age, it would probably be found that a not insignificant proportion of those marked as 25 were men who were already older when they came into residence.   J. VENN.

ABOUT eighteen months ago a brief memoir of mine—"Head Growth in Students at the University of Cambridge"—read before the Anthropological Institute, was published in NATURE (vol. xxxviii. p. 15). The *means* obtained by Dr. Venn, of the "head-products" of Cambridge students between the ages of nineteen and twenty-five were there thrown into the form of a diagram, and discussed. The head-product, I may again mention, is the maximum length of the head, × its maximum breadth, × its height above the plane that passes through the following three points : 1 and 2, the apertures of the ears ; 3, the average of the heights of the lower edges of the two orbits. I drew curves that appeared to me to approximately represent the true average rate of growth, and deduced from them the following conclusions, in which I have now interpolated a few words in brackets, not because any criticism has been founded on their omission, but merely as a safeguard against the possibility of future misapprehension.

(1) Although it is pretty well ascertained that in the masses of the population the brain ceases to grow after the age of nineteen, or even earlier, it is by no means so with University students.

(2) That men who have obtained high honours have had [on the average] considerably larger brains than others at the age of nineteen.

(3) That they have [on the average] larger brains than others, but not to the same extent, at the age of twenty-five ; in fact, their predominance is by that time diminished to [about] one-half of what it was.

(4) Consequently, "high honour" men are presumably, as a class, both more precocious and more gifted throughout than others. We must therefore look upon eminent University success as [largely due to] a fortunate combination of these two helpful conditions.

These conclusions have been latterly questioned by two of your correspondents, partly on the ground of discordance among the data, and partly on that of insufficient accuracy of the individual observations. To this I replied, that materials had since been accumulating, and that a second batch of observations, about equally numerous with those in the first, were nearly ripe for discussion, and that I thought it better to defer discussion until these had been dealt with ; then, their agreement or disagreement with the first batch would go a long way towards settling the doubt.

This second batch of observations has now been discussed by Dr. Venn on exactly the same lines as the first one, and I give the results of both in the annexed diagram. The data from the
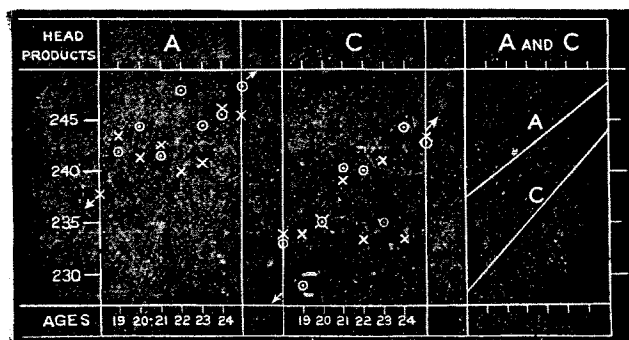
first batch, which formed the basis of the above-mentioned memoir, are here shown by dots with little circles round them ; those from the second batch by crosses.

To the best of my judgment, the conclusions that were reached before are now confirmed. No person can, I think, doubt that the swarm of the A dots, and that of the C dots, are totally distinct in character. I have avoided drawing curves through either of them, lest by doing so the effect of the marks, when standing alone, should be overpowered, and it might be prejudiced. In their place, small arrow-heads are placed outside each diagram, to indicate the direction of the stretched thread that seemed most justly to represent the general trends of the

two swarms of dots. Then, for the sake of convenient comparison, lines corresponding to these threads have been placed on the third diagram. It must, however, be understood that I have supposed the lines to be drawn straight, merely for convenience. In making my own final conclusions, I should take into account not only what the swarms of dots appear by themselves to show, but also the strong probability that the rate of head-growth diminishes in each successive year, and I should interpret the true meaning of the dots with that bias in my mind.   FRANCIS GALTON.

SOCIETIES AND ACADEMIES.

LONDON.

Chemical Society, February 6.—Dr. W. J. Russell, F.R.S., in the chair.—The following papers were read :—Observations on nitrous anhydride and nitric peroxide, by Prof. Ramsay, F.R.S. The author recommends as the best method of preparing pure nitrogen peroxide that the deep blue-green liquid, supposed to be a mixture of this oxide with nitrous anhydride, which is obtained by condensing the products of the interaction of arsenious oxide and nitric acid, be added to a solution of nitric anhydride in nitric and phosphoric acids, prepared by adding phosphoric anhydride to well-cooled nitric acid ; after agitating the mixture, the upper layer is decanted and distilled. He assumes that the two oxides interact according to the equation : $N_2O_3 + N_2O_5 = 2N_2O_4$. The melting-point of the peroxide was found to be $10°·14$, in agreement with Deville and Troost's statement. The depression of the freezing-point caused by one part of chloroform in 100 parts of the peroxide was $0°·35$, and by one part of chlorobenzene $0°·37$; the molecular depression is therefore $41°$. The heat of fusion, W, of the peroxide, calculated from this number and the observed fusing-point, by Van't Hoff's formula $W = \dfrac{0·02T^2}{t}$, where T is the freezing-point of the solvent in absolute degrees and t the molecular depression, is $33·7$ cals. ; a direct determination gave $32·3$ cals. To determine the molecular weight of nitrous anhydride, a known quantity of nitric oxide was passed into the peroxide, and the depression of the freezing-point determined. Assuming that an amount of nitrous anhydride equivalent to the nitric oxide was formed, the results gave the values of $80·9$, $92·7$, and $81·0$ against 74, the value corresponding with the formula N_2O_3. The author was unsuccessful in freezing nitrous anhydride even at $-90°$ by means of liquefied nitrous oxide. It was found to be soluble in this liquid, and it was further observed that as evaporation took place nitric oxide gas was given off together with the nitrous oxide ; it would therefore appear that N_2O_3 is unstable even at the very low temperature at which nitrous oxide is liquid. In the discussion which followed the reading of the paper, Mr. Pickering pointed out, with reference to Prof. Ramsay's determination of the heat of fusion of nitric peroxide, that observations on substances which exercise an appreciable influence on each other cannot safely be used in deducing the heat of fusion. Thus in the case of mixtures of water and sulphuric acid, solutions containing $29·5$, $18·5$, $8·6$, $1·0$, and $0·07$ per cent. of acid, gave respectively the values $37·4$, $58·3$, $79·9$, $74·9$, and $56·3$ as the heat of fusion of water, instead of $79·6$. In reply to Mr. Wynne, who remarked that nitric oxide alone should interact with nitric anhydride in the way attributed to N_2O_3, Prof. Ramsay stated that he had not examined the action of nitric oxide on nitric anhydride.—Note on the law of the freezing-points of solutions, by Mr. S. U. Pickering.—The action of chromium oxychloride on nitrobenzene, by Messrs. G. G. Henderson and Mr. J. M. Campbell.—Studies on the constitution of the tri-derivatives of naphthalene ; No. 1, The constitution of β-naphthol- and β-naphthylaminedisulphonic acids R. and G. ; naphthalenemetadisulphonic acid, by Prof. H. E. Armstrong, F.R.S., and Mr. W. P. Wynne. After alluding to the great theoretical importance of a study of the tri-derivatives of naphthalene, the authors draw attention to the necessity of determining the constitution of those tri-derivatives which are employed technically in the manufacture of azo-dyes in order that the dependence of colour and tinctorial properties on structure may be determined ; and especially is this the case, since all are not equally valuable—β-naphtholdisulphonic acid G. (Gelb), like Bayer's β-naphtholmonosulphonic acid, interacting but slowly