called to the value of floating cars in oyster culture by Mr. William Armstrong of Hampton, Virginia, who informed me in 1884 that 'seed' oysters, which he had placed in floating cars in the mouth of Hampton Creek, grew more rapidly, and were of a better shape and more marketable, than those which grew from seed planted on the bottom in the usual way.

One of the results of my study in 1879, of the development of the oyster, was the discovery that there is a period of several hours, immediately after the embryo acquires its locomotor cilia, when it swims at the surface, and this is the period when it is swept into contact with collectors. As soon as the shell appears, the larva is dragged down by its weight, and either settles to the bottom and dies, or swims for a time near the bottom. The tendency to swim at the surface is an adaptation for securing wide distribution by means of the winds and currents which sweep the young oysters against solid bodies which may serve for attachment; and the greatest danger to which the oyster is exposed, at any part of its life, is that it may not, at the swimming stage, find a clean, hard surface for attachment.

[1] From *Johns Hopkins university circulars*, October.