ture to conclude from the presence of these two fragments, that the visitors to that locality were already addicted to cannibalism.

Possibly the bone may have belonged to a stranger or to a slave, having been broken at the time of death to be used for making tools. I have no doubt that further researches which Mr. R. Gillies intends to make in this spot, will throw more light on this subject. The only other specimen of human workmanship found amongst this layer of refuse is a small fish-hook made of bone. It is of a very primitive form, unlike any other I have hitherto obtained elsewhere. Of other material of the manufactory layer, there were a few small pieces of flint and chalcedonic quartz, cores, thrown away as useless.


[Read before the Philosophical Institute of Canterbury, 4th September, 1879.]

I am indebted to Captain Hutton for calling my attention to a discussion, which took place a short time ago, between Mr. Gladstone and Mr. Pole, with reference to the colour-sense of the Greeks.

The question was raised by Mr. Gladstone, in the October number of the "Nineteenth Century" (1877), and his statements were subsequently reviewed by Mr. William Pole, in an article which appeared in the October number of "Nature" (1878), under the title of "Colour-Blindness in relation to the Homeric Expressions for Colour."

Mr. Gladstone maintains that the organ of colour was only partially developed among the Greeks of the heroic age; and supports his opinion by many examples drawn from the Homeric poems. Mr. Pole, on the other hand, maintains that Homer was colour-blind, and proceeds to establish his views by evidence drawn from his own sensations of colour, which coincide in a remarkable degree with the colour-expressions in Homer, as interpreted by Mr. Gladstone.

The question raised is one full of interest, both to the scholar and to the naturalist, whether as regarded from its bearing on the controversy respecting the authorship of the Homeric poems, or on the development of a human sense within a period of time known to history.

But I shall not presume to follow the arguments of either of these learned writers upon the question in dispute between them, neither my scholarship nor my acquaintance with the subject would entitle me to do so. Mine is the more modest task of furnishing such facts regarding the colour-sense of the Maoris, as have come under my observation, during more than
thirty years' residence amongst them; a knowledge of which may in some small degree assist those who have undertaken the solution of this very interesting problem.

It may help to render my paper more intelligible, if I state briefly what Mr. Gladstone calls the stages of the historical development of the colour-sense.

The starting point is an absolute blindness of colour in the primitive man.

The First stage attained is that at which the eye becomes able to distinguish between red and black.

In the Second stage, the sense of colour becomes completely distinct from the sense of light; both red and yellow, with their shades, are clearly discerned.

In the Third stage, green is discernible.

In the Fourth and last stage an acquaintance with blue begins to emerge.

What stage had the colour-sense of the Maori reached before intercourse with Europeans began? This can readily be ascertained by reference to the terms existing in the language at that date, for giving expression to the sense of colour.

We find, upon examination, that the language possessed very few words that conveyed to the mind an idea of colour, apart from the object with which the particular colour was associated. There are only three colours for which terms exist, namely, white, black, and red.

White, ma (sometimes tea—very limited application).

Black, pouri, pango, mangu.

Red, whero, kura, ngangana.

If we analyse these words they seem all to relate to the presence or absence of sunlight. Ma is doubtless a contraction for Marana, light, which is derived from Ra, the sun. Pouri, black, is derived from Po, night. The derivation of pango and mangu is not so apparent, but I venture to think that both whero and kura may be traced to Ra. Ma is not only the term for whiteness and clearness, but also for all the lighter tints of yellow, grey, and green. Grey hair is called kina, but the term was never used to designate anything else but hair; every other grey object was either ma or pango, as it inclined to a lighter or darker shade.

To express blackness three terms exist, pouri, pango, and mangu. The night was pouri, and any very dark tint might be expressed by the same word. Pouri and Marana were constantly used to express opposite mental conditions. Pango and mangu were applied indiscriminately to describe anything black; the former word seems to approach closely to a true colour
term, as, unlike mangu,* it does not carry with it the idea of relative luminosity.

To express the quality of redness we find whero, kura, ngangana, uraura, mumura, and in addition to these huru kahu to describe red hair, and kokowai, red ochre; but neither of these words was ever applied to describe redness in anything but human hair and ochre.

All the words for expressing redness, except ngangana, may I think be traced to Ra, and connect the Maori idea of that colour with the brilliant rays of the sun. Ngangana is not the word generally used to express the quality of redness, but only certain appearances of it, as in flowers or blood-shot eyes. "Ka hete ngangana o te puawai o te rata! = How brilliant is the crimson of the rata flowers!" Whero is the most commonly used term. Kura is used very often instead of whero to describe redness in any inanimate object, and is figuratively applied to anything very highly prized, probably because the scarlet feathers of the kaka, which were highly prized, were called kura. It is worthy of remark that raukura is the word for feathers. Rau means leaf, and also thatch, from leaves being used for thatching. Was the term kura for red suggested by the brilliant plumage of tropical birds?

Ura = redness, and mumura = flame, were employed to describe the flushing cheek of the warrior, or the heightened colour of the maiden. Red was the sacred colour with which sacred places and things were painted, and with which chiefs adorned their persons.

Yellow and green were recognized, not as abstract conceptions of colour, but only as they are associated with objects. Puakowhai, or kowhai flower, is the term which represents yellow; but waipakurakura is sometimes applied to yellow liquids with an orange tint = reddish-yellow.

Kakariki or kakawariki = green. It is worthy of remark that the word representing green has no reference to the hue of the bird's plumage, it means literally, little parrot. This word, slightly altered to kakawariki, means green lizard; and I have sometimes heard kawakawa used to describe green. Poumanu or greenstone, of which there are at least six varieties, (each known by a name descriptive of the particular tint by which it is distinguished) is sometimes used now as a colour term. Karupoumanu = green-eyed, is the term applied to persons with light-coloured hazel eyes, but I never heard poumanu used to describe the colour of the sea, some hues of which it exactly resembles. Although the New Zealand flora is so rich in its varied tints of green, no impression of its prevailing colour seems to

---

* Ink was mungumungu, also ngarahu = ash, but the latter word conveyed no idea of colour. Ink for tattooing was called ngarahu because made with pine-ash, hence our ink came to be called ngarahu.
have been made upon the colour organs of the Maori. The word *matomato*, often employed to express the idea of greenness in vegetation, signifies luxuriance, and whatever colour-impression it conveyed to the mind would be associated with the idea of luxuriant growth.

Blue was not formerly recognized, as no word exists to represent it. Anything blue was classed with black, and went under the heading of *pouri*, or *pango*, or *mangu*. The blue depths of ocean and sky were *pouri*, or dark. At the suggestion of Europeans, the indigo-blue plumage of the *pahura* (*Porphyrio melanotus*,) is sometimes employed to indicate the colour, which before intercourse with Europeans was unrecognized.

No words are found in the Maori language to express violet, brown, orange, and pink colours; but there are no less than three words to express pied or speckled objects. *Kopurepure* = reddish speckle; *Kotitingingo* = dark speckle; *tontongi* = spotted.

The limited number of colour-expressions that exist in the Maori language, cannot be attributed to the absence of objects presenting those colours for which the terms are wanting. If nowhere else, at least in the rainbow, they were frequently to be seen. But the Maoris appear to have had very vague ideas respecting these colours. While they regarded the rainbow as a divinity, and spoke of its exceeding beauty, they do not seem to have perceived, much less to have separated, its prismatic colours; to their organ of sight, it presented one characteristic tint, and that was *ma*, or allied to light. Its effect upon the eye was described as *anieaniua*, or dazzling. Further proof of their imperfect perception of colour is furnished by the fact that the Maoris have never shown any real appreciation of floral charms. It is true that the *kowhai ngutukaka*, which was said to have been imported from Hawaiki, was occasionally cultivated for the sake of its scarlet flowers, but it is equally true that flowers generally were despised, and the greatest astonishment was expressed by Maoris in the early days, when they observed the pains taken by colonists to cultivate any but flowers of the gaudiest hues.

The ornamental scroll-work, and the elaborate patterns employed in tattooing and carving, showed that the Maoris were capable of appreciating the beautiful, both in form and in colouring, and we can only account for their indifference to the more delicate tints of flowers which call forth our admiration, by supposing that their colour-sense was not so well educated as our own.

Although Maori literature is very limited, we fortunately possess a few standard works, which will always serve for reference, whenever a question may arise as to the meaning of any word in the language. One of the most reliable of these is the translation of the Bible; the work of Archdeacon
Maunsell, LL.D., a sound Hebrew and Greek scholar, and one whose knowledge of idiomatic Maori is perfect. A few references from his translation of colour-expressions, will assist those unacquainted with the Maori language to verify the statements I have made. The Greek words are from the Septuagint, the English from the Authorized Version, and the Maori from Dr. Maunsell's translation.

Red—Exd. xxv., 5, ἐσκεδάνωμεν = dyed = whakawhero.
Scarlet—Is. i., 18, φοινικόν = scarlet = ngangana.
Crimson—Is. i., 18, κόκινον = crimson = where me te mea whakawhero.
Purple—Esth. i., 6, πορφυρός = purple = papura (this is only Maoricized English).
Green—Esth. i., 6, σμαραγδόν = green = kirini (Maoricized English).
Greenish—Lev. xiii., 49, χλωρίζωνα = greenish = ma kakariki.
Blue—Ex. xxv., 4, βακκινθόν = blue = punu (Maoricized English).
Yellow—Lev. xiii., 80, ξανθίζωνα = yellow = ma kowhai.
Ps. lxxvii., 18, χαρωτηρί = yellow = whero.
Brown—Gen. xxx., 32, φαων = brown = tongitongi, (really, spotted.)
Vide Gen. xxxii., 8, where πουκλα, translated "speckled" in English, is rendered whati tongitongi in Maori; and again φαων, rendered "brown" in English, is rendered pakaka (or kaka colour) in Maori.
White—Is. i., 18, λευκανω = white = ma.
Black—Zech. vi., 6, μελανες = black = mangia.
Job iii., 5, σκοτος = darkness = poui.

Mr. Gladstone says: "Colours were for Homer not facts but images; his words describing them are figurative words, borrowed from natural objects, in truth colours are things illustrated rather than described;" and he supports this opinion by quoting such expressions as rose-colour, wine-colour, bronze-colour, fire-colour, etc. As we find exactly the same method of expressing colour adopted by the Maoris, who spoke of kowhai-flower colour, little-parrot colour, we may conclude that their knowledge of colour was in a state of progression. The evidence afforded by the expressions used to distinguish yellow and green, shows that, at one period of their existence, yellow and green were confounded with the lighter shades of black and white. When the kowhai received its name, it was not on account of its colour, and when the parrakeet was named, it was its size, and not its colour, which attracted attention. It was after becoming acquainted with the kowhai, and little parrot, that they learnt to discriminate the colours. They then ceased to regard objects as merely luminous or non-luminous, but they had not yet realized the existence of colour as a quality apart from the object with which it was associated in the mind. They
appear to have reached the third stage of colour-sense development, when all at once the arrival of Europeans revealed to them the entire scale of colours possessed by the highest races of mankind. But although even elderly natives can now readily distinguish blue and brown, as distinct from each other, and from black, I do not think that any of the race see violet, magenta, orange, or any of the paler tints of any colour as we do. I have already alluded to the aesthetic taste of the Maori; their employment of such colours as they knew—red, black, and white—in scroll-painting and other kinds of decorative art, never offended the eye, and the effect produced was always pleasing. But no one can say so now their range of colours is so much wider.

They seem to have lost all sense of harmony in colouring, and to be blind to the hideous effects their false combinations produce. While only a few have had an opportunity of seeing the glaring mistakes made by the un instructed native painters, in the use of varied colours, most persons have had an opportunity of observing the incongruous colours in which a Maori belle arrays herself, when seeking to attract admiration in our streets. Her mode of adornment proves that her sense of colour is still very defective. She knows each colour by name, but she has an imperfect mental conception of it, and therefore cannot realize what a fright she makes herself by wearing colours that will not harmonize.

The sensations produced by colours upon the organs of the colour-blind, are thus described by Mr. Pole:—"They see white, and black, and grey, just like other people, provided they are free from alloy with other colours. Yellow and blue they see, if unalloyed; and these are the only two, excepting black and white, of which they have any sensation. Red is merely yellow, shaded with black or grey; and green, orange, and violet, are confounded with black, red, white, and grey."

On comparing Mr. Pole's remarks with the evidence submitted in this paper, it will be seen that the Maoris were not colour-blind. For although, in common with the colour-blind, they confounded the lighter tints of several different colours, they, unlike them, could distinguish red and green, and were blind to blue.

The rapidity with which they have learnt to distinguish the colours unrecognized by them till pointed out by Europeans, seems to indicate that their want of previous perception was not the result of imperfect organization, but only of imperfect education. The only apparent difference between the Maori organ for discerning colour and that of the European was, that it was less cultivated.