of probabilities, occur sufficiently often to give the bank a sure profit of 1.1 per cent on every deposit. The fallacy of those who devise sure methods of defeating the bank ('martingales,' as they are termed, lies in the fact that they neglect to consider that the fortunes of any one gambler, compared to that of the bank, is small: they prove that in the long-run they must win, forgetting that they only have a short run. As a matter of fact, when their schemes require the risk of a very large sum, they generally are afraid to make the risk, and so leave the game with the firm conviction, that, had they but possessed a litttle more money, success would have been insured.

The gambling superstition that has probably worked more ruin than any other is what they term the 'maturity of chances.' The gambler says, to toss aces six times running is certainly a highly improbable event: if, therefore, aces have fallen five times, it is much more certain that the next throw will not fall an ace than if ace had not been thrown five times. The absurdity of this doctrine, apart from its being disproved by actual trial, can be easily shown. The chance of the occurrence of a certain event has no meaning after the event has occurred: it then has become a certainty. The chances of throwing an ace are as 1 to 6 on each throw, and entirely without reference to other throws. If I enter a room and pick up a die, the chances of my throwing an ace are as 1 to 6: to be told afterwards that five aces had just been thrown with that die, could evidently not influence the chances of my throwing an ace. Yet this doctrine is defended in the books on gambling, and is carried into practice at the gaming-table, to the ruin of many of its adherents.

Mr. Proctor gives very clear expositions of the fallacies underlying such beliefs; makes a forcible statement of the swindling processes to which even the better class of gamblers, lottery-holders, and the like, must resort; and illustrates his arguments with facts derived from actual experience. The book is no theorist's exposition merely, — it really ought not to matter if it were, because here theory and practice have been found to agree, — and is thus excellently calculated to meet the purpose for which it was written. It is in every respect a commendable work. Men desirous of guiding their actions by reason will here find expressed the position they should take on matters of chance and luck.

Our Temperaments; their Study and their Teaching. By Alexander Stewart. London, Crosby, Lockwood, & Co. 8°.

Dr. Stewart gives in his preface a description of what this book is. "Impressed by the frequency with which the word 'temperament' is used to account for the action that is taken not only on the ordinary but on the eventful occurrences of life; while so little is known of the temperaments, that very few outside the medical profession can name off-hand the four principal ones, — the sanguine, the bilious, the lymphatic, and the nervous, — I have endeavored to construct, from scattered and scanty material and my own observation, a practical guide by which observers may know the temperament of any one by looking at him, and associate with it certain mental qualities and traits of character." The author points out the disparity between the part the temperaments play in medicine and in general literature. He accords them a more definite value than expression and physiognomy, and believes them more available than phrenology, for the reason that the physical characteristics of the temperaments are definite, few, and readily observed.

Dr. Stewart has collated an immense mass of observations on the temperaments from ancient, mediæval, and modern literature, and uses it to illustrate and expound his own argument. He first makes clear the ordinarily received medical doctrine of the temperaments, and then endeavors to give it added precision and scientific value. Dr. Stewart himself recognizes the just limitations of the doctrine which he develops. He sees, in the first place, that it applies only to civilized races; and, second, since the physical characteristics and the influences that modify the mental habit vary in different climates and countries, that it holds most forcibly with the British, since it is from that nation that the distinctions have been drawn.

Perhaps the greatest advance made by the present writer is the assignment of precise form-characteristics to the different temperaments. He gives a table, in which one column contains the physical, and the other the mental, characteristics of the four pure temperaments. These are very full and explicit. The physical characteristics are seven, — three relating to color (of the hair, eyes, and complexion), and four to form (of the face, nose, neck, and body).

The nervous temperament is accorded a special chapter, that the common error of confusing it with nervousness may be avoided. Nervousness, so far from being a normal characteristic, is described as "altogether a departure from the natural or healthy manifestations of the temperament." To the nervous temperament is ascribed the tempering, softening, and refining of the other three. "What literature would be without the grace, the tenderness, the sublimity of poetry, the other temperaments would be without the nervous" (p. 132). After a discussion of the compound temperaments, the practical applications of our knowledge of them are taken up. The aid they may render in education, in the choice of a congenial and fitting profession, and in the promotion of health, is developed in a most interesting way. By way of illustrating the form-characteristics mentioned, and to enable observers to classify faces by them, a number of engravings are given from Lodge's 'Historical Portraits.' Dr. Stewart has certainly given us a most entertaining and valuable study in anthropology, and the publishers have done their full share in making it attractive to the reader.

Report of the Scientific Results of the Exploring Voyage of the 'Challenger.' Zoölogy, vol. xix. London, Government. 4°.

In this volume, Hubrecht reports on the *Nemertea*, his contribution comprising one hundred and fifty pages and sixteen finely drawn plates. The 'Challenger' nemerteans were few in number, and only some twenty stations afforded specimens. Of these stations, only five were over one hundred fathoms, and only three of these exceeded one thousand fathoms. *Carinina grata* and *Cerebratulus angusticeps* were obtained from these three, but the last species was dredged elsewhere at a depth of only ten fathoms. The most aberrant types were the above-mentioned *Carinina* and the pelagic *Pelagonemertes*. The section-cutter was the chief instrument of investigation, and the number of sections made exceeded 19,500. The report is divided into a systematic and an anatomical part, followed by a chapter on theoretical considerations. The latter will afford reading of much interest to those who are not engaged in the study of nemerteans. The conclusion reached by the author is, that "more than any other class of invertebrate animals, the *Nemertea* have preserved in their organization traces of such features as must have been characteristic of those animal forms by which a transition has been gradually brought about from the archicœlous diploblastic (cœlenterate) type to those enterocœlous *Triploblastica* that have afterward developed into the *Chordata* (*Urochorda*, *Hemichorda*, *Cephalochorda*, and *Vertebrata*)." This statement excludes the idea of any direct ancestral relations between *Nemertea* and *Chordata*, and fully recognizes the points of agreement between *Balanoglossus* and *Amphioxus*.

The clear and weighty arguments by which the author sustains this proposition do not admit of condensation.

The reports on the *Cumacea* and *Phyllocarida* are by Prof. G. O. Sars, where that distinguished naturalist finds himself on congenial ground. The number of species of the former group obtained by the 'Challenger' is fifteen, ranging, among them, from the surface to 2,050 fathoms in bathymetric distribution. In addition to the more purely systematic part, Professor Sars discusses the derivation of the group, and gives a summary of the characters of all the families, and enumerates the genera of which each is composed. The memoir is illustrated by eleven plates, distinguished by that accuracy and beauty which characterize all the work of Professor Sars' facile pencil.

To the single genus of recent *Phyllocarida* heretofore known (all the others being palæozoic fossils), the 'Challenger' expedition added two new generic types, which are naturally of great interest. The illustration and description of these take but three plates and some thirty odd pages of text, in which the author fully discusses the history, morphology, and development of the group, and the homologies of the several parts in the *Nebaliidæ* with those of other recent *Crustacea*. As regards the phylogenetic relations, the