Colour and colour terminology

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The continuous gradation of colour which exists in nature is represented in language by a series of discrete categories.1 Although there is no such thing as a natural division of the spectrum, every language has colour words by which its speakers categorize and structure the colour continuum. The number of colour words and the manner in which different languages classify the colour continuum differ. Bassa, a language of Liberia, has only two terms for classifying colours; hui and zisa (Gleason, 1955: 5). Hui corresponds roughly to the cool end of the spectrum (black, violet, blue, and green) and zisa corresponds to the warm end of the spectrum (white, yellow, orange and red); in Bambara, one of the languages of the Congo area, there are three fundamental colour words: dyema, blema and fima (Zahan, 1951: 52). Dyema includes white, beige, and natural (cotton) colour; blema denotes reddish, brownish shades; and finally fima includes dark green, indigo and black. Maerz and Paul (1930) list over 3000 colour names in English, but generally it is considered to have eight basic names: black, white, red, orange, yellow, green, blue and violet.

The question of how many colours there are and how names are related to colour experiences has intrigued many scholars; much research has been done on the question of the discrepancy between colour perception and colour identification. Woodworth summarized the past research on this topic in 'The puzzle of color vocabularies' (1910) and drew two conclusions, one that there is an invariable sequence in the emergence of basic colour terms: 'Color nomenclature begins, almost always, with red, and spreads to the other colors in spectral order, usually, however, skipping such transitional colors as orange, blue-green and violet' (327) and two, that the emergence of a colour term is based on the functional importance of the colour and its frequency of usage: 'Where the need for designating a certain color, or range of colors, is infrequent, the fluid condition of color designation will be adequate' (328). By 'fluid condition' Woodworth means the state where the colour of an object is said to be like the colour of some other object but the basis of reference is not yet fixed so that it varies from one comparison to another. If on the other hand such a need is frequent, 'fixed usage begins to emerge which centers about some one comparison and all objects which

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have a certain color are grouped together and considered to have the color of one particular object (328). The name of the object then gradually becomes separated from the object and becomes the 'name' of a colour.

The first of these conclusions has been developed by Berlin and Kay in their recent publication on colour terms. Among their findings are the following:

1. An exhaustive and universal inventory of 11 basic colour categories exists for all humans from which the 11 or fewer basic colour terms in any language are always drawn.

2. The eleven basic colour categories are white, black, red, green, yellow, blue, brown, purple, pink, orange and grey.

3. There is a temporal-evolutionary sequence, as follows:

\[
\begin{align*}
\text{I} & \rightarrow \text{II} & \rightarrow \text{III}^* & \rightarrow \text{IV} & \rightarrow \text{V} & \rightarrow \text{VI} & \rightarrow \text{VII} \\
\text{white} \rightarrow \text{red} & \rightarrow \text{green} & \rightarrow \text{yellow} & \rightarrow \text{blue} & \rightarrow \text{brown} & \rightarrow \text{purple} \\
\text{black} & & & & & & \text{gray}
\end{align*}
\]

(* At stage III either green or yellow emerges, and at stage IV whichever did not emerge at stage III emerges.)

4. A given language at a given point of time can be in one and only one of the seven evolutionary stages and in any stage must have passed through all prior stages in the described order.

The conclusions I wish to draw are (1) that in contrast to Berlin and Kay there is no universal sequence in which colour terms arise, because this order is determined by the function of colour terms in a culture (the second of Woodworth's conclusions); (2) that there is a kind of universality in the human perception of colour based on the physiology of vision and it has at times played a role in the emergence of colour terms.

In dealing with this problem, the view will be taken that a set of colour words is a system of structuring the perception of nature. There are two major factors

[2] Berlin & Kay, 1969. The language types covered range from Jalé, a Danian language of New Guinea which contains colour terms for only black and white, to languages like English which contains the full complement of eleven colour categories. Of the 98 languages, data were collected first hand on 20 languages from informants who resided in the San Francisco Bay Area. The materials on the other 78 languages presented have been drawn from published sources and personal communications with linguists and ethnographers who have specialized knowledge of the languages in question. In collecting their own data Berlin and Kay used a set of 320 Munsell colour chips (320 colour chips of 40 hues and 8 degrees of brightness, and 9 chips of neutral hues (white, black and greys)). First the basic colour words of the languages in question were elicited from the informants. Then each subject was instructed to map both the focal point and the outer boundary of each of his colour terms on the array of colour stimuli. When the responses were studied and compared, a surprising uniformity occurred, as described above.
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involved in the evolution and use of colour terms: (1) the natural resources and the availability of colours in the external world, and (2) the physiology of human vision. The interplay of these two factors can be shown for all languages, but for this study the linguistic communities of Navaho, Pukapuka and Ainu are selected as the focal languages. When need arises, various other languages will be introduced.

I. COLOUR TERMS AND NATURAL RESOURCES

(1) The Navaho

Berlin and Kay list the Navaho colour terms as follows:

<table>
<thead>
<tr>
<th>Navaho Term</th>
<th>English Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>lagai</td>
<td>'white'</td>
</tr>
<tr>
<td>lidzin</td>
<td>'black'</td>
</tr>
<tr>
<td>lichi</td>
<td>'red'</td>
</tr>
<tr>
<td>dotl'ish</td>
<td>'blue-green'</td>
</tr>
<tr>
<td>litso</td>
<td>'yellow'</td>
</tr>
</tbody>
</table>

(Since colour names in various languages are not easily translatable, non-English colour names should ideally be expressed in terms of some non-linguistic system of notation; e.g., Munsell colour numbers or spectral wavelengths. However, for convenience English colour words will be used with the understanding that what is intended is the spectral loci of the range to which the English colour word refers and not the English colour name as such. When the colour term itself is intended, it will be italicized. This convention is used for both English and non-English colour terms.) Berlin and Kay then place Navaho in Stage IV, according to their evolutionary scheme, along with such other languages as Batak (Sumatra) and Eskimo (Canada). However, a study of the religious rites of the Navaho will make clear the arbitrariness of such placement. The above colour names were originally the names of the minerals and other earth substances commonly used in the religious ceremonies. The name and focus of each colour category is therefore uniquely that of the Navaho, and not the result of a universal evolution of colour terms.

Among the Navaho rituals one of the most important is the rite of divination. When a person becomes ill and is not certain which of the many things he should or should not have done is responsible for the sickness, the cause is determined by the rite of divination. Besides the function of diagnosis, divination is used also to prescribe the ritual treatment of the disorder such as the precise form of the ceremony, the time when it should be performed, and the selection of the right practitioner to perform the rite (Kluckhohn & Leighton, 1946).

The form most frequently used in the rite of divination is 'hand-trembling'. The rite of hand-trembling is of particular interest from the point of view of colour study. Jet beads (black), white shells (white), turquoise (blue-green), pollen (yellow) and white clay (white) play a conspicuous role in this ritual.
According to Kluckhohn, this ritual involves the following prayer: 'Black Gila Monster, I want you to tell me what is wrong with this patient. Do not hide anything from me. I am giving you a jet bead to tell me what the illness of this patient is'(148). The prayer is then repeated for each finger, substituting a different colour of Gila Monster and corresponding bead for each one – a Blue Gila Monster and a turquoise bead for the index finger, a Yellow Gila Monster and a Haliotis shell bead for the middle and ring fingers, a White Gila Monster and a white shell bead for the little finger. Turquoise and white shells are seen in other contexts also. In every dwelling, buckskin pouches are prepared in which are found bits of turquoise and white shells along with pollen, herbs and tiny carved images of animals. In Navaho drypainting, charcoal, local minerals, and red and yellow ochre which are ground and placed in bark receptacles compose the pigments.

An interesting relationship is found between the colour names and the substances used in the above ceremonials. In Navaho, white shell bead is yo'lagai (yo' meaning 'bead'), turquoise is dotl'ish or tl'iż (H. Landar, personal communication), black ochre is le-ż or lišin (as le-žin it designates jet or black coal), red ochre is ci-h (ci-h also means to redden or dye red), and finally, yellow ochre is le-ći (Haile, 1951). In other words the five colour names listed earlier and the names of the earth substances used for ceremonials are identical except for the omission of ti in the case of red. Even in this case tichi and ci-h can be considered identical if we accept Durbin's view that the morpheme ti- (and its various forms le, lee-, la-) is related to leesh, leezh meaning dirt or earth (Durbin, 1970, in press). (Durbin states that the difference in phonetic form among those morphemes is due to phonetic assimilation to the following sounds.)

These observations suggest that the Navaho colour terms were the common names of available natural resources, and support the conclusion that the emergence of colour terms is culture specific. That this is the case is reflected in the results obtained by Landar, Ervin and Horowitz in their psychological experiment on Navaho colour categories (1960). They report that when the Navaho monolinguals were shown colour chips from the blue-green range, the answer was often 'bluish-greenish, the color of turquoise'. They report also that where English monolinguals distinguish two categories of blue and green, Navaho monolinguals produced only one category of turquoise. This suggests not only that colour categories are structured differently from culture to culture, but also that the names of colour categories and their foci differ since these have much to do with the availability of the colours and their function and frequency in practical life.

(2) The Pukapukans
A similar relationship between colour terms and natural resources appears in Pukapuka, the language of three remote isles northeast of Samoa.
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Berlin and Kay provide the following four terms as the basic Pukapukan colour terms:

- kena 'white'
- uli 'black'
- kula 'red'
- yengayenga or yenga 'blue' or 'yellow' or mixture of two colours

and categorize Pukapukan as accordingly belonging to Stage III on their evolutionary scale. However, a study of the life of the Pukapukans provides an explanation for some of these colour names.

Pukapukans live in isolated conditions untouched by the cultural and technological developments made in other parts of the world; they subsist on fish and plants (McGregor, 1935). Among Pukapukans' most valued staple vegetable food is talo which is an indigenous plant of the South Pacific Islands and grows starchy tubers. A full-grown tuber is as large and as heavy as a large sweet potato, and just underneath the outer bark of this tuber is an inner layer, which may be rose (kula, ula), white (kina), dark greenish or purplish (uli) in colour, depending on the variety (MacCaughey & Emerson, 1913; Beaglehole & Beaglehole, 1938). The names in parentheses represent the variety of talo, and as we notice the names of talo and the colour names in Pukapuka are represented by the same terms. I have not been able to find the source for yengayenga. However, according to MacCaughey and Emerson, 'the interior of the raw tuber is usually light grey with a slight bluish tinge, but in some varieties may be yellow, orange, or even purple' (227). The dual meaning of blue and yellow for yengayenga may, therefore, have something to do with the colour of the interior of the raw talo tuber.

(3) Japanese
Since 1860 when synthetic dyes based on such materials as coal-tar, petroleum and others were invented, and the so-called basic colours were imported to Japan, Japanese has had the following eleven basic colour words as Berlin and Kay state:

- shiro 'white'
- kuro 'black'
- aka 'red'
- midori 'green'
- ki 'yellow'
- ao 'blue'
- cha 'brown'
- murasaki 'purple'
- momo 'pink'
- daidai 'orange'
- hai, nezumi 'grey'
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However, Berlin and Kay do not mention the traditional system of colour names that has existed for centuries and is still in use in many parts of Japan. There are three such basic colour names, aside from black (kuro) and white (shiro), and all three were derived from indigenous plants from which natural dyes were extracted (Uemura & Yamazaki, 1943; Uemura, 1943).

<table>
<thead>
<tr>
<th>colour names</th>
<th>plants (source of dyes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>akane (red)</td>
<td>akane (roots)</td>
</tr>
<tr>
<td>hanada (blue)</td>
<td>hanada (entire plant)</td>
</tr>
<tr>
<td>kariyasu (yellow)</td>
<td>kariyasu (entire plant)</td>
</tr>
</tbody>
</table>

The resulting colours have a characteristic focus and range of shades which are uniquely Japanese. An examination of these colours shows that what ancient Japanese classified as akane would be called orange and what they classified as hanada would be called turquoise by English speakers. In other words, to ancient Japanese orange is the representative example of the red range which centres around red in English, and turquoise is the representative example of the blue range which centres around English blue. A given wave of light has the same length to all humans, but the same wavelength may be categorized as different colours in different cultures. Conversely, different wavelengths may become representative colours of the same spectral range. Returning to the Japanese–English examples above, the representative colours of the red, yellow, and blue range in English have wavelengths of 660 μm, 585 μm, and 485 μm, respectively (Woodworth & Schlosberg, 1955: 387–397); and I estimate the representative colours of the red, yellow and blue range in ancient Japanese to have had wavelengths of 610 μm, 570 μm and 490 μm, respectively (based on information in Uemura, 1943, and Wada, 1954). This reflects the extent to which the available natural resources affect the resulting relationship between the colour names and their referents. The colour names themselves were originally names of actual objects which gradually became abstract when the usage was frequent and important enough in the community, as is the case here.

The tendency to create abstract colour names out of concrete objects is a common phenomenon of English; emerald, azure (lazuli), topaz from precious stones; rose, pink, lilac, mauve, lavender from flowers; pomegranate, lemon, olive, cherry, plum, cerise from fruits; salmon from fish; chartreuse and champagne from liquor. Among the most striking is the term crimson which was derived from a worm. According to Maerz and Paul, crimson came from medieval Latin kermesinus, and for a long time it referred only to a bluish-red dye obtained from the Kermes insect. Kermes also was the source of the original scarlet dye. The term scarlet came from Persian saqalat, sigalat, suglat, a red cloth dyed with Kermes. 'Kermes', a red dye, is produced by the female insect kermococcus. According to Laudermilk (1949), at some point in its development, after a moultng process, the female kermococcus turns into a sac in which the young
(eggs) are the contents. Before the eggs are hatched, the insects are killed by vapours of vinegar and a brilliant red dye is extracted from the fully grown eggs. The term 'kermes' meaning 'worm' exists in many languages with variations: krmīṅ (Sanskrit), kirm (Persian), kirmis (Lithuanian), črūž (Old Slavic), cruim (Old Irish) (Meillet & Ernout, 1967: 724).

Some of what Berlin and Kay call basic colour terms such as orange and purple were also derived from actual objects, purple from a shell as discussed below and orange from a fruit. We should also note the fact that where need exists, a wide variety of colour names emerge. In English we have, for the reddish colour, red, rubicund, russet, auburn, crimson, carmine, scarlet, vermilion, maroon and many others each of which represents a colour. In languages such as Bassa all the colours mentioned above can be described by sīsa. In other words, from the point of view of another language, each language may be arbitrary in classifying colours; what is expressed by a single colour word in one language may be characterized by a series of colour words in another.

This is a common phenomenon in linguistic development in general, and it seems important at this point to stress the fact that the principles of classification are different from language to language. In Eskimo, for example, there are four different words for snow: aput for 'snow on the ground', qana for 'falling snow', piqsirpoq for 'drifting snow', and gimuqsuq for 'a snowdrift' (Boas, 1911). English has only the one term, snow, which describes the four states. The automobile gives rise to the American English convertible, club coupé, sedan, hardtop, two-door, four-door, sports car, station-wagon, runabout, limousine and many others (Brown, 1958). Some other languages have only one term for these. In Hopi, all flying things except birds have a single name. In English, there is aviator, butterfly, and aeroplane; in Hopi, there is just masa’ytaka (Whorf, 1956). According to Boas, this tendency of a language to express a variety of ideas by a single term is called 'holophrasis'.

There are examples of holophrasis in the case of colour terms. Hanunōo colour terms provide a good example. In Hanunóo, the language of a tribe on Mindoro Island in the Philippines, marara means 'exhibiting redness' and malatuy means 'exhibiting greenness' in some contexts, while in other contexts marara means 'dryness or desiccation' and malatuy means 'wetness or succulence' (Conklin, 1964).

Purple, woad and safflower in the ancient world and ao in Japanese present the case where a single colour name designates a wide variety of different hues.

(1) Purple

Originally, purple derived from shells (Porpura) found on the coast of the eastern Mediterranean Sea. The animals gathered into shoals in spring time; abrasion produced a milky white fluid from which purple dye was obtained. When the shells were broken, the white substance oozed out. Upon exposure to the air and
light this substance passed through a series of colours: first citron-yellow, then greenish yellow, then green, and finally, purple or scarlet. The juice obtained from Murex brandaris, a kind of Purpura, changed photochemically into a deep blue-violet, but that of Murex trunculus, another kind of Purpura, gave a scarlet red hue (Forbes, 1964: 114–122; Gipper, 1964). Mixing shells in various ratios and stopping the photochemical process at different points produced yellow, blue, green, red and violet. According to OED, in the middle ages purple applied vaguely to various shades of red but now it applies to ‘mixture of red and blue in various proportions’. The purple dye industry goes back into pre-classical period. However, its heyday was reached during the classical period, and the Greeks applied the term πορφύρας to cover all these hues.

(2) Woad
According to Forbes (1964: 110), woad is an ancient source of blue which was known to both the Egyptians and the people of Mesopotamia. Woad is made from the leaves of Isatis tinctoria, a herbaceous biennial whose essential constituent, indigotin, is the same as that of indigo. When the Isatis leaves turned yellow, they were ground to a smooth paste which was then formed into oval balls. The balls turned dark blue (almost black) on the outside if they were exposed to the sun. If, on the other hand, they were stored in a closed place, they took on a yellowish hue which became particularly pronounced when the weather was rainy. Before the dyer used the material, these balls were ground to powder, moistened and fermented for several weeks. The dye then gave a strong and permanent blue. All three hues present in the different stages were called by the same name, woad.

(3) Safflower
The dye called carthame or safflower was made from Carthamus tinctorius, a thistle-like herb, which yields large orange coloured flower heads. The flower heads are picked by hand and pressed into cakes. This flower contained two colouring substances: safflower yellow which is a weak yellow and soluble, and carthamic acid which is red and insoluble. Different shades ranging from red to yellow could thus be attained, and both were called by the same colour name, safflower or carthame (Forbes, 1964: 122–123).

(4) Ao in Japanese
Ao (blue) was derived from an indigenous plant, ‘ai’. The colour obtained from this plant ranges from indigo to bluish green. Midori (green) is also obtained from ai by adding a small amount of kariyasu (a yellow vegetable dye). In Japanese all these colours are called ao (Uemura & Yamazaki, 1943).

The above studies show that the development of colour names and their foci
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are specific to the culture in which the name developed and have much to do with the available natural resources and the range of colours they provide. Therefore, they cannot be explained in terms of a universal order.

II. COLOUR TERMS AND THE PHYSIOLOGY OF HUMAN VISION

In the preceding section, I have shown how colour terms are related to the available natural resources. A similar close relationship exists between colour terms and human colour perception and, as we will see, certain limitations inherent in human colour perception create an interesting twist to the development of colour words.

It is generally believed that the fact that a certain colour name does not exist in a culture does not mean that its people are incapable of perceiving that colour. Colour discrimination is probably the same for all human populations with healthy vision. To normal human vision, nature appears in various degrees of brightness – ranging from black through a variety of shades of grey to white – and in various coloured hues. Among the millions of hues that exist in nature, red, green, blue and yellow are considered primal colours. Of these primal hues some are compatible with each other and may be sensed in the same place at the same time; others are incompatible and will never be simultaneously present in the colour of an object. For example, red can appear only in a mixture with yellow producing orange or in a mixture with blue producing violet, magenta, mauve, purple, etc.; it never appears in a mixture with green (Linsz, 1952: 52–144, 1964). There is no such hue as a greenish red or a reddish green, since in this mixture if red predominates, we obtain only unsaturated shades of red, and if green predominates, we get unsaturated shades of that same green. Any of the other three primary colours will also mix with only two of the other three – blue with red or green, yellow with red or green and green with yellow or blue. However, we never sense a combination of red and green or yellow and blue. In other words, red and green, blue and yellow have a strong relationship as pairs of opposite colours.

The same pairing of red and green, blue and yellow is reflected in the human perception of colour in such phenomena as induced colours, after-images, and colour blindness. Various experiments have shown that when one member of the pair is presented, the eye tends to call up the other member. For example, when one stares for a while at a red surface and then switches quickly to a white one, one will see green instead of white. A similar effect is found between yellow and blue. If we fixate our eyes on the sun and then switch to a white surface, we see a circle of ‘robin’s egg blue’ (Goethe, 1840; Krech, Crutchfield & Livson, 1969: 114–147).

Combinations of red-green and blue-yellow are seen also in colour blindness. Among the symptoms of colour blindness, deuteranopia involves an inability to differentiate red and green and protanopia involves the same inability plus a
weakness in perceiving the red end of the spectrum. Another form of colour blindness, tritanopia, involves an inability to perceive the difference between blue and yellow. All this shows that red and green on the one hand and blue and yellow on the other are physiologically linked in human perception. These pairs of colours are complementary colours, and as Arnheim (1969) states, they represent 'combinations that add up to the complete whole of whiteness or, when subtracted from each other, produce the complete nothingness of black'.

The innate tendency of human vision to combine red and green, or blue and yellow, is directly reflected in the colour terms of some contemporary languages in the world. Clear examples are found in relatively unacculturated and isolated linguistic communities.

Ainu, the language of the indigenous caucasoid people of Japan, has four basic colour terms (Chiri, 1953).

- kunne ‘black’
- retar ‘white’
- hu ‘red–green’
- siwnin ‘blue–yellow’

The terms siwnin and hu are of particular interest to us. According to Chiri, siwnin means both ‘yellow’ and ‘blue’ as the following list shows:

- siwninus ‘blue mildew’
- siwninrit ‘blue line’ (veins as on the forehead)
- siwninsame ‘blue shark’
- siwninonkerax ‘yellow phlegm’
- siwninmarewrew ‘yellow butterfly’
- siwninarake ‘jaundice’

This phenomenon of categorizing blue and yellow together found in the Ainu language is seen in other linguistic communities also. According to Le Coeur (1956), in Daza, a Nilo-Saharan language of east Nigeria, zedo means ‘blue’ and zede means ‘yellow’. Also, zede to some informants signified both bright yellow and violet. A word meaning both ‘blue’ and ‘yellow’ appears in a number of contemporary Slavic languages. In Serbo-Croatian, plavi meaning ‘blue’ becomes ‘blond’ as it applies to human hair, and in Russian, polovyj refers to both blue and yellow (Vasmer, 1955: 395). The same meaning is also shared by plowy in Polish (Brückner, 1957: 422) and plavy in Czech (Machek, 1957: 372). Miklosich lists a Proto-Slavic term polvu meaning both ‘blue’ and ‘yellow’ from which the above terms in Slavonic languages were derived. The language of the Mechopdo Indians of Northern California has a term epoti which means ‘sky-blue’, ‘purple’ and ‘blue with a yellow tinge’, and epotim papaga means ‘the yolk of an egg’ (Gatschet, 1879). In Chinese and Japanese the character 緑 refers to the blue of the sky and the sea and also to a sallow complexion, in particular of old age.
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(Morohashi, 1960). In Latin, *flāvus*, meaning ‘yellow’ and ‘blond’ corresponds to *blāo* ‘blue’ in Old High German, *bla* ‘yellow’ in Medieval German and *blau* ‘blue’ in Modern German (André, 1949; Walde & Hofmann, 1938: 513).

The close relationship between red and green is also seen in many languages of the world. In the case of red and green there is an added link between the two colours in that they often represent the colours of two different stages of the same plants or fruits.

In the Ainu language *hu* means both ‘red’ and ‘green’, and according to Chiri, *hu* meaning ‘fresh’ or ‘green’ appears in such words as *hu-ham* ‘green leaves’, *hu-kina* ‘green grass’, and *hu-ni* ‘raw tree’. However, in other contexts *hu* means ‘red’ (cf. *hu-turex* ‘red fruit’). In Chinese and Japanese, the character 角 meaning ‘green’ consists of 角 ‘fresh’ and 角 ‘red’ and indicates the colour of young (immature) plants and fruits (Morohashi, 1960: 835–840).

The fact that languages as widely different as Serbo-Croatian, the language of the Mechopdo Indians, Ainu and Chinese show the same phenomena would lead us to believe that creating one word meaning both ‘yellow’ and ‘blue’, ‘red’ and ‘green’ is a reflection of an innate character of human colour perception and hence may be called a universal tendency of all humans. However, with the advent of general technological development, which includes the invention of chemical dyes and the resulting necessity to differentiate a large number of hues of various brightness and saturation, this universal tendency has left only a faint trace in the development of colour words.

The invention of chemical dyes is very recent, historically, dating only from the nineteenth century. It is easy to overlook just how highly disrupting the availability of these dyes has been for the traditional colour terminologies, which have been evolving for many centuries. Not only has there been a great need for new colour terms, but traditional terms have been recruited to denote new, artificially-made colours. The original referents of these colour terms, which were the colours naturally available to the culture, have generally been relegated to peripheral status, and in their place has appeared a vast new set of colours.

Berlin and Kay state, ‘It appears now that, although different languages encode in their vocabularies different number of basic color categories, a total universal inventory of exactly eleven basic color terms exists from which the eleven or fewer basic color terms of any given language are always drawn’ (2), and it may indeed be that if we ask contemporary speakers of Japanese to show us examples of *aka* ‘red’, German speakers examples of *rot*, Hopi speakers examples of *pala* ‘red’, we will find a high degree of agreement in their responses. Even so, this universality of categories which Berlin and Kay believe they have demonstrated is itself an artificial result of the invention of man-made dyes only a century ago. Because of the ready availability of these colours, the precision and cheapness of their manufacture, plus a host of other economic factors, man-made
chemical dyes are in use virtually everywhere. They therefore provide a basis for universal colour terms. The Berlin and Kay set of colours is thus the latest example of how abstract colour terms are influenced by the availability of concrete sources. Their theory, in other words, has not overturned the theory of linguistic relativity as they claimed. In the development of colour words as in any other linguistic creation, necessity and functional importance are the determining factors, and as Boas states, such developments seem to depend on the chief interest of a people.

REFERENCES


