On Anthropological Colour Phenomena in Belgium and Elsewhere.

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 — Journal of the Asiatic Society of Bengal, Nos. 230–232, and extra number to Part 1, 1878.
 — Annual Report of the Leeds Philosophical and Literary Society, 1879–80.
 — Neunzehnter Bericht der Oberhessischen Gesellschaft für Natur-und Heilkunde.
 — Schriften der Physikalisch-ökonomischen Gesellschaft zu Königsberg, 1880–81.
 From the EDITOR.—Revue Internationale des Sciences, Nos. 7, 9, 10.
 — “Nature,” Nos. 559–575.
 — “Athenæum,” Parts 631–634.
 — Revue Scientifique, Tom. XIX, Nos. 1–19.
 — The American Antiquarian, Vol. II, No. 4.
 — Correspondenz-Blatt, August, 1880.
 — Revue d’Anthropologie, Nos. 3, 4.
 — Matériaux pour l’histoire de l’homme. Tom. XI, liv. 6e, 7e.
 — General Catalogue of Books. Edited by Bernard Quaritch.
 — The American Naturalist, Vol XIV, No. 10.
 — Rocky Mountain Medical Review, Vol. I, No. 1.

The election of CHARLES COOMBE TENNANT, Esq., was announced.

The following paper was read—

On ANTHROPOLOGICAL COLOUR PHENOMENA in BELGIUM and ELSEWHERE. By Dr. JOHN BEDDOE, F.R.S.

WITHIN the last few years the numerical method has been applied pretty extensively to the determination of ethnological colour types in several countries of Western Europe.

In Britain the Anthropometric Committee is continuing its labours, and has already acquired a considerable mass of facts respecting colours, from a number of private and some official observers. But in this special department continental Anthropologists, though they started behind us, have been enabled by their school organisations to outstrip us completely. In Germany, Virchow has been able to get counted and tabulated, quoad their hair and eyes, the whole school population of suitable age. The only local exception is the city of Hamburgh,

which has always borne a Philistine reputation as regards matters of science. In Switzerland, Dr. Guillaume, of Neuchâtel, and others, have successfully stirred up the cantonal authorities and schoolmasters; and I believe the entire school population has been reported on except in Geneva and Tessin, whence returns have not come in. In Belgium, Professor Vanderkindere moved the Geographical Society, at whose instigation the Minister of the Interior enabled him to obtain from the schoolmasters of the whole country the particulars required. And I believe that a similar enquiry has been projected, or actually undertaken, in Holland and in Bohemia.

The drawbacks for the value of information thus obtained are, of course, numerous. They are due partly to faults in the method and the observers, partly to the nature of the material. The classification of the colours is very difficult. Broca's plan is the best, but is too complicated for large numbers and unscientific observers. Moreover, it does not strictly apply to the mixed varieties of eye-colour, which are pretty frequent. Still, this is a small defect, and the illustrious author of the arrangement had foreseen it, and in some degree provided for it. The determination of colour of hair is more difficult. They run into each other by infinite gradation, they vary with the changes of illumination, and finally they are not flat tints, and the colour-standards of Broca and General Pitt-Rivers, excellent for the skin, are by their flatness incapable of being identified with the hues of hair. It is my opinion, and I think that Mr. Brabrook and General Pitt-Rivers agree with me, that flat tints, striped with minute dark lines, might be adopted as standards, but hitherto I have not succeeded in bringing this plan to bear.

The personal equation of the observer has also to be considered. It varies exceedingly, and can, to some extent, be predicted. Thus a person who has been brought up among a xanthous population, is apt to be inclined to apply the name black to dark shades of brown, and one belonging to a melano-chroic district will call the chestnuts "blonde" and the yellows "red." In this way local differences are likely to be underestimated, and I am disposed to think that they have been so in Belgium and in Germany.

The material utilised consists of school children. Undoubtedly the hair gradually darkens from infancy up to adult age in the immense majority of persons; but it does so with such uniformity that provided we always compare children with children and adults with adults, there is little fear of serious error. Dr. Guillaume has given us a valuable comparison of the colours in the school children and in the conscripts of Neuchâtel. Hair called "black" is several times more frequent in

the latter than in the former. Sexual differences exist; thus brown eyes are more common among women and grey eyes among men; at least this is the case in England, and, I think, everywhere else; but if all the children of both sexes are examined, this becomes quite immaterial.

It is a question whether it is better to combine the eyes and hair in a single observation, making such categories as, *e.g.*, light eyes with dark hair, dark eyes with red hair, and so forth, or to observe and tabulate the eyes and the hair separately. The latter plan is much more simple and easy, and likely to be more accurately worked, and some have accordingly adopted it. I myself have always adopted the former plan, because it yields some information which in the simpler one slips through one's fingers. Virchow and the Swiss have also adhered to it (the former), but Virchow has, I think, needlessly complicated it by asking in some cases for the colour of the skin also. Thus he has a category of "brown eyes, brown hair, fair skin," and another of "brown eyes, brown hair, dark skin or complexion." I confess that I think the determination of the colour of the child's skin, washed or unwashed, is a matter of which the difficulty exceeds the importance. I have always made five colours of hair—red, fair, brown, dark, and black—and three colours, or, as my lamented friend, Broca corrected me, *shades* of eyes; and thus I got fifteen categories, and provide for every possible combination. Virchow's plan has but twelve categories, but leaves a number of combinations unprovided for. He makes but four colours of hair—red, fair, brown, and black—and Vanderkindere follows him, with the result, I am sure, that the number of black-haired is enormously exaggerated. With this exception the plan of the latter is perfect; he rightly neglects the skin, and gets the particulars separately for each child, so as to be able to form twelve categories if he pleases. Though he has not published the figures for all of these, he has made a most useful selection, and based thereupon a series of instructive maps, showing the distribution of the blonde and brunette types in the several arrondissements and cantons of Belgium. Virchow and his coadjutors have also produced an excellent map, but I do not think the figures on which it is based have been published so fully and accessibly as by Vanderkindere. I do not think the Swiss statistics have been published at all; at least I have been unable to procure any of them except those of Dr. Guillaume for Neuchâtel.

I will now state briefly the results of these enquiries, so far as I am acquainted with them.

In Germany, speaking roughly, I may say that the blonde type prevails most decidedly in Schleswig-Holstein, and not much less so in the north-western and north-eastern provinces;

and that it gradually yields to the brunette as one proceeds southwards and south-westwards, the brown maximum being attained in parts of Alsace-Lorraine and Bavaria. The most considerable anomaly is the comparative prevalence of the brown type in the Thuringian region. I confess to having been somewhat surprised at the little difference that exists between the partly Frisian or Danish provinces about the Lower Elbe, and the semi-Slavonic regions of Prussia and Saxony. I should have thought the latter less blonde than they appear to be, and my own impression is a little strengthened by another valuable series of observations, to which I have not hitherto alluded, because they were not conducted on the same large official scale and by the same machinery. I mean those of Professors Joseph Majer and Kopernicki, of Cracow, on the population of Galicia, whose admirable work is not so much known as it deserves to be, because written in Polish. It is, of course, however, likely enough that the Wends of the north-west, the Obotrites, Lusatians, &c., may have been, and may remain, a fairer race than their neighbours and kindred the Poles and Ruthenians. The dark complexion and un-Germanic aspect of many of the inhabitants of Thuringia I have myself observed and commented on long ago; thus Rühlä is noted for a dark type of female beauty.

Of the Swiss results I have, as already said, seen very little. Those for the northern border appear to be unconformable with the German ones for the same frontier, but this I am disposed to attribute to different ideas of the nomenclature of colours. It would seem that here, too, the blond type is strongest in the north, as in Aargau, and that the brown one acquires strength as one proceeds southwards, south-westwards, and south-eastwards, into Glarus, Graubundten, the Valais, and Vaud.

The facts yielded by the Belgian returns are, as I have said, particularly interesting, and are very clearly set forth in a monograph by Professor Vanderkindere. Belgium, we know, is pretty equally divided as to language by a line running nearly due east and west, into the Walloon and the Flemish or Brabanto-Flemish regions. The former includes the whole, or nearly so, of Hainault, Namur, Belgium, Luxembourg, and Liege, the latter East and West Flanders, Antwerp, Limburg, and the greater part of Brabant. The Walloon, or French-speaking division, contains twelve arrondissements, the Flemish-speaking one, fourteen. If now we divide the whole number of the observed into three types, the blonde, the brown, and the neutral, or intermediate or mixed, we find that the fourteen arrondissements having the largest proportion of blondes correspond with the fourteen Flemish ones; and the twelve having most browns

with the twelve Walloon arrondissements; while Verviers, which is the only one of the twelve which includes a considerable minority of Teutonic speech, stands, as it ought to do, fifteenth on the blonde and twelfth on the brown list. When we come to the minuter subdivisions called cantons, the contrast continues almost as striking. There are 203 cantons, of which more than half are wholly Flemish, a few are of mixed language, and the remainder Walloon. Excluding the mixed cantons and those which actually touch the linguistic frontier, I find that when they are all arranged (which Vanderkindere has done) numerically in the order of prevalence of the blonde type, only ten of the Flemish cantons go beyond the hundredth place, and only three of the Walloon ones fall below the hundredth. Vanderkindere remarks the rather large proportion of dark hair in Ostend and the neighbouring maritime cantons of West Flanders, and thinks it may be due to the aboriginal piscivorous population having settled there and never been extirpated.

The figures do not help us much towards considering the question whether city life has any influence in altering physical characteristics. Most of the urban cantons have a large rural element. Those most available are Brussels, Mechlin, Verviers, Lessines, and, less certainly, Ostend, the two of Antwerp, the two of Liege, and the two of Ghent. Of these, Ghent and Ostend are decidedly, and Antwerp and Verviers less decidedly, darker than they should be—darker, that is, than the average of the surrounding cantons, while Brussels, Mechlin, and less distinctly Liege and Lessines, are fairer than might be expected. The western canton of Ghent is remarkably dark, but this may be due to the influx of foreign artizans into this great manufacturing town.

The Flemish country is flat or gently undulating, sandy or loamy; the Walloon country, for the most part, rough, hilly, and well-wooded, the soil resting on carboniferous limestone, coal measures, &c. But that these facts have little or nothing to do with the colour of the hair and eyes of the population is shown by the position of Hainault, which, resembling Brabant in surface and soil but inhabited by Walloons, shows a larger proportion of dark-haired children than any other province.

On the whole, this work of Professor Vanderkindere's supplies some of the most powerful evidence we have for the permanence or, to speak more cautiously and accurately, for the longevity of even such apparently trivial and variable physical characters as the colour of the hair and eyes. By its publication the arguments for undertaking a similar investigation in the primary schools of the British Isles have been greatly strengthened. I have kept in view the desirability of

procuring such a series of facts for the last five-and-twenty years; but the task transcends the powers and leisure of a single individual, or even of such a body as the Anthropometric Committee. If the thing is to be done on a scale, and with a completeness comparable with that obtained in Belgium, it must be with a certain amount of official help and countenance. These are much more difficult to obtain in Britain than in Belgium; but with the assistance of the British Association we need not despair of securing them before the landmarks of British ethnology have been utterly blurred by migration and counter-migration.

DISCUSSION.

MR. C. ROBERTS: As the rate of pigmentation is more rapid in the eyes than in the hair, I think it is desirable that the observations made on each organ should be made separately, and afterwards combined, or rather compared together. The darkening of the hair goes on slowly from birth to age of puberty, when it often takes a sudden leap corresponding with the other marked physiological changes which occur at that period. With the eyes it is quite otherwise. At birth the iris is quite colourless, the dark blue, and, indeed, all the shades of blue at a later period of life, being due to the black inner pigment showing through the semi-transparent iris; but the dark outer pigment which distinguishes the brown and black eye is deposited on the surface of the iris during the course of the first two or three years, and it changes little afterwards. The consequence is that we often see young children with dark eyes and fair hair, which are difficult to classify. Judging by the hair they are blondes, by the eyes brunettes, and they will most develop later in life all the characters of the darker element of our population. For the same reason I think little useful anthropological knowledge will be gained by making observations on a large number of children of different ages, as the result will depend on the colour of the hair and eyes of the predominant age, and this in its turn will depend on the kind of schools and other circumstances under which the observations are made.* If the children were arranged in groups of two, or at most of three years, they could be compared together, and the order of pigmentation could be determined. Unless analysed in this manner, I should have little confidence in the statistics which are reported from the Continent, and referred to by Dr. Beddoe, in determining the racial elements of the people.

MR. LEWIS agreed with the previous speaker in hoping that statistics of hair and eyes would be so drawn up as to show not merely the total quantity of dark or light hair and eyes among a

* NOTE by DR. BEDDOE.—The limits of age, and the predominant ages, would be the same throughout the kingdom in the primary schools. This objection is therefore, I think, invalid.

number of persons, but to distinguish between those who had dark hair and eyes, light hair and eyes, light hair and dark eyes, and dark hair and light eyes. He had no doubt that there was a distinct type the representative of a race of people in this country having dark hair and light eyes; some ethnologists believed in two races only, one light haired and light eyed, and the other dark haired and dark eyed, of which all other varieties were mere mixtures, but he was satisfied that, if a sufficient number of statistics distinguishing those varieties could be collected throughout the country, the existence of a third type would be clearly demonstrated.

The PRESIDENT, Major-General PITT-RIVERS, Mr. BOUVERIE PUSEY, and Mr. BRABROOK also took part in the discussion.

The following paper was read by the author :—

CERTAIN REASONS *for believing that the ART of MUSIC in PREHISTORIC TIMES passed through THREE DISTINCT STAGES of DEVELOPMENT, each characterized by the invention of a NEW FORM of INSTRUMENT, and that these stages invariably succeeded one another in the same order in various parts of the world.* By Mr. ROWBOTHAM.

MUSICAL instruments, though their varieties may be counted by hundreds, are yet really reducible under three distinct types :—1, the drum type; 2, the pipe type; 3, the lyre type. Under the first head fall drums, rattles, tambourines, gongs, triangles, castanets—in a word, all instruments of percussion. Under the second head fall flutes, horns, trumpets, fifes, hautboys, bugles—all wind instruments. And under the third head fall all stringed instruments, comprising the harp, lyre, lute, violin, dulcimer, piano, &c., &c. Now these three types are representative of three distinct stages of development through which prehistoric music has passed—and the stages occur in the order named. That is to say, the first stage in the development of instrumental music was the drum stage, in which drums and drums alone were used by man.¹ The second stage was the pipe stage, in which pipes as well as drums were used. The third stage was the lyre stage, in which lyres were added to the stock. And as in the geological history of the globe, the chalk is never found below the oolite nor the oolite

¹ Understand by "drum," instruments of percussion, from the rudest possible form of two pieces of stick beaten together, for instance, to the developed drum or rattle as we have it to-day.