

Racial Contrasts

Distinguishing Traits of the
Graeco-Latins and Teutons

Gehring

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By
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TO
MY WIFE

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RACIAL CONTRASTS

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I

FUNDAMENTAL PRINCIPLES

MOST prominent among the Aryan races are the Græco-Latins and Teutons: besides the ancient Greeks and Romans, the former comprise the Italians, Spaniards, Portuguese, French, and Wallachians; the latter include the Germans, English, Dutch, and Scandinavians. Though resembling one another in many respects when compared with non-Aryan peoples, these races exhibit striking differences of character and institutions when contrasted *inter se*. The Greeks and Latins are talkative, vivacious, and quick in their actions, the English and Germans taciturn and deliberative. The latter are passionate lovers of nature, the former evince but little enthusiasm for the glories of Pan. Southern

nations have excelled in sculpture and painting, northern ones in music. Gothic cathedrals bewilder with their complexity, Greek temples are simple and of exquisite proportions.

Some of the distinctions have been merged into broader ones. Græco-Latin art may be characterised as classic, Teutonic art as romantic, a generalisation which comprises a multitude of smaller differences. On the one hand the form is said to receive more attention, on the other the significance. Teutonic modes of thought are inclined to be religious, southern nations manifest a tendency toward worldliness and sensuality.

These distinctions are good so far as they go; but they do not go far enough. Many are confined to a single field, and none endeavours to include the whole mental and artistic domain in a comprehensive definition. What has Italian impulsiveness to do with the peculiarities of Italian opera; how is German taciturnity connected with German love of counterpoint; what is the bond of union between the prevalence of assassination in southern countries and the classicism of art; what is the common element in Teutonic

persistency, religiousness, and love of nature; wherein lies the relation between French lucidity of style and French worldliness?

Again, the distinctions are vague and general in nature, lacking the preciseness desirable in this age of scientific inquiry. Romanticism, classicism, religiousness, gaiety, depth of thought, are complex qualities, which, like the concrete phenomena of material nature, must be reduced to simpler factors. Is it not possible to discover a few elementary distinctions, on which many or most of the picturesque differences between Græco-Latin and Germanic life may be found to rest? The botanic classes of endogens and exogens are distinguished in striking ways. In the former the wood is intermingled with the pith throughout the stem, the leaves are parallel-veined, and the flowers usually have their parts in threes; in the latter the wood is situated between a central pith and an outer bark, the leaves are reticulated, and the flowers have their parts in fives or fours. Yet all these peculiarities are the concomitants respectively of one or two seed-leaves in the embryo. May not the interesting contrasts of Græco-Latin and Germanic civil-

isation similarly reduce themselves to a few simple differences in the mental constitution of the races? If we perforate a piece of folded paper, we shall find surprising variations of appearance upon opening it again, in accordance with the nature of the impressions. So it is conceivable that the vast differences in national activities and institutions are the result of insignificant divergences of mental structure.

Our aim will now be twofold. In the first place we shall endeavour to trace fundamental distinctions between the arts of the races, distinctions which in a general way are valid for all times and nationalities. Then, having deduced from these the statement of an essential difference in mental nature between the peoples in question, we shall endeavour to trace this again in their intellectual and emotional characteristics, their customs and institutions.

Let us plunge into the subject and state the distinctions at once. There are two: (1) Græco-Latin art-works tend toward clearness and simplicity, Germanic ones toward complexity; this complexity is based, in some cases, on a greater number and hetero-

geneity of factors, in others on a certain irregularity in their disposition, or on both features. (The factors are mental as well as material in nature, the thought suggested by a poem being a factor just as well as the portal of a building, the recognition of the similarity between two musical themes as well as the themes themselves.) (2) The effectiveness of Græco-Latin works depends, more than that of Germanic ones, on the material and objects directly presented; while that of Germanic productions rests more largely on the affiliations and irradiations of the same,—on the connections or relations between that which is immediately given and that which is not. These connections are based on association, suggestion, and comparison, and may involve different parts of the same work, recollected experiences of the percipient, or extraneous matter.

The principles do not apply only to Germanic and Græco-Latin art, but also to modern art in general, when contrasted with the productions of the ancients. Romance works resemble those of the Teutons in the respects under consideration, a perfectly intelligible situation; for the modern Latins,

besides being mixed racially with the Teutons, have undergone the influence of their thought, whence their arts will naturally exhibit some Teutonic characteristics.

Will it be possible to deduce from these principles a conclusion respecting the mental nature of the races? What would be the natural inference regarding the Teutonic mind, which delights in the perception of a profusion and variety of elements? Obviously one would say that the state of mind exemplified in the enjoyment of art was typical of the normal state. Just as the Teuton has a greater wealth of material presented to him in his dramas, cathedrals, and musical compositions, so his mind is normally, in everyday life, filled with a larger and more involved number of objects.¹ Since, however, it is possible for only one, or at most very few things, to stand forth with precision in the foreground of attention, it follows that we must

¹ "As well as I can judge, an educated Englishman possesses a stock of facts three or four times in excess of that possessed by a Frenchman of corresponding position—at least in all that relates to language, geography, political and economical truths, and the personal impressions gained in foreign parts by contact with men and living objects."—Taine: *Notes on England*, New York, 1872, p. 314.

be conscious of all others in a vague, indefinite way. These others form a "penumbra" or "fringe" around the foremost objects of attention.¹ The statement, therefore, that the Germanic mind grasps more objects than the Græco-Latin, might better be put, that it has a richer "fringe." We can arrive at this

¹"Every definite image in the mind is steeped and dyed in the free water that flows round it. With it goes the sense of its relations, near and remote, the dying echo of whence it came to us, the dawning sense of whither it is to lead. The significance, the value, of the image is all in this halo or penumbra that surrounds and escorts it,—or rather that is fused into one with it and has become bone of its bone and flesh of its flesh. . . . It is just like the 'overtones' in music. Different instruments give the 'same note,' but each in a different voice, because each gives more than that note, namely, various upper harmonics of it which differ from one instrument to another. They are not separately heard by the ear; they blend with the fundamental note, and suffuse it, and alter it; and even so do the waxing and waning brain-processes at every moment blend with and suffuse and alter the psychic effect of the processes which are at their culminating point. . . . Let us use the words *psychic overtone*, *suffusion*, or *fringe*, to designate the influence of a faint brain-process upon our thought, as it makes it aware of relations and objects but dimly perceived."—William James, *The Principles of Psychology*, New York, 1890, vol. i., pp. 255-258.

Our own conception of the "fringe" may not agree in all particulars with that of Prof. James, but the agreement is close enough to warrant the use of the same term; at any rate, the term is so well adapted for our purpose that, with this acknowledgment of our indebtedness, we feel free to employ it.

conclusion by means of the second principle as well. The material of Germanic works, as we saw, has more external relations than that of Græco-Latin productions. But these are the very relations that constitute the "fringe." Art-works, accordingly, which evoke the perception of numerous such relations, presuppose a mental nature which habitually carries a great number of them along with it.

The Germanic mind, then, is characterised by a more prominent "fringe" than the Græco-Latin. It delights in the unresolved, mysterious residues of experience, in the buzzing backgrounds, the contrapuntal play of side-theme and pedal point. The Græco-Latin mind, on the contrary, loves clearness and precision. The world which it reflects is plotted off in neat conceptual charts. It progresses along a straight line, in a single dimension; the Teuton's advance, on the other hand, is broad and bi-dimensional,—harmonic and contrapuntal rather than melodic. The Græco-Latin attends to but a single object at a time, which he perceives clearly and distinctly; the Teuton perceives a multitude of surrounding objects and relations in ad-

dition, which tend to blur the main topic of thought; he trails along with him a shower of mind-dust, clinging to and surrounding the nucleus of attention.

The task now is to trace the application of these principles throughout the activities of the races, beginning with the arts, and then considering mental and emotional characteristics, both by themselves and as they manifest themselves in customs and institutions. In considering the arts, we shall need to confine ourselves largely to the first two principles, sometimes invoking one, sometimes another, but not deeming it necessary to apply both at the same time; in treating of the personal characteristics as well as the customs and institutions, on the other hand, we shall more frequently make reference to the third, which is, indeed, the most fundamental of the three. The divided state of mind, rich with promise and recollection, and teeming with suggestion, is the essence of the Germanic spirit; and the abundance and complication of objects, with their external relations, are only the outer correlates of this state, which serve to arouse and nourish it.

II

MUSIC

THE discussion of the musical art must be confined to modern races, as our knowledge of ancient music is so very meagre. A distinguishing trait of Teutonic compositions is their liberal use of counterpoint. Counterpoint was developed among the Netherlanders, a nation partly Germanic and partly Celtic in derivation. Two of the great names which mark the evolution of this method of composition, Okeghem and Willaert, are Germanic. Transplanted to Italy, counterpoint bloomed forth in full splendour in the works of Palestrina; but its "barbaric" complexity soon led to a reaction among that people of classic tastes, which resulted in the invention of the simpler

monodic or harmonic style. Ever since that time, counterpoint has found a more congenial home among the masters of Germanic extraction. Bach was the greatest of all contrapuntists; Handel, Mozart, Beethoven, Wagner, and Brahms were all masters of polyphony; the Romanic races, on the contrary, have devoted themselves preferentially to forms of composition which did not admit of florid contrapuntal treatment.

The essence of counterpoint is complexity. A single melody is clear and simple in nature; so is a melody with harmonic accompaniment. Although the harmonic basis comprises several tones, these are as a rule not perceived separately, but are incorporated with the melody, clinging to it indissolubly, like a colour to a material object. In counterpoint, however, we have two or more independent voices running along side by side, with or without harmonic accompaniment. The mind is in a divided state and fluctuates from part to part in the endeavour to hold all the elements together. No clearer illustration of the first principle could be found.

Counterpoint lends itself more readily to instrumental than to vocal music. For this reason alone we might expect a fuller development of instrumental forms of composition among the northern races, while the southern ones would lean toward the homophonic forms of vocal music. In fact, the marvellous developments of the sonata, symphony, and chamber music are due almost entirely to Germanic efforts. But there are other reasons for this. Apart from counterpoint, instrumental music is well adapted for elaboration: it is the chosen medium of thematic work, it is favourable to the development of intricate forms, and it offers a splendid field for instrumental variety. Owing to the interplay of these four factors, an instrumental composition often exhibits a veritable maze of objects and relations. The mind is besieged on every side. Now a theme will be played which was heard in a previous part of the composition, now it will occur an octave higher, appear in different instrumental clothing, or enter in notes of shorter time-value. The next moment it will be accompanied by another melody, and a moment later both melodies will yield to

a third. At one instant a single instrument will stand forth, at another a whole group may prevail, and anon the entire orchestra surges forth in a gigantic burst of sound.

It is evident that all this forms an illustration of the second principle as well, and involves a reference away from the notes immediately heard, a comparison with parts that have gone before or are still to come. Thematic work, instrumentation, and musical form demand such comparisons. The repetition and variation of themes arouse the perception of resulting similarities and contrasts; musical form can only be grasped by a remembrance of the various sections; and instrumental effects please us through the kaleidoscopic succession of tone-colours. The result is a constant mental scintillation, a perpetual looking backward and forward, a ceaseless weighing and comparing and contrasting. Nowhere in art, perhaps, is this observance of relations, this reference beyond the immediate facts of perception, so prominent.

Here is a section from a Beethoven symphony, which illustrates the points under

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discussion. The reader who is not acquainted with musical technicalities may skip the analysis.

Musical score for measures 1-4. The score is written for a symphony orchestra. The top staff is divided into four sections: Oboes (measure 1), Clarinets (measure 2), Flutes (measure 3), and Violins (measure 4). The bottom staff is divided into two sections: Strings (measures 1-2) and Basses (measures 3-4). The key signature is one flat (B-flat major or D minor), and the time signature is 4/4. The music features a steady rhythmic pattern in the strings and basses, with woodwinds and violins playing melodic lines.

Musical score for measures 5-8. The top staff is divided into four sections: Oboes (measure 5), Clarinets (measure 6), Flutes (measure 7), and Violins (measure 8). The bottom staff is divided into two sections: Strings (measures 5-6) and Basses (measures 7-8). The key signature is one flat, and the time signature is 4/4. The music continues with a similar rhythmic and melodic structure to the previous measures.

Musical score for measures 9-12. The top staff is divided into four sections: Oboes (measure 9), Clarinets (measure 10), Bassoons (measure 11), and Orchestra (measure 12). The bottom staff is divided into two sections: Strings (measures 9-10) and Orchestra (measures 11-12). The key signature is one flat, and the time signature is 4/4. The music concludes with a final chord in the orchestra, marked with a forte (*ff*) dynamic.

The musical score is presented in three systems, each with a grand staff (treble and bass clefs).
 - **System 1 (Measures 13-15):** Measure 13 begins with a piano (*p*) dynamic. A bracket above measures 13 and 14 is labeled "Clarinet", and a bracket below is labeled "Strings and Bassoons". Measure 15 is labeled "Violins".
 - **System 2 (Measures 16-18):** Measure 16 is the start of a new phrase. Measure 17 is marked with a crescendo (*cresc.*).
 - **System 3 (Measures 19-21):** Measure 19 continues the phrase. Measure 20 is marked with a forte (*f*) dynamic. Measure 21 concludes the passage.

This passage embodies a forest of relations. Let us note some of the factors which contribute to the effect:

1—the eighth-note accompaniment of the first ten measures;

2—the melody of the first twelve measures, consisting of eleven little figures in this rhythm (♩. ♪ ♪), each repetition involving a recognition of the common rhythmical similarity, and all together yielding eleven perceptions;

3—the structural similarity between measures 5-8 and 1-4; also the more particular relation between measures 5 and 1, 6 and 2, 7 and 3, 8 and 4; total: five elements;

4—the change of instruments in every measure except the twelfth, again yielding eleven perceptions;

5—the instrumental correspondence between measures 5 and 1, 6 and 2, 7 and 3, 8 and 4, 9, 5 and 1, 10, 6 and 2,—altogether six factors;

6—the expectation, after the first measures, of the later instrumental changes and correspondences; strictly speaking, these are distinct factors, but we shall avoid over-elaboration of analysis by incorporating them with the perception of these changes and correspondences themselves;

7—the ascending figure in the bass, measures 3-4, embodying two factors:

a—the figure itself;

b—the instrument playing it;

8—the repeated horn-notes of measures 3-4; as in the previous case, this involves two factors;

9—the bass-figure of measures 7-8; again there are two factors, which are doubled by the structural and instrumental correspondence with the figure of measures 3-4; total—four elements;

10—the horn-notes of measures 7-8; the same re-

marks apply as under 9; accordingly, four elements;

11—the doubling of the melody in measure 10;

12—the fourfold duplication of the melody in measure 11 (not indicated completely);

13—the addition of the bassoon to the clarinet in measure 10;

14—the instrumental change in measures 11-12, the whole orchestra replacing the single instruments;

15—the contrast in loudness, fortissimo following piano.

These twelve measures, accordingly, involve some fifty factors, in addition to the individual notes. To be sure, some of the relations will be fused together, and others may escape detection in the unhesitating progress of the notes; but the more adequate the appreciation, the more fully will they be represented. Not analysing the remaining measures so minutely, we merely indicate some of the elements entering into them:

1—the melodic contrast with measures 1-12;

2—the contrary motion of measures 13-14 (counterpoint);

3—the different instruments involved in it;

4—the sustained notes (B flat) accompanying it;

5—the repetition, in measures 17-20, of measures 13-16, together with

6—their variation;

7—the staccato of measures 17–20, as opposed to the legato of 13–16;

8—the contrasts of measure 21, etc.

No attempt has been made to form a complete tabulation of the elements, an exceedingly difficult as well as unnecessary task. It is evident from what has been shown, that instrumental music offers a complicated tissue of perceptions and relations. Contrapuntal, thematic, formal, and instrumental elements are thrown together in bewildering confusion. Furthermore, there is a ceaseless reference to and fro. The recognition of the instrumental changes in measures 1–11 involves a repeated comparison with preceding bars and an anticipation of succeeding ones. The ascending figure of measures 7 and 8 recalls the corresponding progression of measures 3 and 4. The staccato of measures 17–20 depends for its effect on the contrast with the legato of measures 13–16, the thematic elaboration of the same bars on a similar contrast with preceding parts. The mind is the scene of a constant ferment; gleams of thought shoot forth in every direction; the notes are connected by an elaborate network of relations, and perception, like a busy shuttle,

keeps darting away from those that are being played, and connecting them by means of the delicate threads of resemblance and contrast with those that have gone before or are yet to come.

In contrast to the complexities of instrumental music, the French and Italians exhibit a predilection for the simpler forms of vocal composition,—more especially for the opera, with its uninvolved aria and recitative. The aria and recitative represent the opposite pole of instrumental music as just described: the latter may be compared to a Gothic cathedral, the former find their analogue in the Greek statue. Contrapuntal elaboration is rare; thematic treatment is almost out of question; instrumental effects are subordinated to the demands for vocal beauty; and form, while present, is quite elementary in nature. There is harmonic accompaniment in the orchestra, to be sure, but it is kept subdued. The melody is everything,—the melody, with the exquisite charm of the prima donna's voice. Simple, direct beauty forms the substance of Italian opera. Even the correspondence between the character of the tones and the sentiments expressed in the text,

so important nowadays, is often woefully lacking, and the music might as appropriately be sung to meaningless syllables as to the words which are actually present.

But this is not a necessary feature of opera. The German developments of this species of art have all drifted toward elaboration, and the music-dramas of Richard Wagner rival in complexity the fugues and symphonies of the great instrumental masters. Two traits especially distinguish German from Italian opera: the closer agreement between the words and the music, and the greater importance of the orchestra. The two great reforms in the direction of dramatic truth, *i.e.*, of congruity between tones and libretto, were inaugurated by Germans,—Gluck and Wagner; but all the great German operatic writers of the last hundred and fifty years have laid stress on this point. Now this congruity adds an additional factor to the perception of operatic numbers, and demands a reference to and fro,—from the words heard a moment ago to the tones just being played, and from the sounds that have just died away to the words that are being uttered; thus illustrating both principles.

The co-ordination of the musical and poetic elements leads to greater independence of the orchestra, to which is allotted the task of reinforcing the text, and thus to the characteristic developments of instrumental music. For this reason, and because of their inborn tendencies, German composers have paid more attention to the orchestral accompaniment than their French and Italian neighbours. Even the conservative Mozart was blamed for placing the pedestal on the stage and relegating the statue into the orchestra. What would they have said of Wagner, who makes a mere instrument of the voice, co-ordinate with those beneath the footlights? In the music-drama of this master we have a form of art which is ultra-Teutonic in its richness and complexity,—in the number and variety of factors it presents to the auditor and the relations he is supposed to perceive. Not only is every aspect of the musical art employed, but all the arts are united in the production of a total impression. Architecture constitutes the framework, painting achieves beautiful scenic effects, histrionic art holds the attention of the eye, poetry speaks to the imagination, and all is fittingly

supported by music, employing every resource at its command,—intricate counterpoint and thematic work, wonderful harmony, and entrancing instrumentation. The hearer is supposed to follow the action as it logically develops, perceive the symbolic meanings which it embodies, hear the words, note in detail their correspondence with the music, recognise the *Leit-motifs* and grasp their significance as they form a commentary on the action, listen to the contrapuntal interplay of two or three of them, follow the instrumental variations, and—in the *Ring of the Nibelung*—even to connect the occurrences and their musical counterparts of four successive evenings! There is nothing like it in the entire literature of French and Italian opera.

In a later chapter we shall refer to the expressive, suggestive nature of the art of tones, comparing it with its sister-arts in this respect. Music stimulates the imagination, awakens fancies, opens vistas of thought. The voluminous literature dealing with the interpretation of symphonic works is a commentary on this statement. One of the most glowing appreciations is that in which Heine describes the playing of Paganini. Its

length precludes our giving more than a small part of it.

Paganini quietly placed the violin against his chin, and, with the first stroke of his bow, the transfiguration of tones begun again. They arose in peaceful, majestic waves, swelling like the notes of an organ choral in a cathedral, and around me everything had extended in width and increased in height, until the space was so colossal that the eye of the soul alone could grasp it. A sphere of light floated in the centre of the space; on it there stood a man of giant stature and proud mien, who was playing on a violin; in the man's features I recognised those of Paganini, beautifully idealised, serenely clear, and wearing a smile of forgiveness. He was the human *planet* around whom the cosmos revolved with measured solemnity, and to the sound of blessed rhythms. Were the great lights that shone so peacefully while they floated around him the stars of heaven? And were the tuneful harmonies produced by their movements the music of the spheres, concerning which poets and seers have told so many charming tales? When I, at times, looked out into the dim distance, I thought I beheld nothing but giant pilgrims clothed in undulating white robes. They approached nearer, bearing white rods in their hands, and, strangest of all, the golden heads of their rods were the lights which I had mistaken for stars. Forming an immense circle, these pilgrims marched around the performer, the tones of his violin adding greater lustre to their rods, while the chorals that issued from their lips,

and which I had supposed to be the music of the spheres, were, in truth, the reverberating echoes of his instrument. The fervor of unutterable holiness dwelt in those sounds. They were, at times, tremulous and almost inaudible, like mysterious whisperings on the water; at others, swelling and breaking on the air like the tones of a horn by moonlight; and then bursting forth with boisterous joy, as if a thousand bards had struck the chords of their harps, and had lifted up their voices in a song of triumph.¹

Nothing could express better the power of music to awaken images. It is to be noted, however, that this power belongs more especially to instrumental music. In vocal compositions the mind is tied down to the words that are being sung, and kept in bondage by the presence of the singer; the tones which he utters are a direct communication of his personality, and form a commentary on a predetermined text. Thus there is not that opportunity for a free roaming of the spirit which is offered by absolute music, where the tones seem to have a more spontaneous origin (especially in orchestral compositions, in which many of the players are hidden), and where there is no specific subject of

¹ *Scintillations from the Prose Works of Heinrich Heine*, New York, 1873, pp. 34-36. Condensed from the original.

portrayal. It is in agreement with these facts that instrumental music may be styled the "most romantic of all arts." And herein we may recognise a supplementary reason for its special cultivation by the Germans: like no other art it allows the hearer to dream and divine, and to revel in the creations of fancy.

Although we know but little about ancient music, there is no doubt that it was extremely simple. Being confined to the progression of a single voice, it offered no opportunity for the intricate combination of factors to be found in modern compositions. It was less complicated even than Italian music, involved fewer cross relations between the parts, and thus yields a confirmation of the principles so far as ancient and modern music are concerned.

III

LITERATURE

THE illustrations which the principles receive in literature are varied. Alliteration and rhyme, present only in modern poetry and absent in the writings of the ancients, depend on the perception of relations between words immediately heard and words heard a moment ago or about to be seized a moment hence, and these are additional objects for the mind. Metaphors and allegories are more numerous in modern than in ancient literature. Their appreciation necessitates a reference from the meanings directly expressed to those symbolised; and this again involves the perception of additional objects. Is figurative language more common in Germanic than in Romance works? It would require exhaustive study to decide; but a consideration of some of the foremost writers on both sides would seem

to indicate that it is. Think of Shakespeare's wealth of imagery, of Carlyle's turgid style, of Emerson, Lowell, Heine, and Shelley. In the latter's *Cloud*, comprising six stanzas and eighty-four lines, one may count some seventy metaphors and similes,—one for almost every line. Here is a passage from Emerson:

Life is a succession of lessons which must be lived to be understood. All is riddle, and the key to a riddle is another riddle. There are as many pillows of illusion as flakes in a snow-storm. We wake from one dream into another dream. The toys to be sure are various, and are graduated in refinement to the quality of the dupe. The intellectual man requires a fine bait; the sots are easily amused. But everybody is drugged with his own frenzy, and the pageant marches at all hours, with music and banner and badge.¹

Are similar accumulations of figurative language common in Romance works?

Another feature characteristic of Germanic writings is their condensation of thought. Taine somewhere speaks of Shakespeare's gathering "a pageful of ideas and pictures in half a sentence." Ibsen loves to open

¹*Conduct of Life*, Boston, 1895, p. 297.

immense vistas in the suggestive remarks of his characters. Jean Paul is remarkable for wealth and compression of thought.

Thoughts and sentiments which would grow into colossal trees, if permitted to strike root properly and develop all their branches, blossoms, and leaves—these he uproots while they are still insignificant shrubs, mere sprouts even; and whole intellectual forests are thus served up to us as an ordinary dish. Now, although curious, this is decidedly unpalatable fare, for not every stomach can digest such a mess of young oaks, cedars, palms, and banana trees.¹

Emerson, too, is fond of pithy, epigrammatic statements of extensive truths. He packs into single sentences what another would only cover with lengthy ratiocinations. His passages resemble concatenations of proverbs. A year of experience is focussed into a phrase, a lifetime of insight crowded into a paragraph. On account of this compression of thought, his sentences, like Biblical verses, would serve admirably as sermon-texts. Indeed, much of the popular writing on spiritual subjects that has flourished on this side of the Atlantic since Emerson's day is nothing but an exegesis of the master, a detailed

¹ *Heine's Prose Writings*, London, 1887, p. 163.

explanation of his oracular sayings. But the most condensed of all is Walt Whitman. Shakespeare, Ibsen, Jean Paul, and Emerson still give us sentences; Whitman extends the reduction to phrases and words. Many of his passages are nothing but collections of descriptive parts of speech, nouns without verbs, subjects without predicates. With single, well-chosen expressions he suggests innumerable experiences, with a pageful of such expressions he delineates a world of scenes and happenings. As a sample of his method we may take the following excerpt from the *Song of the Broad-Axe*:

The log at the wood-pile, the axe supported by it,
The sylvan hut, the vine over the doorway, the space
clear'd for a garden,
The irregular tapping of rain down on the leaves after
the storm is lull'd,
The wailing and moaning at intervals, the thought
of the sea,
The thought of ships struck in the storm and put on
their beam ends, and the cutting away of masts,
The sentiment of the huge timbers of old-fashion'd
houses and barns,
The remember'd print or narrative, the voyage at a
venture of men, families, goods,
The disembarkation, the founding of a new city,

The voyage of those who sought a New England and
found it, the outset anywhere,
The settlements of the Arkansas, Colorado, Ottawa,
Willamette.
The slow progress, the scant fare, the axe, rifle,
saddle-bags;
The beauty of all adventurous and daring persons,
The beauty of wood-boys and wood-men with their
clear untrimm'd faces,
The beauty of independence, departure, actions that
rely on themselves,
The American contempt for statutes and ceremonies,
the boundless impatience of restraint,
The loose drift of character, the inkling through ran-
dom types, the solidification;
The butcher in the slaughter-house, the hands aboard
schooners and sloops, the raftsmen, the pioneer,
Lumbermen in their winter camp, daybreak in the
woods, stripes of snow on the limbs of trees, the
occasional snapping,
The glad clear sound of one's own voice, the merry
song, the natural life of the woods, the strong
day's work,
The blazing fire at night, the sweet taste of supper,
the talk, the bed of hemlock-boughs and the
bear-skin.¹

Thus he continues for three pages. The effect manifestly depends on the arousal, in the reader's mind, of numerous incipient

¹ *Leaves of Grass*, Philadelphia, pp. 149-150.

reminiscences. Without this co-operation, we should have mere dry and meaningless inventories. How redolent with memory are such expressions as "The blazing fire at night, the sweet taste of supper, the talk, the bed of hemlock-boughs and the bear-skin." The reference to the non-given is well illustrated by this resuscitation of personal experiences, the multiplication of factors by the great number of memories which may, as a result of the condensation, be awakened by a single page. It would be impossible to imagine any further augmentation of particulars. The page consists of a score of lines, the line contains several descriptive expressions, and every one of these is a rocket, opening into a shower of suggested experiences.

Suppose, now, that we have read sympathetically one of these poems swarming with details,—what will be our state of mind? The single expressions no longer stand forth clearly, but swim together in a seething background of emotion. This must be the condition of the poet as well, before he has begun with the task of composition: a rich matrix of inspiration, with the members which are to emerge still embedded in its

depths. Thus it typifies the mental nature of the Teuton, with its fringe of relations and halo of sentiment.

The characteristics of Germanic writing are all united in Jean Paul. Whoever has not glanced through his fantastic pages has no conception of their bewildering heterogeneity and grotesqueness. The larger outlines already impress us with their strangeness. *Quintus Fixlein* opens with a note to the author's friends, in place of the preface; this is followed, not by the preface itself, but by the history of the preface, which leads into a story entitled *The Lunar Eclipse*. Then come two sketches, without direct connection with the body of the book. At last the narrative proper begins. It is followed by several "*Jus de tablette*," again without connection with the story, which end with a postscript, or farewell, to the reader. But the bewilderment really begins when we examine the details. The author is scarcely able to give us a sentence without some simile, metaphor, allusion, or quotation. The course of his exposition is a continual zigzag. Hardly are we launched on our way before we are interrupted with a side-thought.

He seems to have read and to be acquainted with everything; his comparisons are drawn from every department of nature and life; botany, zoölogy, music, history, geography, and mythology,—all are employed in the elaboration of his thought. He is constantly quoting authors,—obscure as well as prominent ones. English, Latin, and French expressions are interspersed. Foot-notes abound, even sentimental passages receiving their scientific commentaries. In the pathetic sketch from *Quintus Fixlein* entitled *The Moon*, a poetic description of a lunar landscape, in which the blue of the sky is referred to, is supplemented by this explanation: “The blue colour of the air must be darker on the moon, because the air is thinner, both phenomena occurring also on mountains.” *Schmelzle's Reise nach Flätz* is systematically accompanied by a series of foot-notes, several for every page, without connection with the narrative. It is like a passage of literary counterpoint. Indeed, we cannot help feeling that language was scarcely adequate as a vehicle for Jean Paul's rich, glowing mind, and that his Teutonic spirit required the complexity of tones for adequate expression.

The sage of Concord illustrates the same characteristics. He too loves figurative language. With significant words he opens deep vistas of insight. His point of view is perpetually changing. Now he speaks in the singular, now in the plural, now he jumps from one person to another. The older form of the third person capriciously alternates with the newer, even in the same sentence.¹ And with the change in form goes the change in the subject of thought. He is thoroughly unsystematic. He does not develop an idea logically, from premise to conclusion, but strings together a multitude of ready-made conclusions. In the quotation above he draws illustrations from every source; at every step a fresh view opens before the reader; the space which a lucid French writer would employ for the neat presentation of a single thought, is broken up into half a dozen sections, each brimful of content.

It is unnecessary to give examples of the

¹ "For the sense of being which in calm hours *rises*, we know not how, in the soul, is not diverse from things, from space, from light, from time, from man, but one with them and *proceedeth* obviously from the same source whence their life and being also *proceedeth*."—Emerson's "Self-Reliance," in *Essays, First Series*.

opposite tendency, exemplified in Romance writers. Here, as elsewhere, we must devote ourselves in the main to Germanic masters. When we have characterised an aria as simple in structure and traced its effectiveness to melodic and tonal beauty, or stated that a dissertation is stylistically pure and proceeds systematically, presenting a few thoughts in a clear and orderly manner, there is little more to be added. Germanic works, on the contrary, with their picturesque heterogeneity, lend themselves well to illustration. On account of their condensation and richness of content, furthermore, the illustrations need not be long. If we were to exhibit the paucity of metaphors in a French work, or demonstrate its logical development of thought, excerpts of considerable length would be necessary. Examples, however, can easily be found; the reader has but to turn the pages of the great masters of prose, who have made the literature of France so famous throughout the world.

We come to the drama. Græco-Latin drama culminates in the masterpieces of Greek tragedy and the equally wonderful creations of the period of Louis XIV., Germanic drama

in the works of Shakespeare. The contrast could not be greater. *Macbeth* contains twenty-eight characters, Racine's *Phædra* contains eight; *Julius Cæsar* has thirty-four personages, *Philoctetes* (Sophocles) has five. In general, complexity and picturesqueness characterise the works of the English bard, simplicity and plasticity those of the Greeks and their modern imitators. The latter observe the unities, the former disregard them. In classic plays the action all occurs at one place, in British dramas we are transported from scene to scene. In *Macbeth*, for example, the locality changes twenty-four times. And with the shifting of scenes go the variations in time. In the classic drama the action is supposed to happen within a period not greatly exceeding the actual representation; in the other, days and weeks elapse between the acts. This, too, introduces variety, adds to the number of factors, and multiplies the references from one portion of the play to another.

Then there is the unity of action. Græco-Latin works contain a single plot, about which everything revolves; with Shakespeare there are two or three, dovetailed into each other

and alternating before the spectator. *Midsummer Night's Dream* has three distinct centres of action: the story of the lovers, that of Bottom and his band of players, and that of Oberon and Titania. The *Merchant of Venice* depicts the fortunes of Shylock and Antonio, Portia and Bassanio—including the episodes of the caskets and the rings—and of Jessica and her lover. Add to the great number of personages, variety of scenes, and differentiation of action, the constant change from prose to poetry, blank verse to rhyme, and the intermixture of comic with tragic elements, and we obtain a thoroughly Gothic effect.

This effect is not confined to Shakespeare. The German dramatists have also shown themselves partial to it. Probably no drama is so typically Germanic in this respect as Goethe's *Faust*. It is like a museum in the number and variety of objects it presents to the reader; it encompasses the entire world, combining Christian tradition, mediæval superstition, Greek mythology, modern criticism, philosophy, religion, science, and politics into one immense picture, and strewing thoughts of wonderful depth throughout, with endless profusion. The whole work con-

tains some fifty scenes, and there are over two hundred individual speakers, besides about seventy groups. We pass from heaven to earth, from the wine-cellar at Leipzig to the wilds of the Harz Mountains; we dream with the lovers, enter the cathedral, and listen to the *Dies iræ*; we deliberate with emperors, pass back to antiquity, converse with Helen the beautiful, deal with witches, angels, spirits, sirens, and furies; Anaxagoras and Thales speak to us, the modern idealist unfolds his views, Philemon and Baucis regale us with their hospitality, and mystic strains lead us back to Heaven. Byron's *Manfred* resembles *Faust* in the picturesque intermixture of scenes and the profusion of supernatural forms; and Shelley's *Prometheus Unbound* forms an excellent companion-piece. The contrast between Greek and Teutonic methods is aptly illustrated by a comparison between this drama and the *Prometheus Bound* of Æschylus. The latter is simple and bare, when contrasted with the romantic panoramas, the variety of characters, the mystic suggestiveness, the colour and glow and intensity of Shelley's masterpiece.

Græco-Latin literature may broadly be

characterised as classic, Germanic literature as romantic. What are the distinguishing traits of the classic and romantic; how may both be defined? Heine says:

The treatment is classic when the form of that which is portrayed is quite identical with the idea of the portrayer, as is the case with the art-works of the Greeks. . . . The treatment is romantic when the form does not reveal the idea through this identity, but lets this idea be surmised parabolically.¹

Hedge says:

We speak of romantic characters, romantic situations, romantic scenery. What do we mean by this expression? Something very subtle, undefinable, but felt by all. If we analyse the feeling we shall find, I think, that it has its origin in wonder and mystery. It is the sense of something hidden, of imperfect revelation.²

Another definition is given by Walter Pater:

It is the addition of strangeness to beauty that constitutes the romantic character in art; and the desire of beauty being a fixed element in every artistic organisation, it is the addition of curiosity to this desire of beauty that constitutes the romantic temper.³

¹ *Heine's Prose Writings*, London, 1887, p. 163.

² "Classic and Romantic," *Atlantic Monthly*, vol. lvii., p. 309.

³ "Romanticism," *Macmillan's*, vol. xxxv., p. 65.

The definitions do not coincide; yet they harbour a common element. According to them all, the romantic involves a reference from the given to the non-given. A story can only be symbolic of something not directly indicated. What is hidden is not immediately presented. Strangeness presupposes imperfect revelation, and curiosity has the hidden or unknown for its object. Thus, by mixing together the definitions, we obtain an old friend as a precipitate,—*i. e.*, the second principle. A wild mountain scene, a picturesque castle, the paintings of Rembrandt, Goethe's *Faust*, the compositions of Schumann,—all are romantic; the circumstances may be different, but there is always a reference beyond the immediate facts of sense,—a meaning, an expression, which is not enclosed in the objective data. The castle suggests bygone ages, valiant knights, brilliant tournaments, crusades, and the historical events of the intervening centuries. The compositions of Schumann point beyond the tones, to the emotions and visions of which they are an embodiment. Rembrandt's dark backgrounds arouse the imagination. Goethe's *Faust* calls up many thoughts which are not indicated

in the words. The mountain scene frees a horde of suggestions, so subtle for the greater part that it would be difficult to specify them. The impression is always that of a "beyond," of a content not entirely encompassed by the objects before us; the scene or work of art is open on one side and leads into a background transcending perception.

Classic works, on the other hand, are completely enclosed; we can see around them, and circumscribe them with sharp, distinct lines. They are but meagrely suggestive. They lay the emphasis on direct beauty, on clearness, proportion, and elegance. Perfection of form rather than wealth of content is their distinguishing trait. They embody a perfect finite, while the others strive for the infinite. For these reasons, Græco-Latin writers have always been noted for their beauty of style: witness the poets of Greece, the orators of Rome, and the writers of modern France. There is an attention to euphony, a care in the selection of words, and an exquisite taste in their arrangement, that is not so frequent among the Teutons. Hence, also, those periods of decadence in the history of Græco-Latin literature, when the content

of works was neglected and attention was focussed on the beautiful expression.

Scientific and philosophic writings again corroborate the principles. Here, too, the external is beautiful in the south, while the philosophers of the north—notably the German idealists—have engendered some of the worst monsters of style ever launched on the literary ocean. In the north great attention is paid to details. The English are the champions of empiricism, of the accumulation and classification of facts. And never in the history of the world have such voluminous researches been undertaken as those enclosed in the bulky volumes of German scientific and philosophical investigation. They bewilder us with the multitude of facts; they overwhelm and crush us beneath their weight, if we are not equipped with the armour of grim determination. The Latins love clear and simple views. They reason deductively, passing from premise to conclusion in a regular, orderly manner. Logical inference, not intuition, is their method of thought; they are rationalists, while their Teutonic neighbours have produced the majority of great mystics. Owing to their eagerness to arrive at simple, general views, and their

dislike of patient investigation, they sometimes fall into superficiality. The French materialistic philosophy of the eighteenth century, for example, with its excessive simplification of the universe, shows the defects of this type of mind.

IV

PAINTING

IN the case of painting, again, our fragmentary knowledge of ancient art makes it more profitable to confine our examination to modern races. It would be difficult to determine whether there are less figures in southern than in northern pictures. On the one hand portrait-painting, which merely offers a single object to the eye, has received greater attention in the north. Northern artists, however, may have been driven toward this branch of the art partly through accidental circumstances. The churches of the south offered larger wall-spaces for decoration than the cathedrals of the north. Southern painters thus had a field of activity and a source of income which were not open to their transalpine brothers, who were obliged to exercise their talents in different directions. The realistic trend of Germanic artists and their

love of expression undoubtedly helped to impel them toward the study of countenances. But so far as a picture is expressive, it acts through the affiliations of that which is directly given, even apart from the pronounced reference to the original reproduced. Thus portraits may exemplify Germanic tastes with reference to the second principle. And, since an expressive countenance may suggestively stir up many thoughts in the mind of the observer, they may even embody a certain subconscious complexity.

Passing by this branch of the art, however, there seems to be no doubt that the tendency of Germanic works is toward greater wealth of material. A characteristic trait of early Flemish and German paintings is their extraordinary elaboration of detail. The minutiae of clothing, articles of furniture, and scenic backgrounds receive as much attention as the more important features. In early German art, too, there was the peculiar crowding of compositions; and the multiplied and angular folds of the drapery, while not elegant, tended to increase the points of attention. Italian artists stripped their pictures of accessories. Many of the most famous

among them as a rule introduced but a limited number of figures. Giotto, Bellini, Raphael, and Titian are examples. Alberti believed that a certain moderation in this respect lent dignity to a composition. Michael Angelo criticised the northern custom of painting "landscapes," with "many figures scattered here and there." Rubens, on the other hand, delighted in a bewildering profusion of elements. Think of his *Battle of the Amazons*, his *Kermesse*, his *Resurrection of the Just*, and *Fall of the Damned*. Even Michael Angelo's composition on the same subject pales before the Munich masterpieces in point of wealth and complexity. Dürer, too, loved an exuberance of factors, as is evidenced by his wood-cuts to the Apocalypse. The pictures of Bosch and of the Breughels are cases in point; nor must we forget to mention the complex scenes of Hogarth. Not only do the works enumerated illustrate the tendency to include an abundance of elements, but many of them also bear witness to the lack of harmony mentioned in the first chapter. By some critics this is regarded as a short-coming,—as if the artist were willing enough to attain perfection of form, but lacked the

ability to do so. Is it not more probable that perfect smoothness and balance were in many cases not desired? There is no doubt that a certain amount of confusion imparts a suggestiveness which is absent where everything is well-rounded and perfect. As a final comment on the situation we must recur to the large wall-spaces in the south. These are certainly accountable for many of the richer compositions of Italian painters, and without them the difference in national trends would be still more apparent. We can gain an idea of what northern artists would have done under similar circumstances if we study the immense, involved, and symbolic representations of Kaulbach, in the Museum of Berlin.

The figures in northern works, as a rule, embody more individuality; they are more heterogeneous, while those in the south tend toward homogeneity. It may not always be easy to determine whether there are *more* distinct figures in the paintings of Germanic artists, but it is clear that they are more *distinct*. There is much sameness in the faces and poses of southern paintings. As a result, the mind is not engaged in so many directions;

a group of people can often be perceived as a single object—a mere group; the battalions of Meissonier, for example, “sing” in unison; in the north, on the contrary, the constituent figures demand more attention. This individuality and heterogeneity, this tendency of the figures to break away from the central point of attention, is apparent in the works of Rubens. With Rubens, to be sure, as with the Italian, French, and Spanish artists, there is unity of composition: the figures belong together; they are constituents of a ruling topic, a single chosen subject of representation. In the case of many Germanic artists, however, the heterogeneity is extended even to the subjects portrayed, creating various nuclei of interest. There is no central point of action or position, unifying all the elements into a single scheme; the figures are dispersed, or combined into various groups without connection with one another.

This is evident in the pictures of certain Dutch and Flemish artists,—of Van Steen, Ostade, Wouwerman, Teniers, and the Breughels; it characterises numerous works of Lucas Cranach; it is a distinguishing trait of Hogarth; and it appears among modern German artists.

Van Steen's *Flemish Festival*, in the Louvre, will serve as an example. In the foreground we see a group of musicians. To the right there is a table, with people drinking, chatting, and joking around it,—one hilarious individual even standing on it and shouting across the chamber. To the left a man is trying to pull a woman out of the embrace of an amorous burgher. Immediately behind, another is taking his leave and paying the hostess, while an anxious wife is endeavouring to persuade her tipsy husband to moderate his antics; he, however, insists on entering the lively dance progressing in the rear of the room. Card-players, spectators in the balcony, a sleeping dog, jugs, plants, and various other accessories complete the scene. The total effect is that of a "delightful confusion," perfectly analogous to the miscellaneous hubbub of sounds which we can almost hear while gazing on the scene. The relation to the secondary plots of Shakespeare is apparent.

Hogarth's *Rake in the Madhouse* is similar in composition. All possible types of madness are crowded in utter confusion into a room of moderate dimensions. In one corner sits the brooding hypochondriac, undisturbed

even by the dog that is barking loudly at him; behind him the imaginary pope is chanting a song, and at his side a crazy fellow is energetically playing a violin, his note-book on his head. The raving rake, who is being chained by an attendant and soothed by a friend, occupies the middle of the scene; near him a tailor, with tape-measure in hand, is still plying his trade, and in the background several ladies are regarding the scene with amusement. To the left of the rake an astronomer is busy observing the heavens through a paper roll, while a mathematician is tracing longitudinal lines on the wall. The imaginary king, sitting straight in his majesty, with sceptre in hand and crown on head, together with the religious fanatic, who lies crouching before the cross, occupy separate little compartments to the extreme left. The mind bristles with side-thoughts and gleams of suggestion, as it follows the confusing composition. Examples could easily be multiplied. Wouwerman's *Arrival at the Inn* contains about eight different groups, or centres of action. Kaulbach's *Period of the Reformation* focalises the events of several centuries. Richter's *Praise of Woman* delineates the beneficent

activities of the wife and mother. The mental process, in grasping such a picture, is similar to that involved in the appreciation of complex passages of music; here, also, we have counterpoint, thematic work, and variety of tone. Perception, instead of revolving about a common centre, flashes off to either side, contrasts and similarities crowd upon one another, and the mind teems with a multitude of thoughts.

Southern paintings, like classic dramas, observe the unities. There is a single centre, to which everything refers. Nothing diverts the attention from this,—no secondary plots, no by-plays of action. In many cases the figures are symmetrically grouped about it, half of them to the right and half to the left, with their glances directed toward the centre. Where variety demands that one or more turn the eyes in a different direction, the device is often adopted of making them point with the hand toward the central figures. Examples are to be found in Perugino's *Assumption*, Correggio's *Madonnas with St. Francis*, *St. Sebastian*, and *St. George*, and in the *Assumption* of Titian.

In the north the dispersion culminates in

the Breughels. It would be difficult to imagine anything more chaotic than the *Allegorical Representation of the Triumphs of Death*, or the *Flemish Proverb*. Hogarth and Van Steen are simplicity itself, when compared with these seething caldrons of vivid imagination. There is a very maze of activities; everything under the sun passes before our eyes; the mind is dazed when it endeavours to grasp the heterogeneous elements in their totality and interconnection. The works in question resemble the poems of Walt Whitman, in the multitude of objects embodied. Now in these cases the "delightful confusion of mind" is aroused by definite objects, which, being too numerous to be held distinctly before consciousness, swim together in a vague background of thought. At other times the objects may be less definite, but their suggestiveness and multiplicity render them equally effective. Natural scenes, landscapes, contain so many elements that we no longer try to attend to them separately, but allow them to simmer along semi-consciously, near the threshold of thought and feeling. The writhing, swarming multitude subsides into a widespread, gentle vibration, the chaos of

voices is transformed into a subdued hum. There is still a multiplication of objects, however, and a reference beyond what is directly perceived.

In agreement herewith we find landscape-painting cultivated preferentially by northern artists. Claude Lorraine and Corot were Frenchmen, to be sure, but they were exceptions: Romance painting occupies itself in the main with the representation of figures, while Germanic painting naturally gravitates toward the landscape. Furthermore, Germanic scenes are often highly mysterious and suggestive, thus incipiently arousing multitudinous thoughts. Witness the weird creations of Böcklin, the sombre, melancholy views of Ruysdael, and above all the imaginative vistas of Turner. What stimulating, Gothic complexity in his *Death of Nelson*, what turmoil and wildness and clamour in his *Shipwreck!* The effect is analogous to that of Breughel's creations, only the confusion of thoughts is subconscious in nature; to compensate for their indistinctness, however, the mental elements may even be more numerous. Mystery, accompanied by a large activity of the fringe, is a characteristic

also of the works of Rembrandt, with their magical interplay of light and shade; indeed, even his portraits operate in the same manner.

They unite utter realism with a look as if the soul of the sitter had risen for a moment to the surface, and was just about to tell its history from the speaking eyes and lips—yet after all had suddenly retreated, and left you in doubt as to what it had meant to say. This curious suggestiveness is a feature in all Rembrandt's best efforts.¹

A noticeable trait of Germanic painting is its realism, apparent already in the early German masters, characteristic of the Dutch and Flemish schools, and continued by English artists. While it is not our purpose to reduce this trait entirely to the principles under consideration, we can show that it is in harmony with them and serves as the occasion for their application. By reason of their realistic nature, Germanic pictures suggest many things which are not brought to mind by the idealised, conventional, and abstractly beautiful canvases of the south. Definite situations are presented, events are narrated, thoughts aroused, and morals en-

¹ Radcliffe, *Schools and Masters of Painting*, New York, 1895, p. 318.

forced. This is notoriously true of the works of Hogarth, and it has remained a distinguishing feature of British painting since his time. The state of mind, in studying such a picture, resembles that of the serial story reader, when at the end of the chapter he bumps against the words: "To be continued." The picture, also, is continued in the mind; it reverberates beyond the frame, and suggests further images, actions, truths, and problems. The composition in its totality relates a story: it is a chapter in a novel of absorbing interest. The single figures and objects, likewise, are significant: the time on the clock, the gouty foot of the titled father, the bills in the servant's hand, the escaping lover, the half-starved dog,—all point to facts and occurrences not directly apparent. Finally, a moral is supposed to be enforced, a lesson taught. The works of Hogarth are extreme in these respects, but their characteristics are traceable throughout Germanic art. In the picture by Van Steen, for example, the anxious wife remonstrating with her husband, the amorous couple, and the leavetaker who is paying his bill, suggest further ideas to the observer. The numerous utensils and appliances of

everyday life in this and similar Dutch pictures are significant of the activities connected with them. Holbein's *Dance of Death* and Dürer's famous engravings are didactic creations, sermons dripping with symbolism and meaning.

In contrast, the idealistic productions of Italian art are completely enveloped by the frame: the whole content is there on the canvas and no reference need be made beyond its confines. The subjects of representation are so familiar through endless repetition that but little attention is paid to their narrative communications: we perceive beautiful figures and groupings without bestowing a thought on their significance. This result follows also from the abstract, conventionalised nature of the figures and the actions represented. We hardly take the persons seriously, at times, when they attempt to do things; they pose and make a pretence of acting, but the tingle and definiteness and zest of real action is missing.

The subjects in these paintings are predominantly taken from ancient and sacred history, *i. e.*, from a region which is foreign to the interests of the beholder. Those of the

realistic Dutch and British genre pictures, on the contrary, are drawn from everyday life. Accordingly, they make a strong, personal appeal, recalling many intimate experiences of the observer's own past, and drawing on the distant and invisible for their effect.

Many of the characteristics dwelt upon may be summed up in the statement that southern painting pleases through form, northern painting through expression. As in music, the Italian mind demands direct beauty,—of contour, composition, and colour. The figures must be graceful, the faces pure and sweet. The northern artist, on the contrary, troubles himself but little about immediate beauty. Many Teutonic works, notably those of the earlier German schools, are positively repugnant at first sight, by reason of their general roughness, and the homeliness of the faces. It is only when we penetrate beyond the surface and study the inner life which pulsates beneath, that we perceive their real worth. Truth, significance, depth of thought, wealth of emotion,—these are the animating influences of the Teutonic artist, in painting as well as in literature.

V

ARCHITECTURE AND SCULPTURE

EUROPEAN architecture culminates in two great types of structure: the Greek temple and the Gothic cathedral. The former belongs to the ancient world, the latter to the modern; the former is an index of the Græco-Latin spirit,—does the latter express the Teutonic? It has been contended by some that it does; indeed, the name “Germanic” has even been proposed as a substitute for “Gothic.” It seems, however, as if this claim were somewhat unwarranted. The following are the facts which bear on the case. Gothic architecture was developed in north-eastern France, among a population that was largely, perhaps predominantly, Germanic in extraction. The more purely Celtic and Romanic districts of France shared but little in the development or further cultivation of the style. From its cradle the style

spread in every direction,—toward England, Germany, the Netherlands, into classic Italy and distant Spain. In Spain it remained a foreign, exotic product, architects from the north being constantly employed. In Italy its reception was even less cordial; the style was modified to suit southern demands and soon was abandoned for the more congenial revival of antique methods. Germanic countries, on the contrary, proved very hospitable to the new method. England, Germany, and the Netherlands took hold of it with a will, and produced masterpieces of Gothic construction. Indeed, the reign of Gothic was more lasting here than in its own native land. In France the style flourished luxuriantly for a century, after which there was a marked abatement in its cultivation. In Germanic lands, on the contrary, its rule was protracted; indeed, so far as England is concerned, it seems hardly to have died out, being taken up again in modern times after a brief period of quiescence. To sum up, the style originated in a region thoroughly sprinkled with Germanic elements; it was assiduously cultivated in all important Teutonic lands, but more conservatively received in Latin domains; its

most lasting cultivation, furthermore, is to be found in Anglo-Saxon England. Although, then, we cannot pronounce it a purely Teutonic style, it is more Teutonic than anything else; above all, it is not to be classed as a Græco-Latin manifestation.

So much being premised, we may pass to a comparison of the two types of building under consideration. The contrast is striking. Simplicity could go no further than in the Greek temple. The building was moderate in size, uninvolved, and decoration was reduced to a minimum. Everything could be seized at a glance. The effectiveness depended on the beauty of the material, and the elegance and proportion of the lines,—all immediate qualities. How different in Gothic cathedrals! Look at these mazes of elements, these forests of pillars and buttresses, these armies of statues, these pinnacles and spires, these painted windows, these profuse decorations; join the worshippers and listen to the intoning of the priest, follow the ornate service, breathe the incense, and bow in reverence before the solemn chords of the organ. How romantic, how mystic it is,—how expressive of the imaginative nature of the Teuton, how

opposed to the clear and precise mind of the Greek and Latin! The first principle receives no better confirmation throughout the entire domain of art, but the second, too, is illustrated. Not only are the forms intricate, they are also symbolic; they point beyond themselves, and overflow with meaning. The ground-plan represents the cross of the Saviour, the walls stand for the nations, the circular window symbolises the rose of eternity.

The principle is also illustrated by the profusion of elements. In considering the temporal arts, music and literature, we saw how previous parts of a work would linger on in memory, forming a cluster of simultaneous elements and multiplying the objects before the mind. Conversely, a profusion of simultaneous elements will necessitate a sequential perception and involve references from one part of the work to another. A Greek temple, as we saw, could be seized at a glance. Not so a Gothic cathedral. Its gigantic size and multiplicity of members render it necessary to pass from part to part. Expectation will be aroused, comparisons made, what is directly perceived will be enjoyed in the light of what follows or pre-

cedes. Finally the immense heights, the vagueness of the distant recesses, the mysterious, subdued light, the general air of strangeness and solemnity, will stimulate the imagination; and, like the romantic poems of Shelley and the paintings of Rembrandt, fill us with a hovering sense of wonder and significance.

The Renaissance styles of architecture were developed mainly by Latin races. The buildings which they produced were more elaborate than those of ancient Greece, but less so than the cathedrals of the Middle Ages. They stand midway between the two extremes and thus exemplify the principles with reference to ancient and Romance as well as Romance and Teutonic races. In Germany the Renaissance produced more picturesque buildings than in France and Italy, giving play to expectation and fancy. The elaborate Moorish and Byzantine styles were cultivated in Latin domains, to be sure, but they were not purely Græco-Latin in nature, their very complexity being the result of Oriental influence.

Last among the arts is sculpture. Modern sculpture is distinguished from the ancient art by its greater expressiveness. Regard the

placid countenances of Greek statues, and observe the contrast in Donatello's creations. Above all, study the intense, expressive, romantic figures of Michael Angelo; watch the inner life as it seeks to find an outlet in the significant features, tense muscles, and rebellious attitudes of these petrified Titans!

The most remarkable feature about sculpture, however, is its meagre cultivation as an independent art among the nations of the north. With the Greeks it was the national art. Statues abounded on every hand; thousands have been discovered, and untold numbers must have been destroyed by the ravages of war and time. The Italians also found it congenial to their nature: Luca della Robbia, Ghiberti, and Canova did admirable work; and the figures of Michael Angelo rank with the Madonnas of Raphael as the masterpieces of Italian art. What do we find among the races of Germanic composition? A few good attempts in early Nuremberg; some noble creations by Thorwaldsen; a fragment here and there, but no great art-movement, no connected, persistent endeavour, nothing that could be pronounced a powerful school, and compared with the brilliant periods of ancient

Greece or the Renaissance. In England, so rich in poets, hardly a sculptor; in the Low Countries, so fertile in painters, scarcely a statue. What is the explanation of this dearth of creative activity?

We are brought to the subject of the relative cultivation of the various arts, or their racial and geographical distribution. Is it possible to throw some light on this by means of our principles? Sculpture is the art which by its nature lends itself least well to the presentation of involved subjects, with many external relations. The intractable nature of the marble limits the complication of the groups and renders the reproduction of scenic and atmospheric effects difficult. The typical embodiment of this art is the single figure, without background and colour. There may be some expression, as in the marbles of Michael Angelo, but beyond this the reference away from the direct objects of perception is not likely to go. The effectiveness lies in the statue itself, its exquisite proportions, the gracefulness of its lines, and the beauty and purity of its material. Is it surprising, then, that the art should have been cultivated so extensively by the Græco-Latins, while

the Teutons have treated it almost as if non-existent?

Painting and architecture are able to present an abundance and variety of objects to the eye, but unless the objects are highly suggestive or so numerous as to require successive perceptions for their appreciation, they will not demand much reference beyond that which is directly given. The converse is true in literature. Language being temporal in nature, works of art which employ it as a vehicle will constantly invoke a reference from the words which are being read to those which have preceded or are yet to come; expectation, for example, is nowhere so strongly aroused as in the novel or drama. The second principle, then, which deals with relations like these, is exemplified; but the first, which concerns the number and variety of factors, is not so easy of application. Since the words are confined to a single dimension, no two ever uniting at the same time, the direct and simultaneous presentation of various objects, as in painting and architecture, is not possible. This end is therefore attained indirectly, through metaphors and allegories, through the persistence in memory of past

elements or the anticipation of future ones, and through general suggestiveness and expression. Painting and architecture, in short, lend themselves naturally to an application of the first principle, but not necessarily to that of the second; literature, on the contrary, naturally agrees with the second, but not with the first. Accordingly, we find the honours about evenly divided between the races with reference to these three arts. Grecian architecture is matched by the Gothic structures of the Middle Ages; Germany, Holland, and England have their great painters as well as the Latin countries; and it would be difficult to determine which of the races should be ranked higher in literature,—the Græco-Latins, with their Homer, Dante, and Racine, or the Teutons, with their Shakespeare, Milton, and Goethe.

If sculpture, however, stands at one end of the scale with reference to our principles, and the three arts just considered occupy a rather neutral medium, absolute music represents the other extreme. In sculpture there is no succession; hence there is no necessary reference beyond that which is immediately presented, while a multiplication

of objects is difficult. Music, however, like poetry, demands a constant reference from the tones immediately heard to those which have preceded or are about to resound; but, unlike literature, it requires in addition a union of several voices, a simultaneous presentation of various factors. The very nature of the art renders it easy and natural to offer many elements to the hearer,—elements, furthermore, which do not depend on their own qualities for their effectiveness, but refer away from themselves to related parts. And no art is so well adapted to arouse vague fancies and nourish a rich activity of the fringe. The forms of architecture are too dead and mechanical to be highly suggestive. Those of poetry, painting, and sculpture are so closely wedded to the things denoted that they are not considered apart from them; we directly perceive the import of the words or figures, the sign being identical with the thing itself. Music, however, occupies an intermediate position. The tones are suggestive, but they are not tied down to definite symbolisation. Hence the thoughts which they arouse are adventitious in nature; like sparks from a revolving piece of fireworks, they do not

belong to the generating body. It is in perfect agreement with the facts, then, that absolute music should be the favourite art of the Germans, the art which most adequately expresses the Teutonic spirit. Switzerland has its Raff, Austria boasts of Haydn and Mozart, the north claims Gade and Grieg, and Germany exhibits a whole galaxy of geniuses, so well known that an enumeration is superfluous. The Netherlands, it is true, have produced no instrumental composer of first rank; but Beethoven was of Dutch descent, and the whole trend of Flemish contrapuntal music makes it certain that the Flemings would have cultivated absolute music assiduously, had it been existent at the time.

An obstacle in the way of our interpretation arises from the lack of musical genius among the English. It may be, however, that the capacity is only latent; talents have frequently slumbered for centuries, and at the time of Purcell musical England stood on a par with other nations, giving excellent promise for the future. Or it may be that there are special circumstances in the life of the English inimical to musical development. The principles we are tracing are not

the only ones; they are modified by other characteristics, and more still by the accidents of historical evolution. At all events, the paucity of musical productions among the English points to a lack of aptitude for the tonal art in general, not for the complex developments of absolute music. If the British nation were to become musical, the general affinity with other Germanic races makes it not improbable that it would likewise devote itself to contrapuntal, thematic, and instrumental elaboration.

VI

GENERAL CONSIDERATIONS

WE are now ready to compare our principles with some others which have been proposed for an explanation of the differences involved. Everywhere they will be found to supplement and explain; they are the foundation, while the others are but particular appearances or applications. There is the distinction between the classicism and romanticism of the races. Though comprehensive, this fails to cover many cases explained by these principles. The complexities of German instrumental music have nothing to do with romanticism; indeed, there are few manifestations of art so unromantic as the fugues of Bach. And there is nothing romantic in the realistic pictures of the Dutch artists, nor in the minute attention to details of the old German and Flemish schools. In fine, while romantic impressions

may be explained as illustrations of the principles, there are many illustrations which do not fall under the heading of romanticism.

Another distinction, valid to a considerable extent, is that between the formal perfection of Græco-Latin works and the lack of outward beauty often characterising those of the Teutons. The structure of the southern drama is superior to that of the north; the unities are preserved, and in general there is a fastidious attention to externals which is rarer in Germanic poets. Likewise the Latin races embody more beauty of colour, composition, and contour in their pictures; think, in this connection, of Dürer's inelegant figures! In sculpture, finally, the southern talent for exquisite proportions receives its finest exhibition. But is the principle valid in architecture? Formal perfection is of course easier to achieve in simple structures like the Greek temple; but making allowance for this fact, do we not find an exquisite arrangement of masses, a charm of detail, in northern cathedrals, that rivals the works of the south? And how is it in music? Are the compositions of Bach, Mozart, and Beethoven less perfect than the marbles of

Phidias or the tragedies of Racine? Would it seem possible to carry formal beauty any further?

In poetry, painting, and sculpture perfection of form is likely to be attained only at a sacrifice of wealth and complexity. Unity and clearness of composition in a painting is apt to set bounds to the suggestiveness; unity of time, place, and action in a drama frequently entails a certain baldness of effect. On the other hand, irregularities of colour and contour stimulate the imagination; and the zigzag style of Jean Paul, with its metaphors, allusions, and side-thoughts, tends to arouse that broad, two-dimensional flow of thought which is so perfectly mirrored in musical counterpoint. In architecture and music, perfection of form is attainable without these curtailments. There is no limit to the size of a building and the richness of its ornamentation, except the coffers of the builder and the mechanical ingenuity of the mason. And music, as we have seen, naturally includes many elements in its onward sweep, and connects the various parts, as they succeed one another, with a network of relations. Instrumental, thematic, and con-

trapuntal intricacies fill the mind, and make it unnecessary to resort to vagueness and irregularity. The Teuton, indeed, is not averse to perfection of form, but he will not buy it at a sacrifice of wealth and complexity; where he can retain these, as in music and architecture, he proves himself as adept in managing proportions as his southern brother.

The works of the Teutons are said to be more expressive than those of the Græco-Latins. This is true, but the statement is only a special instance of the second principle. If a thing is expressive, it refers to something beyond itself, not contained in its direct impression. But there are many such references and relations which are not cases of expression; witness the perception of similarity in two rhyming words, and the successive instrumental and thematic contrasts in a musical composition. Our own principle, accordingly, seems more adequate, as it covers all the cases of expression and likewise includes those which cannot be explained by the other.

Again, there is the distinction between the realistic nature of northern works, and the more abstract, idealised character of those in the south. In painting this is fundamental,

and it applies in literature. But the presentative rather than representative nature of architecture and music makes it meaningless to speak of fidelity of reproduction or of idealisation in their case. The distinction, therefore, is not so broad as the ones proposed in these pages. And it is doubtful whether it is so fundamental. Alongside of the realistic tendency of Germanic art, there is a mystical, romantic current, which is thoroughly idealistic. Must there not be some deeper statement of the facts, accordingly, which unites the two opposing tendencies? Romanticism, we have seen, may be brought within the scope of the second principle. But realism, we know, also agrees in certain respects with Teutonic traits of mind as exhibited in the foregoing chapters. In addition to the points of agreement already indicated, we may mention the following: What is real and particular implies a richer connotation, a more comprehensive "fringe," than what is generalised. To the qualities of the "genus" are added those of the "species." Hence the vivid *genre* pictures of the Dutch, as we have seen, awaken more associations than the neutral canvases of the south. Again, realism implies a constant

reference, by way of comparison, to the original of imitation, and a love of truth, in preference to the specious shows of illusion. Southern selection and abstraction, on the contrary, evince a greater love of symmetry and proportion. In general we have another case of the classic leaning toward form, as opposed to the northern demand for substance and meaning.

So much for a comparison of the different explanations. The varied application of the second principle bears witness to its fundamental nature. In alliteration, rhyme, thematic work, and musical form, the reference is from one part of the work to another. In metaphors and allegories it is from the direct to the symbolic meaning of the words. Sometimes a moral is indicated, as in the pictures of Hogarth. Romantic poems refer to distant climes and epochs, to the personality of the author, or the personal experiences of the reader; also to the infinite powers supposed to encompass nature and life. At times, again, there is a mere general reference, an outward-pointing without definite object; the impression is that of a "beyond" or "more," of a content not exhausted by the things before

us. In all these respects we find the Teutons on one side of the fence, the Græco-Latins on the other.

It may be alleged that we have merely collected a score of cases corroborating the principles, while ignoring those that point the other way; but the great number, variety, and importance of the illustrations preclude this supposition. Our examples were drawn from every art, covered every historical period, applied to the greatest masters, and explained the most important distinctions between the racial methods and tastes. It would be difficult to name a more fundamental difference between Romance and Germanic music than that exhibited in the instrumental complexities of the latter as contrasted with the vocal simplicity of the former. Again, the distinction between the romanticism and classicism of literature is essential in nature. The same is true of the contrast between the formal perfection characterising southern works, and the awkwardness, even ugliness, often exhibited by those in the north; the views propounded not only explain these features when they are present, but likewise account for the cases in which they are

absent. The contrasts between classic and Shakespearean drama are typical; Greek and Gothic architecture represent two opposite poles; and there are few more significant features than the dearth of great sculptural works among Teutonic nations. Clearly, principles which cover such important manifestations must be regarded as essential in nature.

To be sure, exceptions occur. There are classic writers among the Teutons, romantic ones among the Græco-Latins. Indeed, whole periods are sometimes coloured by a tendency running counter to the normal one. France had its romantic drama, England underwent the influence of the French classicists; but such cases afford no criterion. Nobody would pick out the *Moses* of Michael Angelo as a representative product of the Latin mind; and nobody would proclaim Goethe's *Iphigenie* as the normal embodiment of the Teutonic spirit. We must take a broad view, survey the artistic manifestations in their totality, and lay particular stress only on the more typical, salient masters and productions.

One explanation of the peculiarities of Græco-Latin and Germanic works might rival that which we have proposed. Classic

works antedated modern ones. Now, simplicity naturally comes before elaboration. The Doric and Ionic orders preceded the ornate Corinthian capital. Gothic architecture sprang from the simpler methods prevailing before its time and grew more involved in the course of its development. Music began with a single voice. Part after part was added, until finally we meet with compositions for eight, sixteen, thirty-two, and even more voices. The same tendency manifested itself after the introduction of the monodic method. The harmonies of the older masters were extremely simple. The classic Mozart was regarded as an innovator, and Beethoven surpassed everything that had been witnessed before his time. The tendency has continued, Wagner having accustomed us to such a wealth of harmonic colour that the simple diet of the older masters seems insipid. Instrumentation, too, has been growing more complex, and the elaborate scores of Richard Strauss indicate that the culmination has not yet been reached. Naturally, then, we should expect more richness and complexity from modern productions, without invoking racial or national differences.

Although this view may account for some of the phenomena, it is inadequate as a complete explanation. To begin with, it only shifts the question. It may seem to explain why modern productions are more involved than ancient ones, but it fails to account for the excessive simplification of the latter. Why did not the Greeks develop their productions to greater elaboration; why should their art have remained so very plain? Again, it fails to account for the differences between Romance and Teutonic art. Since there was more artistic continuity between the modern Latin and ancient races than between the Teutons and the ancients, French, Italian, and Spanish works ought to be more complex than English and German ones; but the contrary is true. In the third place there are two arts which in modern times have undergone an independent, *quasi* original development; modern painting is not based primarily on ancient models, and music, as an art, hardly existed before the Middle Ages. Yet here again the southern and northern races exhibit the familiar contrasts. Finally the Latin races, instead of continuing the existing elaboration, have been the great

simplifiers of art; they have introduced changes from time to time which have checked the tendency toward complexity. After the Gothic period, Italy reverted to the plainer Renaissance style of architecture. French classicism was a return to ancient severity of composition. And the introduction in Italy of the modern harmonic method of musical composition was a reaction against the contrapuntal complexities which had been developed in the north. All in all, historical elaboration can not account for the features under consideration.

VII

INTELLECTUAL AND EMOTIONAL CHARACTERISTICS

NATURE forms an apt transition from the arts to intellectual and emotional characteristics. What is a landscape but a huge natural painting, a forest but a primeval cathedral; what is the medley of delicious sounds from bird and cricket and brook and tree but a magnificent symphony, chanting the freshness and beauty of the world? The Teutons have ever been great lovers of nature, the Græco-Latins are rather indifferent toward her charms. Evidences abound in the arts. In classic literature there is but little reference to natural phenomena, no nature-poetry like that of the Teutons. Landscape-painting is a northern product. The imitation of natural objects in southern buildings is conventionalised, that in the north adheres more closely to

the original forms. Germanic works, indeed, seem instinctively to gravitate toward nature, Græco-Latin ones to retreat from it. The Teuton makes natural objects of his works of art, the other makes works of art of his natural objects. The dramas of Shakespeare, with their disregard of the unities, their interweaving of plots and scenes, multiplication of characters, commixture of comedy and tragedy, prose and poetry, rhyme and blank verse,—correspond both to the complexity of real life and the beautiful confusion of the outer world. The gardens of Versailles, on the other hand, may be likened to a Greek temple,—regular, orderly, and symmetrical. The unities are preserved, the classic spirit prevails, there is no incongruity or suggestiveness, no wild and rude, aboriginal force. It was among the Romans, indeed, that the artificial method of landscape-gardening was invented, a style which was revived in Italy during the Renaissance and later transmitted to France. The opposite and more natural, or English style, is so named because of its cultivation on the British Isles.

What better illustration of our principles could we find? Where do more objects

invite the attention than in the contemplation of nature? Where is there more reference away from the things of perception to that which is not presented? Where is there more opportunity for the exercise of a large mental fringe,—for suggestion, imagination, divination? Place yourself in a beautiful country-scene and examine your state of mind: a hundred objects assail you—sky, brook, flowers, trees, and mountains; the rustling leaves, the song of birds, the whispering and sighing of the wind. Furthermore, every object has its story to tell, every one refers beyond itself. The golden clouds on the horizon suggest happy islands, bathed in celestial light. The exuberant strains of the lark excite curiosity as to the whereabouts and habits of the merry warbler. The little hut among the hills evokes an image of the idyllic existence of its happy inmates. The mind overflows with endless suggestions and by-thoughts, clustering about the objects directly perceived. Nature, indeed, is the true Germanic painting, cathedral, and symphony. No picture can reveal a more delicate execution of details, no edifice unfold a more astounding complexity, no symphony boast of a richer interweaving of

themes or fuller harmonic background. Is it surprising, then, that the Teutons should be passionate lovers of nature, while the Græco-Latins, though embosomed in delightful surroundings, should seem to avoid her, shutting themselves up in cities, and congregating in the gymnasium, market-place, and *salon*?

There is a deliberation and hesitation about the actions of Germanic people which contrasts sharply with the vivaciousness of their southern cousins. The peasant from the north may stare at you vacantly before he answers your question. Thought translates itself into motor results but slowly; often, indeed, there are no results at all. Hamlet, with his indecision and vacillation, is a type of this species of mind. The fiery Tybalt from *Romeo and Juliet*, on the other hand, represents a class that is common among Latin races—lively, quick-tempered, ebullient individuals. They act on the impulse of the moment; they are easily swayed; they will burn with enthusiasm for the hero of the hour; the next day, when the tide of success has turned, they will lead him to the scaffold.

The explanation of these characteristics is

simple on the basis of our principles. Psychology teaches that the realisation of a thought in action depends upon its preponderance in consciousness. Every impulse naturally tends to translate itself into motor results. The nervous organisation is an electrical circuit, of which the afferent and efferent nerves are the wires. Reflex, instinctive action follows immediately upon stimulation; the same is true where mental supervision is involved, but where there is no opposition to the results. We consciously regulate the movements of eating, but they proceed without break because the question as to their propriety never arises. A break only occurs when two or more thoughts tend in opposite directions, when one pushes toward the accomplishment of an act and another warns us to desist. Then there is a deadlock, which is only resolved when one of the contestants gains the victory. This condition, however, is common. Education has stored our minds with such a host of opposing tendencies that the state of abeyance has become firmly established. We may be tempted to slap our enemy in the face, but the rules of good breeding hover over the

impulse and dampen its blaze of energy; we may desire to run away from our duties and spend the day in idleness, but thoughts of the consequences intervene, and habit reasserts its sway. Let the idea of our injury gain control, however, and the hand will fly; let the visions of pleasure crowd out the remonstrances, and the tasks of the day will be abandoned. Now this will happen more easily in the case of people with a lightly fringed mind. Where the mind is habitually filled with a multitude of thoughts, opposing ideas will assert themselves and the deadlock will prevail; whatever impulse may arise, it must first undergo a trial of strength with its adversaries; it must submit to a hearing before the tribunal of consciousness, and action will only be the result of deliberation. In the classic mind, however, the mind with few objects, an idea will easily gain control; the halo of inhibitory influences will form but imperfectly, and before we know it the trigger of the nerves has been pulled. The results work in two directions, of course: for the good as well as the bad. Northern people are less liable to be carried to deeds of violence than their southern kinsmen,

but for the same reason they will often desist from acts of courtesy. There is an amount of friction and clogging which is not found across the Alps, and which often detracts from the enjoyability of life.

Between the outflow of thoughts into action and into words the analogy is close. In one case the efferent currents result in movements of the body, in the other they issue in movements of the lips and tongue. Action is speech of the body, speech is action of the vocal organs. Accordingly we may expect to find a similar relation between the races with reference to conversation. The Teutons are meagre talkers, the Græco-Latins converse fluently. Vischer gives an exquisite description of the Teutonic silent man:

Uhland belonged to a class of human beings which is probably met with among no people so frequently as among the Germans, and, if I have observed correctly, among no branch so frequently as among the Suabians: deep, precious, richly - constituted natures, whose lips are closed as by a demon; the thought is about to issue forth, but the sluice is closed, —it cannot; they are in company, one waits and waits to hear them contribute their mite to the entertainment, they would like to do it too, they think of a thousand things with which they might very

appropriately begin, but which one shall they choose among the thousand? Desperation! One might properly begin with any one! Or they have finally chosen; but how make a start? One could begin so, or differently, and differently again—what is to be done? how surmount this terrible mass of superposed possibilities? At last they take courage!—the lips open, they move, a sound—but the powder flashes in the pan, the gun does not go off.¹

This description contains the key to the explanation. Germanic taciturnity is due to wealth and complexity of thought. The ideas of the Græco-Latin, simple and unencumbered by a multitude of side-thoughts, easily flow over into words, and suggest the sequence of expression with the same ease and precision with which the experiences which are being related followed one another. The thoughts of the Teuton, on the contrary, are obliged to disentangle themselves from a crowd of connected ideas. Before they can assert themselves, opposing thoughts will arise, jostling them so as to make emergence impossible without a preliminary struggle.

Accompanying the slowness of the Teutons, we meet with a certain tenacity and persistency of effort. The people of

¹ *Kritische Gänge*, Stuttgart, 1863, vol. iv., p. 104.

this race are patient, plodding, persevering. Hence the great material results they have achieved. The more effervescent Frenchman grows enthusiastic over an enterprise, but the ardour of his feelings cools as readily as it flames forth, and the purpose of his enthusiasm may be forgotten. These qualities are related to the ones we have just been considering, and rest on the same mental foundation. Persistency of effort requires consciousness of the end to be attained, but this consciousness will merely exist as a component of the psychic fringe; and where the fringe is ample it is more likely to be present. It may be compared to the pedal point in music, the single sustained or repeated note in the bass, which accompanies the harmonic changes above. As the contrapuntal intricacies of German music may be said to mirror the complexity of the Teutonic mind, so the pedal point matches that undertone of constancy, that abiding sense of the purpose of conduct, which underlies Germanic persistency.

The qualities under consideration find expression in many ways. De Quincey observes that Socratic chains of reasoning consist of

a lot of individual little arguments, any one of which can be separately sanctioned or rejected; modern arguments, on the contrary, are composed of organically connected parts, incapable of isolation and requiring a suspension of judgment until the end.¹ Madame de Staël says:

Nothing deranges the imperturbable seriousness of the Germans: it is always by its general effect that they judge of a theatrical piece, and they wait till it is finished before they either condemn or applaud it. The impressions of the French are more ready; and they would in vain be forewarned that a comic scene is designed to set off a tragic situation,—they would turn the first into ridicule without waiting for the other; every detail must for them be of equal interest with the whole: they will not allow credit for an instant to the pleasure which they demand from the fine arts.²

The structure of Italian opera and Wagnerian music-drama exhibits the same divergences: in Italian opera we have a series of separate numbers, strung together like the pearls of a necklace; the art-work of the future is a connected tissue, in which the music never ceases until the drop of the curtain. Even the great dramas reveal the difference.

¹ *Essay on Style*, part ii.

² *Germany*, Boston, vol. i., p. 255.

Those of ancient Greece contained hardly any intrigue worthy of the name; the subject of the action, drawn from the history and mythology of the race, was familiar, and a spectator might enter at any time without foregoing the thread of continuity. Finally, the same traits will again be revealed in the next chapter, when we consider language. In all these cases the mental foundation is the same as that underlying the steadfastness of the Teutons and volatility of the Græco-Latins.

The Germanic races manifest a tendency toward brooding and melancholy. The English are known as hypochondriacs; no nation bemoans so many suicides as the Germans. Brooding is persistency exaggerated; it is the pedal point diseased and hypertrophied. The sustained note in the bass, instead of merely supplementing the harmony, steps into the foreground and monopolises the attention; and the symphony of thought is transformed into a melancholy drone, ever repeated without variation. The transition from the third to the last movement of Beethoven's fifth symphony may serve as a picture of Germanic persistency and faith, the single repeated note

in the drums abiding through all the fantastic evolutions of harmony like a voice of assurance, and leading into the glorious finale of success. The middle section of Chopin's prelude in D flat major, on the contrary, answers to brooding. A single thought, like the inextinguishable memory of a guilty deed, pounds away on the G sharp with uncanny regularity, filling the mind with terror.¹

We have already remarked that the Græco-Latins are inclined to be worldly, while the Teutons exhibit a religious bias. The Greeks were children of the moment. They believed in an after-life, to be sure, but the belief made little impression on their conduct. The occurrences of the day, their mundane fortunes, exhausted their thoughts and left but little room for hopes or fears regarding an unseen existence. The Latin races resemble the Greeks when contrasted with the nations from the north. It was among the latter that the great religious struggles of the Reformation originated. Wycliffe, Luther, and Zwingli were Teutons. Mysticism also finds its home in the north, the Latins inclining toward rationalism.

¹ No reference to the composer's nationality is here intended; the illustrations are given merely for their own sake.

A pronounced ethical and religious tone characterises Germanic literature: Milton, Schiller, and Wordsworth bear witness, and in Puritan New England it forms the keynote, stamping the writings of Emerson, Whittier, Lowell, Hawthorne, and most of their numerous followers.

Religion deals with the things which lie beyond the world, with the infinite and ineffable, of which material objects are merely the symbols. Naturally, then, the Teutons, who always refer away from the objects directly presented, will be religious, while the others will direct their attention to mundane occurrences. Romantic productions, we have seen, are full of vague suggestions; they refer to the beyond, they hint at things of which we have no definite image. Now God and the unseen realms of existence are the objective correlate of this divining attitude of mind, when it deals with the world and the dilemmas of conduct. They represent the background of experience, the terminus of the vague intimations we receive from nature, with her mysterious significance, the answer to all our doubts, the solution of all our problems. Religion, in a certain

sense, is the romanticism of life; here, too, there is symbolisation, strangeness, hiddenness, and a reaching out after the infinite. Protestantism, especially, of which most Germanic nations are adherents, depends on this mystic conception of the Divine; Catholicism appeals more directly, through its images, ceremonies, and relics: hence, perhaps, a reason for the adherence to the Church of Rome of the Latin races, who love to deal with that which is directly offered, and who are loath to penetrate beyond, to the invisible.

VIII

CUSTOMS AND INSTITUTIONS

MENTAL and emotional characteristics will vent themselves in customs and institutions. A trivial illustration is the following: Actors in the French drama who are about to receive disastrous news will often cover the mouth of the speaker with their hands, so as to prevent the utterance of the unwelcome words. Undoubtedly this custom prevails among the French people as well, thus forming an illustration of the second principle; the words, the direct, objective expression of the unwelcome, absorb the attention of the Frenchman, whereas the Teuton, penetrating beyond the appearance, seizes the substance and realises the futility of covering up its expression.

The principles we have invoked may explain some of the simplicity of ancient life and the complexity enmeshing the moderns. To be

sure, it may not be the only explanation. As we have seen, simplicity naturally precedes elaboration. It would be contrary to the laws of social evolution for civilisation to begin with complex conditions and to gravitate toward elementary ones. Nevertheless, it is not unlikely that inborn or traditional tendencies had something to do with the results. Germanic taciturnity and love of nature may account in part for the isolated dwellings in the north, for the country-life of the English nobility, and the lonely habits of German scholars; the opposite tendencies among the Græco-Latins would serve to explain their abhorrence of solitude, their early building of cities, the social habits of their philosophers, and, as mentioned, their congregation in gymnasiums and *salons*. The celerity of action in the south throws light on the frequency of assassination in Latin countries; it enables us to understand the enthusiastic support received by victorious generals and the speedy disgrace awaiting defeated ones; it explains many episodes in the revolution of 1789, and furnishes the reason for the general instability of governments among the Romance races. Likewise it is the cause of

many enactments which are not necessary among calmer peoples. In the French constitution, for example, there are special provisions designed to make sudden changes in the government impossible; and the inflammability of the Gallic nature necessitates the rule that when the president of the Chamber of Deputies puts on his hat all argument must cease.

The inertia of the Teutons is accountable for the calm deliberation prevailing in Germanic legislative bodies; and it had much to do with the disruption of the old German Empire and its long inability to revive, as expressed in Freiligrath's *Hamlet*, where the German people, with their fluctuations and hesitations, are compared to the Danish prince. The persistency of the Teutons is shown in the patience and diligence of the German labourer, the tedious researches of the university professor, the dogged resistance of the English soldier, and the indomitable energy of the Yankee speculator. It may account for their marvellous success in colonisation and their mastery over the material world; for the commercial prosperity of the Dutch during the 17th century, the English supremacy of the last

hundred years, and the German and American emergence of to-day. The situations are complex, to be sure, and it is easy to be led astray in one's reasoning. No nation was so powerful as the Romans in their day, and the Spaniards, too, were great colonisers. It must be remembered, however, that the Romans had no Germanic rivals.

The historical and political consequences flowing from the religiousness of the Teutonic mind are so familiar that they can pass without comment. Suffice it to mention the Protestant Reformation, and the deep religious movements which have since then agitated Germanic countries,—Pietism in Germany, Puritanism and Methodism in England. Scandinavian mythology is more romantic than Greek,—it partakes more of the hidden, the vast, the infinite. But even the romantic elements harboured by the ancient beliefs cannot be attributed entirely to the classic spirit; for the Greek inherited his mythology from the Aryan forefathers, whence many of its features are to be explained as a legacy of preceding generations. If we would look for imprints of the Grecian spirit, we must examine the changes which it wrought

in the bequest thus received. Here, indeed, we find the expected results. The Greek simplified and clarified the traditions and dropped symbolical meanings. The gods were reduced from their high position of invisible, mysterious agents to the level of mankind, more powerful than ordinary mortals, to be sure, and endowed with eternal life, but otherwise not differing greatly from them.

One of the latest manifestations of the "classic spirit" was revealed in the literature, science, philosophy, and general attitude toward life prevailing in France during the seventeenth and eighteenth centuries, and in the social, political, and religious effects arising therefrom and culminating in the Revolution. Everything during that period was regulated and simplified. Language was pruned, vigorous and dialectic words being extirpated and general terms only retained. The deepest subjects were handled in a graceful, flowing style, comprehension being rendered easy and not involving serious study. Man was conceived as a simple automaton endowed with sensation, whose only end was the attainment of pleasure. All mankind being

regarded as equal, and human nature being so perfectly intelligible, the construction, in theory, of the true religion and political state became matters of little difficulty. Hence the neglect of traditional views, the "social-contract" theories of the politicians, the cries of "Liberty, Equality, Fraternity!" and, to a great degree, the application of it all in the Revolution.¹ The division of France into its eighty-seven departments, and the metric system of weights and measures, are among the lasting results of those systematic alterations that were wrought under the influence of the classic spirit.

We arrive at the important subject of language. Philological development depends in great measure on external influences: thus the English tongue was modified as a result of the Norman invasion, the native idiom of the Irish supplanted entirely by a Teutonic dialect. Nevertheless, national peculiarities will evince themselves. As a verification of the second principle we may regard the euphony characteristic of south-

¹ This whole subject receives an admirable exposition in the first volume of Taine's *Les Origines de la France contemporaine*.

ern languages. Greek and Latin, Italian Spanish, Portuguese, and French,—all are pleasing in their effect on the ear. Indeed, there are special devices, like the *liaison* in French and the elision in classic tongues, through which harshness of sound is avoided. English and German have no such devices. As in poetry and painting, the Teuton does not busy himself much with direct impressions, but penetrates beyond, to the meaning. The quantitative versification of ancient poetry and the alliteration and rhyme of modern writings may be adduced as further examples. The former gives us immediate beauty, comparable to rhythm in music, the latter depends on relations, as explained on a previous page.

In general, it appears as if thought were more directly embodied in ancient languages. Witness the ablative and dative cases, in Latin and Greek respectively, the ablative and genitive absolute constructions, and the lack of auxiliary verbs. “*Occisus gladio*” is in English rendered by “slain by the sword”; “*amavero*” requires the four German words, “*ich werde geliebt haben.*” Latin and Greek give us an exact correspondence between

the sign and the thing signified; English and German weave a network of relations about the thought. When I read "I shall," I anticipate the words that are to follow; when I read "have loved," I refer back to those which have preceded. There is a varying expectation and recollection, a reference to and fro, a carrying of accessories in the shape of words which, taken alone, do not signify much, but which gain their meaning through their combination. These may aptly be styled the *luggage* of the thought which is being presented; and that it is a sensible luggage is forcibly impressed upon us when, in German, we wish to give expression to some trivial idea requiring several cumbersome future-perfect or passive-voice combinations: we are likely to lose heart long before the sentence is completed; we begin to think that the idea had better remain unexpressed than to gain utterance by pressing into its service all this bulky apparatus.

In the highly inflected ancient languages it was possible to begin and develop sentences in a greater variety of ways than in the modern. Almost any word could be chosen for the opening; with us, on the contrary, the sub-

ject usually comes first; this is followed by the predicate, and this again by the various objects. The freedom of the ancients allowed of a closer adherence to the thoughts than is possible to-day. With them a sentence more commonly began with the words most directly related to the end of the preceding sentence; with us the beginning often has no apparent connection with what has gone before, the connecting thought not being expressed until the middle or end of the second proposition. "Greek and Latin sentences form a chain of which the parts interlink. French sentences may be compared to a necklace of pearls; they are joined only by the thread of the thought."¹ In the ancient languages the "syntactic march" agrees with the "march of ideas," in the modern it deviates therefrom; in the former the sense is revealed to us gradually, in the latter we obtain it by pulses and leaps; there we look at the words themselves for their meaning, here we look behind them; there they are pictures of the thoughts, here they are "thought-luggage."

The analogy with the racial methods of reasoning is apparent. As ancient sentences

¹ Weil, *Order of Words*, Boston, 1887, p. 39.

progress step by step, until the completion of the thought, so ancient (Socratic) argumentation proceeds smoothly and logically, the conclusion of one proposition serving for the premise of the next. And as Germanic sentences move irregularly, the thoughts of one statement attaching themselves to the entire meaning and not merely to the words of the following, so Teutonic reasoning progresses by sudden intuitions, by the accumulation of many details, and the rushing together of ideas. The easy transitions from word to word also find their parallel in the tragedies of Sophocles, where all is harmony and regularity; while the jumping from idea to idea, the crossing and recrossing, are matched by the unexpected developments of the Shakespearean drama.

In agreement with the southern lack of persistency, the "bit-by-bit" enjoyment of opera and drama, and thus in accordance with our principles, is the Greek practice of repeating negatives without producing a positive meaning: the vivacious spirit forgets the first negative and, being imbued with the general feeling of negation, pushes in a second and third. The employment, in Latin and French, of expletive negatives in dependent

clauses after verbs expressing fear, is a similar case in point. Put yourself into the state of mind of a person who would spontaneously talk thus, and you can understand the movement of the hand, referred to above, that tries to cover up the unwelcome words of the speaker. The Teuton, with his pedal point mind, holds fast to the words first spoken, and avoids giving utterance to others which would logically contradict their meaning.

German sentences, with their extreme length, employment of auxiliary words, suspension of sense, and crowding of intermediate parts with modifying adjectives, participles, and dependent clauses, illustrate both principles. The "thought-luggage" implies a multiplication of factors; the suspension of sense involves a reference from part to part. The feelings we have in working through such a sentence are similar to those experienced in conveying a number of heterogeneous objects from one room to another. The objects are too numerous to be carried together conveniently, yet too few to warrant several trips for their transportation. So we gather them up, placing one here, one there,—under the elbow, over the shoulder, in the mouth,

on each of the fingers,—and then, clutching them tightly, we start for our destination. On the way we feel them slipping from us and every moment we expect them to tumble to the ground; we succeed in holding them together, however, and when finally we reach the goal we drop them in a heap and utter a sigh of relief. French sentences are short, clear, and crisp. English ones are intermediate in nature; but they would probably be characterised by more heaviness if it had not been for French influence. Contact with the Normans resulted in changes tending toward simplicity. The German custom of placing the verb at the end of the sentence—the so-called transposed order,—which is accountable for the long suspensions of sense in that language, was relinquished and replaced by the syntactical characteristics of modern English.¹ In apparent disagreement with the view set forth is the prevalence of the periodic structure, with its suspension of sense, in Latin. It is possible, however, that the high inflection of the ancient language permitted of the periodic structure without entailing so much burden

¹ Fiedler and Sachs, *Wissenschaftliche Englische Grammatik*, p. 66.

on the mind. The question is one which I would not attempt to decide.

In making these observations on language, I have merely endeavoured to give facts without offering explanations; I have described conditions, without necessarily accounting for them. Natural tendencies may be involved, or extraneous, historical conditions may suffice for an explanation. French *liaison* may be a conscious device for the attainment of euphony, or it may have had a more accidental origin. The loss of inflection in modern tongues may be the result of a normal evolution, or the outcome of a mental push. Modern sentence-connection might or might not be as smooth as ancient, if modern languages were more highly inflected. Our ground is uncertain, and extensive investigation alone can yield a decision.

Further light might be shed on the general subject of discussion by a consideration of popular games. Is it not significant that a nation like the Greeks, who devoted so much of their time to athletic training, should have confined themselves to such simple and uninspiring exercises as running, jumping,

and throwing the discus? Is it merely due to chance that the modern Teutons should prefer the complicated cricket, baseball, and football? Then there are the legal systems. That of the English, depending on innumerable precedents, is in agreement with Germanic tendencies in general; but, offsetting this fact, there is that of the Germans, which is systematic and codified. Of course accidental factors may be involved, modifying the deeper tendencies. In general the arts of a nation form a truer reflection of mental and emotional characteristics than the institutions: they are the efflorescence of the people, the spontaneous expression of its feelings and aspirations; whereas the institutions, necessary factors, will often be the result of foreign imposition.

It would be interesting, but beyond the scope of this inquiry, to extend the principles to other races. Of Celtic genius we have few pure and unmixed artistic evidences. But the vivacity and light-heartedness, the quickness of action and conversational ability, of the people of Celtic derivation, would seem to indicate an affinity with the Græco-Latins. Indian civilisation, on the other hand, ex-

hibits numerous points of agreement with the expressions of Teutonic genius. The literature of India is replete with metaphors and allegories, and includes works that are akin to the romantic. Hindoo architecture is complex. The Hindoo character is distinguished by its melancholy tendency, its deep religiousness, and its love of nature; the Hindoo mind by the depth of its insights and the intuitive rather than logical progression of thoughts. It is probable, too, that some of the most complex games in existence, notably the game of chess, had their origin in India. This agreement is rather significant. If accident alone were the ruling factor, we should not expect so uniform a parallelism; the poetry of the Hindoos might well be romantic while their temples were plain, the religious sense be keen while their philosophy was rationalistic. Considering the differences in climate, environment, and antiquity of civilisation, the correspondence is remarkable, and seems to indicate a deeper, mental basis.

Casting a glance, now, over the course of our inquiry, do we not find a systematic agreement, a solidarity of parts, an organic interweaving of elements, which we may well

consider convincing? The love of nature is evident throughout Germanic art,—in poetry, painting, architecture, and music. The same arts reveal the Græco-Latin indifference to natural phenomena, evidences which are supplemented by the southern methods of landscape-gardening, which seek to conventionalise the charms of trees and flowers. Germanic works tend toward romantic and mystic effects: witness the Gothic cathedrals, the paintings of Rembrandt and Turner, and the typical productions of northern poetic genius. In the south we have classic sculpture, architecture, and tragedy. The unity of action in French dramas corresponds to the single subjects of Italian painting, the multiplicity of plots in Shakespeare to the dispersion of Dutch pictures. The traits last mentioned, together with figurative speech and allegorical delineation, involving parallel trains of thought, correspond to the musical counterpoint of northern masters, while the unitary developments of the south answer to the melodic beauties of Italian opera. The peculiarities of art are matched by personal characteristics and analogies of custom and institution. The fragmentary enjoyment of

French drama and Italian opera corresponds to southern vivacity and impulsiveness, the withholding of applause among the Germans to northern persistency and brooding. Latin changeableness agrees with the multiplication of negatives in southern languages. Classic smoothness of sentence-connection, simplicity of style, and clearness of reasoning are all interconnected, as well as northern intuition, roughness of composition, and jumping of thought. The various applications of the principles are connected by an intricate network of relations. Analogous cases abound, knitting the parts together and strengthening the structure of the whole. The multiplicity of evidences is reinforced by their concurrence. Everything points in one direction, indicating that we have indeed discovered fundamental distinctions, which reduce the activities of the races a step or two nearer to their lowest mental terms.

THE FLUCTUATIONS OF BEAUTY
AND MORALITY

THE FLUCTUATIONS OF BEAUTY AND MORALITY

TO the youth the words "duty," "truth," and "beauty" stand for qualities fixed and unchanging. No personal caprice is supposed to affect them, no difference of age or climate may disturb their serene immutability. What is the duty of one must be binding on every other, what is beautiful for me ought to be recognised universally, what is true to-day must have been true since the beginning of time and must remain inviolable throughout eternity.

As we gain in experience, however, we realise the fallacy of this view. The thing which is admired in one age or country may be ridiculed in another; fashions which receive approbation this year will be cast aside in a twelvemonth; the symphonies which lift us toward heaven affect the Hindoo as mere jumbles of sound. Nor is the divergence less in the field of morals. Here, too, what is

deemed right at one time and place is condemned at another. The exposure of infants, permissible among the old Spartans, by us is punishable with death. The uncovered faces of women, proper elsewhere, are in Turkey considered indecent. Hardly a usage or act, indeed, has not in some age or land appeared virtuous and in others criminal: murder, robbery, lying, adultery, patriotism, self-sacrifice, honour,—all have received the most diverse interpretations.

In our uncertainty we turn to the realm of truth, with the hope that here, at least, we shall reach firm bottom; but again we are doomed to disappointment. As we turn the pages of science and philosophy, we find no two thinkers agreeing. The historical path of knowledge is strewn with battered and worn-out hypotheses, which were fervently defended in their day, but were abandoned in favour of others. Can we expect a better fate for our own theories? Are we to suppose that Ptolemy and Kepler may have erred, but that we little moderns are secure in our grasp on truth? Even as we look about us we see doctrines rising and evaporating like the mists of the ocean. Fierce warfare is

everywhere raging between the adherents of rival schools, grave doubts are uttered on all accepted truths. The firmest beliefs are assailed by the missiles of scepticism and totter in their foundations; what was once considered white is now declared to be black, and what was regarded as solid is said not to exist at all!

In this clatter of theories, ethical ideals, and standards of beauty, a confusion sometimes overwhelms us like an intellectual swoon, and we feel like rushing out of doors and beating the air for relief. Is it true that that which ought to be the most stable is really the most unreliable? Do tables and glasses possess reality, while we look in vain for a duty, truth, or object of æsthetic rapture? Do sweet and sour remain constant, while virtue, sublimity, and rationality are mere hollow illusions?

Let us pause for a moment. Is it quite true that sweet and sour never change? Drinking a glass of Rhine wine after a combination of unusual dishes one day, I discovered a sweetish flavour in it; yet it did not occur to me to deny the existence of sour wines. The differences in the eatables of various

nations may be as pronounced as the variations in the higher realms, one nation loathing what another relishes, yet we never conclude that there are no savory articles of diet in the world. Human beings might be so divergent in size that the piece of furniture which answered for a table in one place would be used as a footstool in another and as a pavilion in a third, while a glass would alternately serve as a thimble and a jar, yet no one would entertain any doubts as to the meaning and reality of tables and glasses. Need we be sceptical, then, regarding the existence of that sacred trinity: virtue, truth, and beauty?

We stop to reflect, but our doubts are not relieved. We have not established unity of standard, but have simply proved that the fluctuations are equally great in the material realm. We have not banished instability, but have merely indicated its presence elsewhere. The fact remains that there is flux and variety, while we cannot help demanding permanence. Even in the matter of food, we reason, the divergence may be merely apparent: where an object produces both a sweet and a sour taste, there must be a variation in the nerves which

are involved; excite the same neural activities and the same effects must ensue, and a definition of these activities, together with the objective arousing conditions, will exhibit the constant elements in taste. Is it not possible to formulate such definitions in the ideal realms? Though the single manifestations of beauty, truth, and morality exhibit such baffling variations, may they not be reducible to certain types or formulæ, applying in all the divergent cases? Though the savage kills his aged father and the European nurses his own parent with tenderness, may there not be a point of view from which their conduct appears essentially alike?

An analogy will be of assistance. Two violins are playing middle C, while a kettle-drum accompanies them an octave lower. Which of these three tones show the greatest resemblance to each other? Obviously those of the violins: not only are they of the same pitch, while the other is deeper, but there is an agreement in timbre which differentiates them sharply from the dull beat of the drum. But now, begging indulgence for the lack of musical value in our illustration, let us regard the tones in their context:

Fluctuations of

1st VIOLIN
Pizz.

2d VIOLIN
Pizz.

KETTLE-DRUM

The musical score consists of three staves. The top staff is for the 1st Violin, the middle for the 2nd Violin, and the bottom for the Kettle-Drum. Each staff begins with a treble clef (except for the Kettle-Drum which has a bass clef). The 1st and 2nd Violin parts are marked 'Pizz.' (pizzicato). The 1st Violin part has a melodic line with an asterisk under the third measure. The 2nd Violin part has a lower melodic line with an asterisk under the third measure. The Kettle-Drum part has a rhythmic pattern with an asterisk under the third measure. All parts end with a double bar line.

It is clear that our judgment must be reversed. Torn out of their connections and regarded in isolation, the two upper C's of course resemble each other; but viewed in their surroundings, the tones of the second violin and kettle-drum belong together. Music abounds with parallel cases. We never think of pronouncing two tones alike because they happen to have the same pitch, or of classing together various instruments by reason of their similarity of timbre; the melodic relation alone decides.

In life the situation is exactly similar. Outer objects and circumstances are the instruments, the conscious effects which they produce are the successive melodic tones, and

the present impression rests on the series of preceding experiences. A fine brownstone mansion and a modest suburban cottage, for example, are radically different; but the sensations they arouse in the minds of their respective occupants are not dependent solely on their objective aspect. For thirty years the proprietor of the mansion has inhabited its spacious chambers; he has spun boyhood dreams, arrived at maturity, entered upon the tasks of manhood, and experienced the joys and sorrows of changing fortune beneath its hovering presence. But the owner of the cottage has had similar experiences under his humble roof. The vicissitudes of many years, too, are interwoven with the familiar aspect of the vine over his doorway and the easy chair in the corner of his sitting-room. And in so far as the series of past experiences are similar, the effect produced will also be alike. "Sweet" and "doux" may be spelled differently, but their meaning is the same.

A slight difference of operation in this case must be explained. In listening to a melody we are directly aware of the connection between the successive tones; in life, on the contrary, the preceding members drop out of

sight. Our experience comes in lumps; we perceive the stream of time as it appears wherever we stem our mind against it, but the stream itself, the series of successive events, is only realised by the imagination, not by the senses. This, however, is not fatal to the parallelism. Though we may not remember all the Christmas occurrences of a lifetime when we perceive a lighted tree, though we may not combine them into a significant melodic totality, they linger on subconsciously, imparting atmosphere to the impressions of the eye. They are projected into the present experience, clustering about it in accordance with the laws of psychological association. Like the overtones in music, they produce subtle differences of quality.

Much light is thrown by these considerations on the peculiarities of human tastes. They account for that "blindness" which is the subject of one of Professor James's delightful essays,—for that inability to share in each other's joys and sorrows, to appreciate one another's ideals. The blindness simply depends upon the fact that the object which is ennobled by a rich series of past experiences in one case, is in another perceived in its bald

objectivity, without background. The dreary landscape referred to by the author, which awakens melancholy thoughts in the mind of the stranger, to the native is the nucleus of thousands of zestful associations. Hence the truth of that paradoxical statement of Stevenson's, that we can spend a lifetime happily in any locality, but that it requires exceptional surroundings to yield a few hours of delight.

It is amusing to hear people discuss the pleasures flowing from their own pursuits, contrasting them with the dryness of other occupations. Even those who devote themselves to a common field of endeavour will often choose one little bypath of effort, and become blind to the enchantments of neighbouring walks. The metaphysician may find logic extremely tedious, the logician deride the barrenness of metaphysics. In truth, the essential charm of our pursuits does not reside in the material with which they deal, but depends upon their history, so far as they have played a part in our lives. The interest of all occupations is much alike, if our training and proficiency are the same. It affords a similar quality of pleasure to play a musical composition without mistakes, do a difficult

feat of gymnastics, present a character on the stage, or deliver an effective sermon. In all cases there has been an analogous approach to present conditions: there were the same endeavours, endlessly renewed, the identical obstacles met and overcome, the repeated encouragements, the moments of despair, and the final mastery. And mastery feels alike, whether it is evinced in a surgical operation or the matching of rhymes.

The same reasoning applies to the "fads" and fancies with which people fill their spare moments. The collector of coins is not interested by a rare stamp, nor is he who gathers stamps thrilled by the sight of a Roman coin; but exchange the objects and the eyes will glow. Despite the mutual indifference to the things which excite interest, it is clear that the pleasure of both is the same; it is based on a similar row of experiences, beginning with an incipient curiosity, continuing with numerous eager desires for specimens—satisfied in some instances and thwarted in others—and swelling to an absorbing "Passion." All these previous experiences are crowded into the present object of perception, without which it would lack every vestige of interest.

The "crescendo" of attention alone is accountable for the "forte" of delight, and would lead to the same result, no matter what the objects with which the series were developed.

After this explanatory digression we may revert to our subject. The same principles which determine the fluctuating values of the persons and objects with which we deal, are operative in the realms of beauty and morality. To a considerable degree, indeed, they even help to determine what we consider true and false; but as the situation in this case is somewhat more complex, we shall confine our examination in the main to the other fields. Several of the illustrations already used border on the æsthetic. The musing state of mind with which we regard a familiar old building or caress the utensils we employ in our daily occupations, is similar to that with which we enjoy a work of art, and there is a charm about the collector's coins or the hero's medals which can almost be regarded as a species of beauty. Objects are beautiful, to a considerable degree, as they incipiently awaken numerous vague memories and form a reflection of our own experience. Hence

the sturdy boy, playing outdoor games and dreaming of adventures, will revel in tales of border life, the budding maiden find delight in tearful stories of love. *L'Ami Fritz* will call forth a keen response if we relish good things to eat and have often been seated at the hospitable board; and the cynical aphorisms of La Rochefoucauld will appeal to us when we have been deceived by men in whose honour we trusted.

Was the Flemish ideal of beauty different from the Italian? Objectively, yes, but essentially, no; for if the Fleming painted his women fat and buxom, while the Venetian preferred slenderer forms, this was due to a different background of experience. The ideal of the Northerner probably forms a *résumé* of the thousands of women he has seen since boyhood, in the same way in which that of the Florentine concentrates the charms on which his own eyes have rested. The operation of the principle is clearly evident in the realm of fashion. When bustles were in vogue a woman without this article seemed poorly proportioned; donning one to-day she would appear deformed. In fairness to our judgments, we must say that the bustle *was*

pleasing at the time when it was worn, just as the crinoline and wig doubtless were the source of æsthetic delight. But the whole realm of art is a gigantic application of the laws which regulate dress. There are fashions in music and architecture as well as in hats, only their scope is wider and they do not change so erratically. What other than a mode was the classic period of English literature, or the romantic epoch in France? Indeed, even such universally accepted judgments as the statement that two eyes are prettier than one, and that the absence of nose and ears would have a marring effect, may be regarded as the outcome of an immutable fashion; assuredly, a race of human beings accustomed to one-eyed, noseless, and earless faces would find them pleasing and pronounce our own hideous. Think, in this connection, of the distortion of feet among the Chinese. A lively subject of dispute in my college-days, was the question whether a greasy face might ever be considered attractive, I upholding the affirmative and my opponents defending the negative. Later I learned that there were races among whom the face was purposely greased for beautification. A red nose, to

borrow an illustration from Fechner, is undesirable, red cheeks are admired. The former is an index of tippling, the latter denote health. But inasmuch as health is often associated with ordinary surroundings, while the envied existence of the noble and wealthy leads to pallor, the more natural inclination is sometimes eclipsed, and pale cheeks are preferred to blooming ones. Habit and association alone nurture the opinion that the human foot is pretty; nothing could be more ridiculous than this flat appendage, with its stupid, diminutive toes; if we disregard the smooth skin, in which man has the advantage, there is hardly a foot among the higher animals which is more devoid of charm.

In England the sea is the natural abode of poetry, in Germany it is the forest. The two correspond, forming an omnipresent background, and bearing the same relation to the life of the individual and the race. A Northerner is likely to find the large stone surfaces and small windows of Oriental buildings cold in effect; to a native of the East, accustomed to a blazing sun, they must suggest delightful coolness. Even our preferences for people of opposite appearance and character, instead

of being innate, may in many cases be the result of development. A tall man feels awkward and out of place on countless occasions; a desire arises, at such times, to be shorter in stature; being repeated, this finally becomes permanent, and ever after is sympathetically satisfied when a short person appears.

The illustrations adduced represent two modes of associational operation. In the case of sympathetic works of literature the æsthetic *timbre* seems to be the result of a resuscitation and blending of previous impressions; the product, like a chemical compound, may undergo a certain transformation in accordance with the laws of psychical synthesis, but it is the outcome of a mere combination. In the case of the ideals of stature, the accompanying halo of feeling represents the satisfaction of previous desires; it corresponds to the sense of triumph with which, after long practice, we finally master a piece of music on the piano, a feeling which is sympathetically aroused when we observe a virtuoso playfully overcoming the difficulties which have cost us so much trouble.

The realm of morals presents a similar

spectacle. As the field of æsthetics is affiliated with the larger domain of values in general, so the phenomena of conduct reveal many points of resemblance to those of beauty. The affiliation is especially apparent in the minor divisions of etiquette and tact. Good manners simply represent fashions of behaviour, and are subject to the same laws of fluctuation. Tact applies the rules of behaviour to novel situations. If etiquette corresponds to the faultless execution of dancing steps which have previously been learned, tact resembles the skilful adaptation to the shifting demands of a game of tennis. In the realm of sexual morality the conceptions are notoriously divergent. Polygamy, monogamy, and polyandry are all practised with perfect sincerity in different parts of the world. Divorce is easy to obtain in some localities, difficult in others. Among certain races absolute nudity is proper, among others small parts of the body are covered, while in Turkey even the faces of women are supposed to be hidden. Special occasions, too, demand special attire. Normally, among European nations, the whole figure of the female is draped; but in the ballroom the

arms and shoulders may be bare, while the bathing resort allows an exposure up to the knees. How shocking it would be for a lady to enter the ballroom in a swimming costume, how reprehensible to expose her bosom on the beach! And how arbitrary it all is, how dependent our judgments on the background of previous experience. It is unnecessary to multiply examples. For, although morality is more than custom, custom is an integral factor of morality, and helps to create the diversity of usage prevailing in different parts of the globe. And what is true in the fields already touched upon may be followed into the highest regions of sanctity.

We could continue the subject into the realm of truth. Our prejudices and beliefs often result from the co-operation of factors which have nothing to do with their truth or falsity. How many of our convictions could be traced back to the trivial fact that somebody else held the opposite opinion! And tradition, perpetual reiteration, psychological atmosphere form the basis of propositions for whose truth we would vouch with our lives. But there is an important difference between these cases and the others. If a work

of art causes æsthetic pleasure to a whole nation, it *is* beautiful; and if a mode of conduct meets with universal approval, we are justified in calling it good. But the Ptolemaic hypothesis was defended for centuries by the wisest men, and yet it was not true. All that we can assert is, that the *opinions* of men rest on the same foundations as their sentiments of beauty and morality, but that the truth or falsity of these opinions must be established on other grounds.

The associations of an object, then, the circumstances and feelings in connection with which it has been experienced, are an important factor in its nature and meaning. They are packed into it as the overtones of a fundamental are merged into its timbre. And perfect knowledge on our part would enable us to deduce them from the mere impression of the object, as from the timbre of a tone we are able to enumerate its various overtones. The object bears some resemblance to an animal which embryonically reproduces the forms through which its ancestors have passed and thus presents in epitome the entire history of its race. In the enveloping feelings it offers a clew to the experiences which have

preceded, and recites in miniature the history of its own forerunners.

Now, as there are various groupings of overtones, corresponding to the timbre of the fundamental, so there must be specific moulds, types, or series of associations answering to the different moral and æsthetic judgments. In these we should have the expression of an absolutely good and beautiful. They would embody the constant elements in beauty and morality; they would apply in the greatest variety of cases, just as a series of partials may be constructed on tones of different pitch; and the most heterogeneous objects and situations, if they were the outcome of a common series, would partake of an absolutely beautiful and good. Any object, then, which awakens a sense of æsthetic charm or moral obligation ought, with adequate insight, to be recognised as the focus of the associational series or formula corresponding to that sentiment; the formula could be constructed out of the object, just as the past history of a species of animals might be fashioned out of the embryological development of one of its members. On the other hand, the realisation in experience of the series ought to enable us scientifically to

construct the appropriate focussing object, just as the knowledge of a group of overtones makes it possible for the scientist to predict the pitch and timbre of the fundamental. Practically and instinctively we are often able to do this, as when an artist works out a beautiful conception without direct reference to reality. Hence Schopenhauer was not wrong in declaring that the artist has the forms of beauty within him and gives shape to them spontaneously: like the rest of mankind, he has their overtones within him, only he differs from them inasmuch as they combine more easily, break the shells of unconsciousness, and burst forth into the glorious fundamentals.

What are these moulds or formulæ? How does a series look when strung out into its members? A difficult question, which can only be answered by means of a few suggestions. The sense of familiarity and companionship experienced upon meeting an old friend, or passing a monument which we have admired since youth, would not seem to demand anything more organised than a frequent perception in the past of this person or object—the more vivid the occasions, the livelier the impression. The feeling of agree-

able surprise and emotional freshness which follows upon meeting with the object after a long interval of time, is reducible to the same formula, the difference being that there is a considerable lapse of time between the present and the foregoing perception. Other sentiments require more definite and constant affiliations. The pleasure caused by the sight of a pair of ruddy cheeks depends on a rather stable association of glowing colour with health and good spirits. The æsthetic impression produced in poetry and the fine arts by typical or ideal figures may be attributed to the condensation of the interesting, essential, or admirable qualities of previous experiences; the figures are to be conceived as points of union in which what was best in the experiences is harmoniously combined. We have all seen innumerable samples of the human form, but they have fallen short of perfection in many particulars. The shapely organs perceived here and there stretch forth their hands and demand their fitting mates. But they ask in vain: here an arm is good, but receives no co-operation in the chest; there a head is fine, but the body fails to lend it adequate support. Suddenly

the perfect Apollo appears, and all are appeased; all may grasp hands, and their embrace is the æsthetic thrill. The satisfying figure is the embodiment of a unity which potentially existed in the numerous preceding experiences, but of which any single one expressed only a fraction or hint. It is as if a dozen unsymmetrical pieces of gauze were placed behind one another, every piece being different in shape, but the common area which they collectively cover forming a starlike figure; our past impressions of an object correspond to the heterogeneous fragments, and a work of art embodying a typical or idealised example of that object answers to the star which they potentially contain.

In general the nature of a series will depend on the number, arrangement, and quality of its constituent members. The boyhood friend has touched our life at more points than has our acquaintance of last summer, and the timbre of emotion which his presence arouses is different. The Christmas tree greets our eyes at widely separated intervals, and there is a freshness of feeling accompanying its perception which is not present in the case of the elm before the door that we see every day.

The holiday bells, the funeral wreath, the wedding ceremony, the quiet of Sunday, differ in the nature of the concomitant feelings, and this divergence ever after imparts a characteristic tinge. It is the task of theory to trace in detail the nature of the series on which the various æsthetic and ethical judgments are based, noting the peculiarities which differentiate them from one another, and thus establishing absolute formulæ of beauty and moral worth.

This is the place to say a few words on the development or progression of formulæ. It might seem, from the trend of our reasoning, as if a different succession of experiences would be required for every shade of feeling; which, however, is not the case. The same formula will answer for a variety of sentiments, the feeling undergoing alterations with the growth of the series. Delight in an object not uncommonly passes into indifference, if not tedium; yet the same formula is present, enlarged through the addition of a few extra members. Love may develop into hate, yet here also the original formula is necessary as a basis for the attachment of additional members, and so for novel effects. The

freshness of feeling referred to above, experienced upon meeting an old friend after a lapse of time, differs from the ordinary sense of familiarity only in a single gap in the associational series. It is instructive, in this connection, to compare the opinions which people of various ages express on the same subjects, —to note the enthusiasm of youth, the sobriety of advancing years, the calmness and indifference of old age. The disagreement, in many cases, simply depends on the various stages of experience represented by the parties concerned. Is it worth while to travel a thousand miles and suffer incidental discomforts, for the pleasure of viewing an exposition? It may be if you are young, have travelled little, have seen nothing of the world, and are buoyant enough to leap over petty annoyances; but it is not if you have a lifetime behind you, have wandered from pole to equator, and have repeatedly viewed the glories of an exposition. The identical objects will make the most divergent impressions in the two cases, depending upon the number and kind of past experiences which are packed around them. It makes a big difference in the value of a tone whether

it occurs in the course of a *crescendo* or a *diminuendo*.

To sum up, then, many if not all of our experiences, so far as they depend on overtone formulas, may be manifestations of a few fundamental types. And the transformation of objects, their cycle of mutations through the gamut of stages, is steadily progressing: the flower of to-day already portends the faded petals of to-morrow, while the bud is preparing to take its place. It required a long accumulation of associational elements to make me delight in the poem before me, but the same process which built up my pleasure will disintegrate it again, and the poem will leave me cold, while the picture which now cannot extract a minute's attention will then cause me to glow.

While the foregoing may not offer a complete explanation of divergences of taste and conduct, while other factors undoubtedly are involved and other methods of expressing the same facts may be possible, most of the differences of judgment are probably to be explained by the principles laid down. We are misled by our habit of viewing life in cross-sections; to obtain correct estimates we

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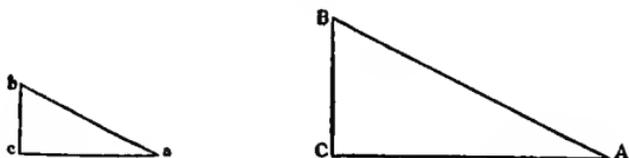
must take account of the stream along which we are floating. The present is built on the past, and its full significance is only revealed when we examine the nature of the foundation.

ON HOMOLOGY OF THOUGHT
AND ACTION

ON HOMOLOGY OF THOUGHT AND ACTION

I

GEOMETRICAL homology refers to “quantities and magnitudes” which “correspond, or are like to one another.”¹ In the triangles $a b c$ and $A B C$



the sides bc , ac , ab , are homologous, respectively, to BC , AC , AB , the angles a , b , c to A , B , C .

The determining feature of homology is *similarity in relation to the totality of members*. We cannot pronounce on the correspondence of two lines merely by comparing their length and form; in addition, we must examine

¹ *Chambers's Encyclopedia*, article “Homologous.”

the figures from which they are taken, and ascertain whether they are similar with reference to them. An inspection of ab , ac , AB , and so forth, without any clue to their arrangement in the triangles, would result in grouping together ac and BC —with approximately the same length—but not bc and BC . An examination of the triangles, on the contrary, obliges us to pair off the two latter.

The same determination of similarity, on the basis of relation, is practised in biology. The wings of birds, the fore legs of quadrupeds, and the flippers of whales, for instance, though highly dissimilar in appearance and function, are adjudged homologous, by reason of their similar situation in their respective organisms. Considered by themselves, a human arm and an equine limb would perhaps never be classed together; viewed in their totality and connections, however, they reveal the correspondence.

II

It might be profitable to apply the idea of homology to the conscious life of man,—to his mental and emotional experiences, his social activities and institutions. Here, too,

there are resemblances which are not apparent from a superficial examination, but which depend on the relations between the things compared and the totals of which they are parts. The failure to recognise this is one of the most frequent sources of error. To begin with the subject of money, nothing is more common than to hear people making comparisons between the wages in different places, and stumbling into misjudgments concerning their relative values. The differences in dollars and cents are accepted as faithful reflections of the actual disparities, and the conditions are pronounced good or bad in accordance. But we need hardly be reminded that the essential value of a man's salary does not depend on the number of dollars in which it may be expressed, but on its buying-power. If the single dollar of one person commands as much as the double amount of another, the wages are equivalent. In regard to the prices of commodities, the two sums may be considered homologous; they resemble lines from similar triangles, unlike enough by themselves, but equal in relation to the remaining sides.

But not only equality of buying-power is to

be considered. The orphan's rag doll is the homologue of the wealthier child's expensive toy, if the pleasure it causes is the same. The toys and games of youth correspond to the important institutions and undertakings of adults, the unnoticed doings of obscure people to the conspicuous actions of men of fame. When Schopenhauer declares that "it is all the same, as far as inward significance is concerned, whether ministers discuss the fate of countries and nations over a map, or boors wrangle in a beer-house over cards and dice,"¹ he is simply indicating the homology of the two cases. A transformation of the boors into ministers would result in their acting like ministers, and *vice versa*. Similarly, when he maintains that a man's character is unalterable, and that his actions, no matter how much they may seem to vary, always remain essentially alike, he wishes to convey the meaning that they remain *homologous*: they bear a certain constant, invariable relation to the totality of his circumstances, thoughts, and feelings,—and transformations like those suggested would again lead to identity of conduct. So, also, when he

¹ *The World as Will and Idea*, London, 1891, vol. i., p. 298.

asserts that history offers nothing essentially new,—that the course of events keeps on repeating itself,—he means that homologous events are perpetually occurring. History might thus be conceived as a magnified human experience, and its constancy as a gigantic fixity of character; the phases of historical evolution would correspond to the successive actions of a single man, and their sameness to the essential similarity of his actions.

Whether we quite agree with Schopenhauer or not, it will readily be admitted that the direct impression, the immediate appearance, of objects and events, is often misleading, and that things which superficially resemble one another are often in a deeper sense highly different, while those that apparently differ may in reality be closely allied. This is true of individual as well as of collective and historical experiences; it is true in the ethical, æsthetical, and logical field,—true of modes of conduct, works of art, and scientific or religious beliefs. Even in the most ordinary discussions, an observance of homology would reconcile many apparent disagreements. A and B are arguing about the necessity of a recognition of our doings on the part of our

fellow-men. A maintains that recognition is necessary as an incentive to action, B spurns the applause of men as worthless. Apparently an utter, hopeless clashing of opinion; yet the contradiction may be merely superficial, both parties essentially upholding the same truth. A is an atheist, who considers the human mind as the highest embodiment of consciousness in the universe; B is a Christian, who believes in overarching spiritual powers. He also demands recognition of his actions, but he is content if it comes from the higher beings, and in the possession of their approval is ready to forego the applause of men. Both believe in the desirability of appreciation, but the extent of consciousness is conceived differently. A's conception of humanity is not homologous to B's, the former representing the bulk of conscious illumination, the latter a mere fragment of the totality. The "humanity" of the one really corresponds to the "higher spiritual world" of the other, *i.e.*, both fill the same relative position in the totality of conscious life, as postulated by the disputants. Hence A's "recognition of humanity" corresponds to B's "approval of the higher beings."

Fully as numerous are the illustrations from

the field of conduct. The wrangles of the boors and ministers are a case in point. The refined vices of the rich and cultured are homologous to the brutalities of the lowly and uneducated. The widow's mite is equivalent to the millionaire's dazzling bequest. The amusing faults of children are miniature copies of the graver shortcomings of adults. In this field especially the observance of homology would be beneficial. A considerable number of the daily little frictions, misunderstandings, and condemnations arise from its non-observance. We see only the single lines, metaphorically speaking, the remaining members being written in sympathetic ink; we are presented with isolated hands, flippers, hoofs, and wings, but the supporting organisms remain hidden from view. Small wonder, then, that we should couple the wings of the bat and butterfly, while failing to recognise the affinity between the former and the arms of man.

The force of these observations is especially apparent in our treatment of children. How often we chide and punish, when we indulge ourselves so freely in homologous deeds. Superficially there may be no resemblance

between their modes of conduct and our own, but closer examination will often reveal the deeper agreement. Two practical results follow. In the first place, we should be more lenient with our children: recognising that their doings are the homologues of actions in which we justifiably indulge ourselves, and which we should be loath to renounce, we ought not to meet their innocent desires with such habitual vetoes. If, however, we regard an indulgence of their wishes as harmful, and are fully convinced that it should not be tolerated, then we must exercise a little more restraint on ourselves; we must consider whether the homologue of that which is so reprehensible in our children may not likewise be unwholesome in our own persons.

With reference to Biblical facts and ceremonies, the principle of homology is of the utmost importance. There is danger of interpreting the facts in a strictly literal manner and in this sense pronouncing them valid for all times and conditions, without regard for surrounding circumstances. It would be ridiculous, for example, to take seriously the passage in which Paul admonishes the women not to wear "braided hair" and "costly

raiment." Evidently this admonition was prompted by special conditions of time and place, and ceased to have any force when these changed. Viewed merely as an objective fact, designated by a certain name, braiding the hair may of course be the same everywhere; but viewed in relation to its surrounding circumstances, it may undergo extensive alterations of significance. And what holds true of that applies likewise to many other Biblical offices, ceremonies, and rules. Deeper insight has always recognised this truth, not only in theology, but also beyond its domains: it is according to the spirit rather than the letter, we are told, that we must interpret, both the teachings of Christianity and the phenomena of life and conduct in general. The doctrine of homology simply endeavours to analyse this spirit, and show that it also is amenable to scientific treatment.

Passing to a more historical point of view, we find an excellent illustration of the inadequacy of direct appearances, as an index of deeper significance, in the case of ancient and modern music. In certain essential respects the art of tones, as cultivated by the Greeks, was altogether different from that

of to-day. In the first place, it comprehended more, including poetry and dancing, and thus comprised a considerable fraction of the arts. In the second place, education comprehended less, the teaching numbering but a few subjects in addition to music and gymnastics. The essential position of music, accordingly—its relation to the totality of life and civilisation—was entirely different. Greek music was almost coincident with our “culture” and “knowledge.” Its homologue is more nearly expressed by the word “education” than by the term “art of tones.”¹

The bearing of this on the ancient conception of the moral effect of music is obvious. Plato, the spokesman of antiquity, seems to have had an exalted opinion of the art, in this respect, believing that it possessed the power of directly moulding the nature of man. To a modern such opinions sound strange, almost incomprehensible. Certainly, music does not

¹ The matter might be still further complicated through a consideration of the place which education held in Greek life. Just as music occupied a different position in the totality of education, so education may have held a different position in the totality of life. Perfect homology would depend on a similarity of relation with reference to the complete organism, after a consideration of all the factors.

exhibit such remarkable effects among us; there are superior men with no susceptibility to its charms, and musicians whose conduct leaves much to be desired. Substitute the words "education" and "culture" for the term "music," however, and the effect ascribed becomes more comprehensible.

This one example will suffice to illustrate the difficulty of forming adequate judgments of historical conditions, institutions, persons, and events. Were we unacquainted with the position of music in the life of the Greeks, how strange the words of Plato would appear. There must be numerous similar cases, in which the significant vistas which gave the historic happenings their meaning have been lost beyond recall, and where it is no longer possible to understand and appreciate the situations and events. It is said that we cannot form a correct estimate of a historic personage or institution while we are in close proximity to it, *i.e.*, we cannot see it with the proper perspective. But the converse is equally true, that we cannot realise the immediate, near-by aspect from the perspective,—that we cannot, from a distance, form an adequate conception of a situation

as it appeared to the people living in or alongside of it. We read about an institution, principle, dogma, or event; but we are merely dealing with the empty doorways of historical fact: the long arcades of accompanying scenery, the rich backgrounds of experience, the vistas of flowers and trees and clouds which, figuratively speaking, once peered through these frameworks, have vanished; and we are left with a dry fossil instead of a pulsating organism.

We all know that in order to obtain a particular reflection or prismatic effect, it is sometimes necessary to view an object from a definite angle, any deviation to the right or left destroying the effect at once. Now suppose a multitude of objects so disposed about us that their glories of tints and shadings will only burst upon us when we stand in their exact centre, and we have a picture of the adequate comprehension of historic situations. Here, too, the effect depends on the constellation of numerous factors, and a perfect view can only be gained by placing one's self in their centre and allowing their influences to operate.

Names, and material, objective aspects

are the marks by which we generally classify things, and determine their meaning and value. If only the name or the external impression remains constant, the thing is also supposed to be the same. But manifestly, the designation or appearance may rest unchanged, while there is a profound alteration in essential being. A familiar example is that of pieces of real estate. A man may preserve his property intact for years, retaining every tree and flower-bed, every chair and picture, in its original position, yet there may be a radical variation in the nature of the place. Instead of the splendid surrounding residences of yore, there may be dilapidated houses; instead of the fine old trees that hemmed the street, prosaic telegraph poles; around the corner there are gambling dens, and the air above, once clear and refreshing, has become thick with smoke. The place itself—its street and house-number, its extent of frontage, and the like—may still be the same; but its surroundings have changed, and their variations have reacted on it, producing an alteration which is materially expressed in its depreciated value, and æsthetically in the forlorn impression it pro-

duces in the midst of the surrounding dirt and decay.

The same may be true of religious or scientific beliefs, works of art, and political or ecclesiastical institutions. Here, too, we may have objective fixity, hiding the most extensive fluctuations of inner value. A symphony of Mozart seems to have undergone no change since it left the hand of the composer a century and a quarter ago; not a note has been altered, not a sign been added or lost. Yet the composition is not what it was; there have been developments in the art of tones, which react on the notes and produce a marked difference in their effect. Music, in general, has grown richer in harmony and orchestral volume. Accordingly, the compositions which formerly sounded rich and full are now more likely to appear thin and obvious; there has been a change in the standard of instrumental volume and harmonic colouring, so to speak, which is equivalent to an alteration in the music itself.

Musical compositions, governments, constitutions, religious sects, social and political organisations,—all are perpetually undergoing transformation, as the result of changes in the related institutions about them. The con-

servatives, seemingly the advocates of stability, may be the champions of innovation, as it is evinced in the slow, imperceptible progress of decomposition and decay. The radicals, on the contrary, may be the true conservatives, correcting the degeneration of institutions by jerks and pulls which restore them to their original proportions. The former cling to the line, while the others propose a suitable adjustment which will restore the original harmony between all the members of the triangle and thus guarantee a deeper permanence. Life, accordingly, resembles a gigantic moving ratio, in which, for the maintenance of the proper balance, the one term must keep pace with the alterations of the other. The change is a necessary condition of the permanence, and the proper permanence is one of relation or proportion, instead of external, objective appearance.

III

In the realm of art the principle of homology accounts for much of the notorious variation in the effect of individual works, and for the divergence of taste between different peoples and times.

Works which externally seem to undergo no change, lose in interest and fade into indifference; they depreciate, like pieces of real estate, they vary through variations in the spiritual environs. The electric currents of associative feeling which once vivified them have been turned off, and the cold carbons no longer contain any glow to illumine the mind of the onlooker. Certain musical compositions, as mentioned, have grown pale as the result of variations in the standard of orchestral volume and harmonic richness. The Shakespearean fool, likewise, has undergone extensive alterations. The laugh which he now provokes is an artificial duty-affair. All the natural currents of association which once were centred in him have been shut off, and he fails to scintillate with any humour, unless our storage-battery of historical criticism and ideal transplantation vivifies him with a feeble glamour of sympathetic appreciation. The modern representative of the fool, at least in America, is to be found in the caricatures of foreign nationalities, as they abound in our comic papers or greet us from the vaudeville stage. The very sight of such a caricature already puts us into an expect-

ant, sympathetic attitude, which furnishes a prepared surface for the matches of wit that follow. The Elizabethans undoubtedly possessed a similar surface for the fool, but it has been worn off by the friction of time.

What is true here will also apply to the royal personages, court scenes, and pageants abounding in the older dramas, or in general to the local flavour—unaccustomed to it as we usually are—which we find throughout literature. The historic plays of the great English bard, for instance, must have made an entirely different impression on the people of the Elizabethan era from what they make on us; they were the foci of innumerable rays of vivid interest, and thousands of associational beams shone through them which are absent to-day.

So likewise with the dramas and epics of the old Greeks, often extolled as models. The works of the Greeks, as they are read at college, are not the works that thrilled the Hellenes. The *Iliad* is not the exalted song of the age of Pericles. It lacks certain qualities which it once possessed, but which have entirely evaporated with the change of external circumstances. In the *Iliad* of the Greeks

there was an important relation to the warm, interesting life of the day,—to the gods that were daily worshipped, the heroes whose statues were posted up at every corner and who were the constant goals of emulation, and to the scenes and places which were so familiar. Like the hand of the driver, guiding half a dozen horses, its verses held the reins which led back to multitudes of interesting experiences. To-day, however, all this is changed; the reins have dropped away, and the verses have lost considerable value. In the respects under consideration, the *Iliad* is more nearly homologous to certain later works of a very different character. It corresponds to the *Edda* of the Pagan Teutons, the *Inferno* of the contemporaries of Dante, the *Bible* of the early Protestants, and the *Faust* of the modern world. To expect us to enter fully into the spirit of the old classic models and give them the preference over modern works, which are more akin to our sympathies, is to demand the substitution of a limb for the entire organism. In order to revel in the works of the ancients, as the ancients themselves did, it would be necessary to re-establish all those thousands of associations with which they

were interlaced,—in short, to live the lives of the ancients, share their ideals, believe in their gods, and forget all that has happened in the two thousand intervening years.

Some of the enthusiasm which is felt for the classics is probably due to a renewed, hothouse cultivation,—to the establishment of an artificial *milieu*. In place of the ancient associations with the life and religion of the day, we now have the recollections of our own school-days. Having studied the classics for years, we have made them the nuclei of innumerable associated experiences, thus imparting a charm somewhat similar to that which originally adhered to them. We have given them some of the rich timbre and “at-homeness” characterising old friends, which differentiates the latter so sharply from strangers. In fine, we may say that a classic work will produce three different effects, in accordance with the nature of the person to whom it is addressed; the ancient Greek, the modern soaked in classics, and the modern without classical training will all be affected in a specific, individual manner. There will be a freshness in the appreciation of the Greek, which is still present in subdued form in that

of the scholar, but which is absent in the case of the layman.

Accompanying this loss in vitality, there will, however, be an addition of interest, through the charm of historical perspective. All objects, when seen at a temporal distance, acquire a romantic glamour. The works of the Greeks will also invest themselves with this halo, thus gaining an interest which they did not possess at the time they were written. In view of this fact, it might be contended that much of the modern delight in the classics is in reality traceable to romantic sources; it is an enjoyment of classicism at a distance, which is by no means the same thing as the effect at close range. Seen near by, classic works partake of the realistic, while at a distance they are more romantic and mystical in nature.

Still another factor which tends to modify our enjoyment of classic works is their contrast with later productions. We may not enjoy simplicity at first, but may return to it with pleasure after wandering through the mazes of mystery and complexity. Much of Goethe's enjoyment of the classic, during the middle period of his life, was perhaps not

entirely spontaneous in nature, but due to such a contrast; while apparently revelling in the simplicity of the ancients, he was enjoying something far more involved, namely, this simplicity seen on the background of his earlier complexity and romanticism.

We realise, accordingly, that the modern enjoyment of ancient works is by no means the same thing as their original, first-hand appreciation. On the one hand the works lose a realistic vividness, imparted by their associations with familiar things; on the other they gain a romantic glamour, due to their remoteness and strangeness. Besides, they secure a secondary interest through their connection with the youthful hours of study, and a charm of contrast due to their divergence from modern productions. Works of art, indeed, are not stable and unchanging, but like pieces of real estate assume essentially different aspects, in accordance with the changes about them.

IV

Now for some conclusions of a more comprehensive nature. The similarity or dissimilarity of social and artistic phenomena, we

have learned, depends less on their immediate, objective aspect than on their hidden affiliations. The phenomena are not to be judged as isolated spots, but as organic members.

It is clear, in the first place, that there must be organisms. If the phenomena we are considering are to be compared to the sides of triangles or the members of animal structures, the totals of which they are parts must exist. That is, there must be moulds, types, or formulæ of which the phenomena are constituent factors. In these, accordingly, we shall find their true being and significance. What are these moulds, types, or formulæ? In regard to our initial cases, the answer will not be difficult. Similarity of wages, for example, will be determined by identity of relation between the earnings and the cost of living. The formula for the absolute low-water level of wages, *i.e.*, for earnings upon which it is barely possible to live, will be : equality between pay and the necessaries of life. In the shape of a ratio, this formula would be expressed as 1 : 1, the antecedent standing for the earnings and the consequent for the cost of the necessaries. As the wages increase, the antecedent will of course advance over the

consequent. The same formula will also answer for donations, the genuine amounts being expressed by the ratios between the sums presented and the fortunes of the donors.

In the case of the toys, and so forth, the matter becomes more involved, as the second or compared terms of the ratios are not so palpable in nature. It is easy enough to express the relation between a man's wages and the market prices of food and clothing, but not so simple to reproduce that between a rocking-horse and the desires of the boy receiving it. Without doubt, however, there is a proportion in this case as well, quite as exact as that embodied in the gifts or wages; if a rocking-horse produces as much satisfaction in the case of one boy as a pony in that of another, if both occupy the same relative position in the respective lives, the same formula may be said to apply.

Passing to scientific and religious beliefs, moral situations, and works of art, we find the matter increasing considerably in complexity; yet, on the basis of the foregoing considerations, and of the identity of the accompanying feelings, we are warranted in postulating definite formulæ even here. To

confine ourselves for the present to the realm of art, the existence of such formulæ would afford an escape from all that confusion and hopeless lack of standard which is the result of the great diversity of tastes. We naturally postulate absoluteness in the realm of beauty. The facts, however, reveal a bewildering disagreement of judgments: the work that sends the one into raptures leaves the other cold, or even awakens his repugnance. If there is an absolute beauty, why do not all people see it in the same objects? The question is justified, and in the absence of an immediate answer we are tempted to reply that there is no such absoluteness, but that all is irredeemable, chaotic disorder.

However, may we not be duplicating the error mentioned above in connection with geometric figures and animal organisms? As in the triangles, may there not be a similarity in spite of the divergence of immediate appearance, and may not this similarity embody the constant factor we are seeking? Consider artistic productions objectively and materially, without regard for their elusive affiliations, and you will never be able to mark off universal types. The attempt to do so is

as hopeless as the endeavour to show similarity in a multitude of unequal lines. But as the lines may be homologous in relation to their respective triangles, so the works of art may be equivalent with respect to certain types or formulæ to which they belong. We thus obtain an absoluteness alongside of, or rather in, the relativity. Art-works may be relative in nature, but their very relations may embody a certain constancy, corresponding to the equality of ratios or the similarity of geometrical figures.

To render the matter clearer, let us imagine a score of persons endowed with varying degrees of auditory sensibility—ranging from extreme acuteness of hearing to almost total deafness. A musical tone will make the most divergent impressions on these people; to some it will sound loud, to others soft, and to others still it will be just barely audible, ranging through all degrees of intensity, from *forte* to the softest *pianissimo*.¹ Considered ob-

¹ The situation is complicated, to be sure, by the operation of habit, according to which one and the same tone may sound *relatively* as loud to a person with poor hearing as to another with normal faculties. Since our hypothetical case is adduced merely for the sake of illustration, however, we may neglect this aspect and confine ourselves to the absolute sensational effect.

jectively, the tone is the same for all persons, but taken in connection with the effects produced, it is different in every case. To bring about the same effect, it will be necessary to vary the intensity, in accordance with the varying states of auditory sensibility. On the observer these mutations will make the impression of twenty different tones, on the twenty listeners that of one and the same tone. Objective similarity and permanence mean subjective difference, while subjective similarity requires objective difference.

The same will be true of diversities of pitch. It is a fact that a tone will in abnormal cases sound somewhat different in the two ears. Hypothetically extending this and applying it to the ears of various individuals, we may postulate twenty persons with auditory organs so unlike that a single tone will give rise to twenty different sounds,—separated in their extremes by several octaves. Here, also, we must play various tones in order to produce similarity of effect, suiting them to the receptivities of the respective ears. If it be desired, for instance, to produce an effect equivalent to middle C, it will be necessary, in the case of a person who hears two octaves

lower than we do, to play a tone two octaves higher; in the case of one who hears higher, on the contrary, to play correspondingly low. Again there will be much variety of effect, ranging all over the key-board, yet every tone will produce the same impression on its respective ear.

If, now, we were to combine these two sets of cases, uniting the differences of loudness with those of pitch, we should already obtain considerable complication of phenomena. Let it be desired, for example, to couple a middle C with a *mezzo forte* effect. We shall be obliged, for this purpose, to combine the variations in pitch which satisfy the twenty different ears with similar adjustments in loudness. The person who hears an octave too low and whose hearing is feeble, will require a correspondingly high, *fortissimo* tone. He, on the contrary, who hears too high and whose ears are hyperæsthetic, will demand a soft, low sound. Both conditions, namely those of pitch and intensity, must be satisfied before the proper effect is produced. The result will be a practically unlimited number of possible combinations, all varieties of pitch uniting with every gradation of intensity.

So numerous will be the possibilities, that a note struck at random will but rarely satisfy both conditions, and produce the requisite *mezzo forte*, middle C effect. Even if we increase the number of imaginary subjects to two hundred, it is conceivable that every individual will require a different combination of pitch and intensity. The identical subjective effect will accordingly be the result of two hundred different tonal phenomena.

Objectively it will not be easy to express the identity of all these cases; if we write down the tones, accompanied by their shadings of loudness, we simply get two hundred different results, with no similarity whatever. If we take into consideration the corresponding auditory natures, however, the identity will readily appear,—in the fixity of relation between the tones and the respective thresholds of pitch and intensity. Starting from the barely audible, we invariably find an equal gap between this first degree of hearing and the loudness of the tone in question; again, there is a similar interval between the threshold of pitch—with us represented by sixteen vibrations a second—and the same tone. In all cases there is the same relation to the

capacities of pitch and intensity. These latter form a parallelogram of forces, as it were, of which the respective tones are the resultants, and in the relation to which lie their constancy and absoluteness.

The realm of art offers many analogous features. The individual works, so highly divergent and producing such manifold impressions, may be compared to the tones,—different to the observer, yet similar in regard to the mental capacities, trainings, and associations of the people to whom they are addressed. Works of art, too, may be interpreted as the resultants of parallelograms of forces,—or say, rather, parallelograms of mental and emotional tendencies, categories, and demands; like our *mezzo forte* middle C, which appears under disguises so great as apparently to preclude the existence of any identity, they bear the same relations to the enveloping mental matrix, and embody the identical proportions.

We cannot hope to unravel all the complexities besetting this subject, but we can indicate some of the elements entering into it. Music, for instance, presents several aspects closely resembling those of our hypothetical example.

As indicated, orchestral works have been growing richer in volume and instrumentation, so that compositions which originally sounded exuberant now have a flavour of insipidity. The change in effect is due to an alteration in our æsthetic sensibility; it corresponds to a gradual dulling of the auditory acuteness, in accordance with which a tone which at first sounded *forte* would dwindle to *piano*. And as with instrumental volume, so with harmonic complexity. Harmony, likewise, has been growing more luxuriant, and many of the chords which in the days of Mozart sounded strikingly weird now appear obvious, while combinations whose strangeness would have shocked our forefathers fill us with delight. Here, again, the effect has been determined by a shifting of the whole apperceptive field, and, with it, of the æsthetic point of novelty.

The tendency toward increasing richness of ornamentation, characteristic of developing periods of architecture, is another case in point. As with stimulants, the wealth of decoration which at first produces æsthetic excitement soon becomes a matter of course and ceases to have any effect; as a result, the

richness must constantly be increased in order to produce the same impression. The various degrees of ornamentation may appear widely different when viewed side by side, but they all bear the same relation to the previous, accustomed degrees, embodying a similar increase over the same; they all occupy corresponding positions with reference to the æsthetic threshold of richness.

Now, as there are thresholds and scales of pitch, intensity, harmonic colour, and decorative wealth, so there are analogous series of largeness, smallness, novelty, originality, grotesqueness, elegance, and numerous other æsthetic qualities. The feature of novelty, for example,—very important in all branches of art,—is no immutable quality, objectively speaking, but depends entirely on the nature of the preceding art-works, to which we are accustomed. The familiar may be considered as the plane from which everything new and original must spring. But as the familiar may change, so the embodiment of novelty must also vary. Objectively, the novel will assume the greatest multitude of forms, but there must always be the same relation between it and the customary, the same ratio of advance,

as it were, always a certain homology in regard to the works to which we are habituated.

Accompanying the threshold of novelty will be that of extravagance and grotesqueness. The original rises degree by degree, until finally it reaches a certain maximum, at which it passes into exaggeration. Here, also, there must be laws: the grotesque and extravagant must have a perfectly definite relation to the novel, as also to the usual. But again, the objective embodiment will depend on what in fact is new, which depends once more on what is familiar; hence the difficulty of formulating adequate definitions.

The same principles apply to the historically interesting, quaint, and romantic. The familiar of a former period, having fallen into desuetude, lies fallow for a considerable time, when suddenly it begins to acquire a fresh quality, namely, a certain quaintness and romantic flavour imparted by temporal distance and unfamiliarity. This, too, is no objectively eternal quality, but depends on the nature of the preceding phenomena and the intervening length of time.

One of the best applications of the principle under discussion is yielded by the attributes

of size. The gigantic, together with the tiny and *petite*, play an important part in works of art, especially in those addressed to the eye. Now here the customary may be regarded as the threshold of both the immense and the little, any rise above the same manifesting itself as large, grand, and colossal, and any fall below as small and diminutive. The usual may be likened to a neutral, *mezzo forte* progression, while the deviations toward either side represent the *fortissimos* and *pianissimos*, as they stir us with their power or delight us with their delicacy.

In this case we have a comparatively simple formula for æsthetic effects. Generally, however, the impression of a work of art is not confined to a single factor, but results from a combination of qualities. Works of art are veritable tissues of relations like those dwelt upon, in which mental and emotional categories and demands are interwoven with marvellous intricacy. They are the resultants of parallelograms of forces; but, though the elements entering into them are not as easily distinguishable as physical energies, their operation must be equally exact and uniform. Like our *mezzo forte* C's, so different for the

ears of the listener, they must embody the same relations to the apperceiving moulds.

What holds in the realm of beauty is valid likewise in the field of morality, and to a considerable extent even in that of scientific and philosophic truth. The marked divergence in the actions and beliefs of men must in great measure be illusory, being the mask of deeper agreement. The philosophical and religious systems are different, to a considerable degree, in mere externals. In the facts of homology, indeed, lies the justification of that generosity of spirit toward which the centuries are tending. There is an absolute standard of beauty, truth, and morality, to be sure, any deviation from which means error, ugliness, and wrong; but that standard is wide enough to include the greatest divergences of belief, artistic conception, and conduct; it refuses to be confined within any mechanical formula, but, like Proteus, assumes an endless variety of forms. The atheist and the believer, the realist and the idealist, the saint and the revolutionary, may all, in the deeper sense, be conforming to the eternal laws of truth, beauty, and morality. In the insistence on a narrow, inflexible form—in the worship of the

line—lies the error of the artificial classification of conduct which has been the prevailing method of all times. And it is the recognition of the triangle, the observance of homology, which underlies the Emersonian exaltation of a personal standard of conduct,—the insistence on self-reliance, heroism, and liberation from traditional fetters. The true conduct consists in the adjustment of the line to the proportions of the triangle; but since the greater part of the triangle is written in sympathetic ink, and is visible only to the individual himself, none but he can decide on the proper course of behaviour.

Having considered the important question as to the reality of the organisms underlying beauty, truth, and morality, we are confronted with the further problem as to their nature. The organisms exist—but what is the character of their being, the stuff of which they are composed? Are they merely ideal fabrications, similar to the ratio between two numbers or the laws of gravity, is there materiality and tangibility only in the direct manifestations of beauty and virtue, or do they answer to perceptible realities? The question is urgent, but its consideration would lead us

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too far for the purposes of this essay. Suffice it to have pointed out the facts of homology as they exist: their meaning furnishes sufficient material for an essay by itself.

ON TEMPORAL EXPANSION AND
CONTRACTION

ON TEMPORAL EXPANSION AND CONTRACTION

I

SWIFT'S *Gulliver* is a classic, in the delineation of unusual aspects of dimension.

More startling still, if not so detailed, are the revelations of Professor Crookes.¹ He extends the enlargements and diminutions of Swift, and shows how adequate alterations in the size of the observer would transform the very nature and essence of things. A being of microscopic dimensions, for example, would not come to the conclusion that water seeks its level, but would endow it with spherical or curvilinear forms. Suppose, we are told, "that he holds in his hand a vessel bearing the same proportion to his minimised frame that a pint measure does to that of a man as he is, and that by adroit manipulation he

¹ : Proceedings of the Society for Psychical Research, Appendix to Part xxxi., vol. xii., p. 344 *et seq.*

contrives to fill it with water. If he inverts the vessel he finds that the liquid will not flow, and can only be dislodged by violent shocks." Similarly, he will discover that solids as a rule do not sink in water, no matter how great their specific gravity. A being of enormous magnitude would experience equally interesting results. He would be

able to move finger and thumb in a second's space through some miles of soil. . . . The mass of sand, earth, stones, and the like, hurled together in such quantities and at such speed, would become intensely hot. Just as the homunculus would fail to bring about ignition when he desired, so the colossus could scarcely move without causing the liberation of a highly inconvenient degree of heat, literally making everything too hot to hold. He would naturally ascribe to granite rocks and the other constituents of the earth's surface such properties as we attribute to phosphorus—of combustion on being a little roughly handled.¹

Although variations in spatial dimension

¹ One involuntarily asks, however: what is the texture of the hands that can, without mutilation, pass through miles of earth and rocks in the short period of a second? Undoubtedly, they would be composed of such resisting material that a high degree of heat would leave them unaffected. Things would consequently *not* be too hot to hold; in other respects, however, the comparison with phosphorus may be valid.

have accordingly been discussed with considerable ingenuity, alterations in time have received but little attention. We divide time into seconds, minutes, hours, days, and years. To most of us these periods undoubtedly appear absolute, one creature's unit of sensation being the unit of all other beings likewise. Yet why should this be so? Why should a second occupy just that length of time which is approximately covered by a beat of the heart? Why might not one creature's second be another's minute and still another's hour or day; why might not its minute, hour, or day correspond to another's second? Does it not seem likely, for instance, that insects, physically so much smaller than we, should divide time more minutely, perceiving dozens of movements or happenings where we only perceive a few? Extending the supposition, may we not conceive of beings with a present moment, or temporal perception-door, many thousand or million times smaller than our own, thus enabling them to go through a whole lifetime in the short space of a day or an hour? If a creature had a second as long as a vibration of violet light (violet light making 750,000,000,000,000 vibrations per sec-

ond), one of our own minutes would seem to it to cover a period of one and a half billion years. On the other hand, a being might have a temporal sweep so august that an æon were but as a moment of time. He would perceive at a stroke things separated by centuries; he would be viewing the battle of Thermopylæ, when lo! before the moment was ended he would witness the Declaration of Independence!

Such differences in "time-span" would not only change the *tempo* of movements and events, but, like the radical alterations of Crookes, would also exercise an entire transformation over nature. Even in our limited experience we may realise this. A firebrand, slowly revolved, is simply an incandescent body, successively appearing in conjunction with various objects; whirled about rapidly, and thus producing the effect of an alteration of span, it comes to view as a fiery circle. Two electric sparks, succeeding each other at appreciable intervals, make the impression of discontinuous, luminous points; following each other more closely, and within a limited distance, they are transformed into a streak of light shooting from one terminus to the other.

Puffs of air at the rate of but a few a second are mere isolated shocks; increased to the rate of sixteen they undergo an entire metamorphosis, and sound is born.

II

The embryologist v. Baer has written an admirable essay on this subject.¹ A creature with a second one thousand times as short as our own, he says, would be able to perceive with ease the passage of a bullet. His life would probably not cover a month of time; and if he were born at new moon, the waning of our satellite, whose slow variations in size he would have followed with interest throughout his lifetime, would impress him as a process which must end with its final disappearance and extinction. Tradition or history would be the **only** source from which he could derive information regarding the change of seasons. Were he living in summer, he would read about winter with the same astonishment with which we now learn about the glacial epoch.

If the time-scale of this creature were again

¹ *Reden*, Braunschweig, 1886, vol. i., p. 237 *et seq.*

reduced a thousandfold, that is, if one of our own seconds were equivalent to a million, instead of a thousand, of his, the modifications of external nature would be even more startling. The being with this minute temporal span would live only about forty minutes. He would be unable to perceive the slow growth of grass and flowers, nor would he have any idea of the alternation of day and night. Animals would come to view as fixed and unchangeable objects and would fail to impress him as living beings. Their movements, too slow for direct perception, could at most be inferred, as the movements of the celestial bodies are now deduced by us. Our tones would be inaudible. Nevertheless, other oscillations might be at hand fulfilling the office of sound-vibrations; indeed, if the span were still further reduced, so that our own light-vibrations rained in upon him with the relative frequency of sound-waves, he might even hear the light!

Totally opposed to this would be the world-view produced by a lengthening of the span. The life of a being with temporal glasses a thousand times as large as ours would have to cover eighty thousand years in order to

correspond to the eighty summers of our own existence. A year would pass by in eight and three-quarters hours. Such a being could directly see the growth of plants. Day and night would succeed each other approximately as bright and dark minutes. The sun would not be stationary, but would sweep through the sky in a minute of time, followed by a fiery trail, like a shooting star.

If, now, this slackened life were still further retarded a thousandfold, *i.e.*, if the span were a million times as large as our own, the effect would again be momentous. By reason of the after-images in the eye, we should not have any experience of night: before darkness could prevail daylight would again overtake it. For the same reason we should not be able to recognise the sun as a globular body, but, on the analogy of the revolving firebrand, should perceive instead a brilliant, fiery arch in the heavens. The seasons would fly past with astonishing rapidity. A year would be over in half a minute. As we before directly perceived the growth of vegetables, so we should now become aware of the change of seasons. The decay of vegetation, the freezing of waters, their thawing in the spring, and

the succeeding growth of plants and trees,—all would pass before our eyes as directly observable motions and fluctuations.

III

Remarkable though these statements are, even v. Baer has not done full justice to the subject. A consideration of vibrations, to which he but incidentally refers, is capable of yielding further revelations of a startling character. Since the qualities of light, heat, and sound depend on vibrations in the ether and air, alterations of time-span, by changing the relative frequency of these vibrations, will affect the qualities of sensation. A shortening of the span, for instance, being synonymous with a lessening of the frequency, will cause high tones to sound low. A lengthening, which allows more oscillations to be crowded into a given length of time, will make low ones sound high. Some of the consequences might be rather humorous. An extension of span, for example, would show us the proposing lover on his knees, uttering supplications in a mellow soprano, while the maiden of his choice would answer in thin, piping, birdlike chirps. The converse would

exhibit him opening his mouth and gesticulating, as if for speech, but without giving vent to a sound; for the vibration-rapidity of his tones would have dropped below the sixteen-per-second limit of sound, and his words would fail to reach our ears. The maiden, on the other hand, would declare her willingness in rich *basso profundo* accents.

Similar changes, though perhaps without the humorous element, would occur within the realm of light and colour. If the time-span were modified so that the vibrations of violet or blue light streamed in upon the mind with the same relative frequency as those of red or orange, white and bluish objects would appear yellow or red, while yellow and red ones would turn into black. What a wonderful transformation this would effect in the aspect of the world! The blue sky and the white snow might assume a bright vermilion hue, while the evening horizon would evince its sorrow for the departing day by a band of black.

Greater alterations would probably result in more remarkable manifestations. A change of span which brought the Roentgen rays within the spectrum would enable us to

see with X-ray eyes: a considerable number of the objects and materials with which we are surrounded would become transparent, and human beings would appear as skeletons, imbedded in a translucent, jellylike mass! And if the supposition which Professor Crookes has hypothetically ventured is true, *i.e.*, if rays of a still greater rate of vibration exist, and if these are the medium of thought-transference,—a proper change might enable us to perceive one another's thoughts, from their physical side, just as we now perceive material objects.

Returning to the realm of sound, we should find a prolongation of the span bringing vibrations separated by seconds, or even minutes and hours, within the realm of audibility, while those between 16 and 40,000 would cease to affect our ears. The song of birds would become inaudible,—a serious loss, for which, however, we might reap certain compensations. The oscillation of the tree-tops would produce sounds of a musical nature. What a magnificent hymn the forest, gently moved by a breeze or fiercely lashed by a storm, would in that case send up to the stars on high! The waves of the ocean, likewise,

might breathe out their spirit toward the skies in a mighty, inspiring ground-bass. The pendulum of the clock—to choose a humbler example—would give forth a pretty drone, the children's swing in the yard accompanying it an octave lower. In general, there would be an extensive shifting of qualities as related to the objects perceived: some objects would lose certain qualities, only to gain others; some would pass out of existence, new ones spring into being. What was audible might become dumb, what was inaudible vent itself in sound; coloured materials would alter their hues, invisible ones flash into existence.

IV

Reverting to the illustrations of v. Baer, we note that the sun—which impresses us as a stationary body, with only an inferential but no directly visible motion—would under certain conditions appear as a moving body sweeping across the sky in a minute's time, and under others as an incandescent arch, bridging over the entire firmament like a rainbow. We thus have a threefold aspect: a stationary globe, a moving globe (with a fiery

trail), and a stationary arch. Now this alteration of appearance would, of course, not be confined to the sun. Similar changes would ensue throughout the realm of nature, as the result of the same laws operative in the case of the sun. Old connections between objects would be obliterated, new ones established. Motion would arise where formerly there had been rest, fixity replace former motion. The result would be an entire transformation of nature. Animals, as mentioned, might fail to be perceived as living beings: in the one case they would move about so rapidly and irregularly as not to be noticed, in the other their motions would be too slow for detection. The stars, again, might form constellations and figures which, on account of their rapidity of motion and the resulting after-images, would not be bounded by points, but rather by lines; the firmament would present the aspect of a shifting series of fiery rills and streams; instead of an expansive bosom, studded with scintillating gems, it would exhibit a brilliant shower of incandescent jets and sprays.

Further changes in the appearance of the world would arise from the fact that simul-

taneous things might impress a smaller time-span as successive, while successive ones would appear simultaneous to a larger view. If we slowly rotate a card-board upon which two series of lines, forming broken circles, are so arranged that a member of the inner circle regularly alternates with one of the outer, what we perceive is first one little line and then another; upon rotating it more rapidly, however, this aspect changes, and we perceive, instead, two continuous, parallel bands. It is evident, therefore, that what is successive at one rate of perception may be simultaneous at another. Accordingly, natural phenomena separated by hours, days, and years might, under the proper conditions, arrange themselves into harmonious union, coming to view as complementary elements of single, unified totals. Simultaneous aspects of the world, on the contrary, might be strung out into series of temporal sequence. The musical tone would resolve itself into a succession of vibrations. The flash of lightning and the peal of thunder, the jet of steam from the locomotive and the shrill whistle, would make the impression of disparate, *quasi* independent events, the one occurring hours or days after

the other; close observation alone would reveal the connection between them, in a sequence of remote cause and effect.

If, now, we combined the wonderful transformations due to alterations in the time-scale with similar ones resting on changes in space,—that is, if we coupled the fantastic metamorphoses of nature sketched in the preceding pages with metamorphoses like those indicated by Professor Crookes,—we should obtain a still more baffling result. Yet all these changes would be the outcome of simple variations in temporal and spatial dimension,—variations in the size of the perceiving individual and in the amount of time he can encompass at a stroke. If, in addition, we were to invoke the assistance of faculties which he does not possess, if we were to lend him powers far higher and finer than our own, the metamorphoses might be so radical that every vestige of resemblance to our present universe would vanish, and we should veritably pass into a different realm of being.

It is evident, then, that the aspect of the world depends in great measure on the mental constitution of the observer, and we realise what the philosophers mean when they say

that matter is a product of mind. One quality after another of material nature is shelled off as ideal in character, until finally the conclusion begins to dawn on us that the universe, like an onion, has no material core at all, but consists entirely of shells.

v

For, what we call this life of men on earth,
 This sequence of the soul's achievements here,
 Being, as I find much reason to conceive,
 Intended to be viewed eventually
 As a great whole, not analysed to parts,
 But each part having reference to all.

BROWNING, *Cleon*.

Thus far we have confined ourselves to the physical universe. But the mental world—of thought, desire, and emotion—must also pass through the temporal lenses with which we are endowed before it can be experienced. The question then arises: what would be the aspect of this world if taken up by minds of different span? This inquiry is valuable, not merely for its own direct results, but also by reason of its bearing on related questions. It is not a novel theory that one and the same body of experiences may serve as the basis of

various lives. Fechner makes a good deal of this view. The opinion, especially, that our life is included in that of God, has found wide acceptance. Now, as Professor Royce has indicated, the time-span of other forms of consciousness may differ widely from our own; whence the corollary that, if our experience were shared by other beings, it might undergo extensive modifications in accordance with the perceiving span. If, then, we should find our life frequently falling into rational and well-ordered experiences, under different temporal conditions, there would be a presumption in favour of the reality of those conditions.

Let us emphasise, once more, that the sequences or collocations of one span may, in fact, have perfectly definite collocations answering to them under others. The slowly revolving firebrand corresponds to the luminous circle of a faster revolution, the succession of vibrations to the continuous tone. In some instances, like the latter, the phenomena resulting under the various conditions, though heterogeneous, may still be definite and regular; in others, the significance and order of one rate of succession would very likely

be the result of irregularity and seeming irrationality elsewhere. Accordingly, many meaningless, perverse, and problematical aspects of our own life may likewise fall into rational configurations when seen with different spans; so that, while engrossed in the obscure duties of everyday existence, we may veritably be tracing the vibrations that impress higher ears as entrancing tones.

Daily, with souls that cringe and plot,
We Sinais climb and know it not.

The experience of the individual, by himself, may be the basis of the temporally modified views, or it may require supplementation in that of other persons; in this case the individual's life would answer to a single tone, figuratively speaking, the other individuals furnishing the companion-tones that produce melodies and harmonies.

VI

The question now arises: what would be the actual aspect of our experiences, when seen through the perception-windows of different spans? More especially, since the analysis of our thoughts and feelings into the

elements of smaller spans appears well-nigh hopeless, how would they impress a larger view? In the first place, many details would drop out of the picture. The position assumed in a chair yesterday morning, the revery into which we fell after dinner, the casual words spoken to a friend on the street,—all would be lost in the larger outlines of the scene. Instead, there would be streams of tendency, movements to and fro, waxings and wanings, upwellings and subsidences. As the electric sparks, when seen in rapid succession, give way to a streak of light shooting from end to end, so our isolated actions and emotions might coalesce into directly perceptible connecting-links.¹ The single beads of experience would appear as members of regularly arranged chains or figures. The successive steps by which a man climbs to a position of social eminence, for example, might flow into a continuous movement. The evil deed and its remote punishment—without connection for our myopic eyes—would be revealed as elements of a single process.

¹ This would not necessarily exclude the existence of stable, immutable aspects of experience. But many of the aspects which now are stable would no longer remain so.

As in the physical examples, much that now is successive in nature would appear simultaneous. Some of the results, perhaps, would resemble those obtained by rapidly revolving a disk which is covered with various colours, the separate experiences uniting in single conscious facts of magnified depth and richness. Or they might resemble the parallel bands obtained from the little lines, forming disparate and side-by-side elements of a larger totality. Among the coalescing experiences there would probably be those regular, almost rhythmical successions of emotions and situations which characterise our life. Cursorily, experience seems to embody a constant change, with new circumstances and feelings at every turn. Closer observation, however, reveals a perpetual recurrence of similar types of action and emotion. Starting from the station of a poor newsboy, for example, a man climbs to the position of a millionaire and king of finance. In one respect every successive step is different from those which have gone before, in another all are alike. There is always the same relative advance over preceding conditions, always the same eager desire and strife, always the same satisfaction

of attainment. The initial steps, marked by slight increases in salary or advancements of position, are relatively as important as the great dividends or financial conquests of later years. They are as eagerly anticipated and as joyously felt. The various advancing steps, in short, are "homologous." The man's career might be compared to a pyramid, spreading out, from the apex, in wider and wider sweeps, the degrees of betterment corresponding to the successive sections, and the homology finding its counterpart in their geometrical similarity. This homology is realised in a conceptual manner; through the agency of a larger span, however, it might appear directly. The broader view might behold the phases of our life as they are unified into single figures or plans. Like a magician who, with one thrust, runs his sword through a multitude of cards, it would gather groups of successive experiences on a single thrust of perception. To turn the matter about, we might imagine a microscopic being, with contracted outlook, spending its whole life crawling down a pyramid,—beginning at the apex and circling about the sections in a gently descending path; looking over its experience, then, it would

realise a certain regularly recurrent aspect, which would finally lead to the recognition—vague and conceptual—of a single process or plan. We, too, may be microscopic beings with reference to a higher span, our “homologous” situations corresponding to the pyramidal sections, and the hypothetical collective view to the perception of the pyramid as a whole.

VII

A larger temporal view may throw some light on the goal or meaning of existence. It is a paradoxical feature of our life that we are compelled, by an inner propulsion, to push forward and strive for the realisation of new ends, although, so far as we can see, we shall be no better off for their attainment. Athletic distinction, love, wealth, influence, honour, fame,—all court our endeavours, without, however, granting us that great end, that highest good, toward which we were supposedly moving. Our efforts at attainment are as fruitless as the endeavour to catch up with the horizon. The supreme good always remains off in the distance,—indeed, we were

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as near it in our youth as we are in old age. There is no temporal end to our efforts, no final, definitive satisfaction of the will. The good lies all along the way, and seems to encompass us from above rather than to draw us along from ahead. Yet we cannot cease striving and desiring. The plausible conclusion that since the later stages are no better than the former it is folly to strive at all, and wisdom to remain as we are, is not tolerated by our deeper nature. We may have been as happy playing marbles as in our present engagements, but would hardly care to go back to the boyish time again. One may not have gained in essential well-being through marriage, but, if single, would doubtless be driven again toward matrimony. Our youthful illusions about the satisfaction flowing from achievement, greatness, and fame may have been dispelled, yet we cannot rest idle, and, though we know not what the positive gain of our work will be, or whether there will be a gain at all, we are urged forward by an inner force which insists on aspiration, movement, and progress.

We are thus in the position of striving after

an end of which we fail to know the value, of persisting in an apparently meaningless game, and, as rational beings, we endeavour to unravel the significance of our paradoxical situation. Now, in melody we have a beautiful example of a value which is the result of just such ever-recurring strife and endeavour, without approach to a final goal of satisfaction. Melody, like life, consists of an alternating series of satisfactions and dissatisfactions, tonic yielding to non-tonic harmonies, and these again preparing for the first. Likewise, there is no final goal, affording permanent, definitive rest.¹ It is often difficult, almost impossible, to determine which parts of a melody are the most beautiful: the fourth measure is just as pleasing as the sixth, the tenth no more so than the fourth. Nevertheless, though no part is markedly superior to any other, it would be folly to rest satisfied with the present notes, without moving on to the next; the value of each measure, and of the whole, lies in the motion, in the passage from part to part, and would be transformed into monotony if the

¹The concluding cadence does not fulfil this condition, for with it the music ceases altogether.

movement were suddenly suspended. No measure is effective solely by itself, but only through its connection with the surrounding bars,—as the result of the preceding notes and the anticipation of those which are to come; remove this *milieu*, and the tones become meaningless.

The analogy is striking: life is a magnified melody, and melody is a miniature life. Only in one respect is it incomplete: in the case of the melody there is a listener who appreciates its beauty, whereas in life we apparently have only the individual notes. But does not this unfilled gap suggest the reality of some grand, superhuman, listening ear, which likewise appreciates the meaning and value of our existence? Without its presence, indeed, the whole explanation collapses; to strive for the accomplishment of some purpose which shall be realised by nobody, is just as irrational as to strive blindly, with no purpose at all. Here, then, we have a case where the realisation of a rational and harmonious result, through our hypothetical alterations, indicates the existence of a perceiving mind for which the result has been achieved.

VIII

We have frequently invoked the assistance of musical analogies. They are valuable aids in considerations of a broad ethical and metaphysical nature. Most of the deeper arguments which seek to account for the evil in the world are reducible to the simile of the discord: as dissonance increases total consonance, so pain and evil enhance pleasure and good. But the comparisons may be extended much further. Let us devote a few words to the subject of musical overtones and the vibrations on which they rest. A single tone on the piano contains some half a dozen higher tones or partials; a chord of eight notes, then, is accompanied by about fifty secondary tones, some coinciding with each other, some disagreeing. Besides, there are the combinational tones produced by each pair of principal ones, which would add between fifty and sixty further members. But the partials also unite to produce combinational tones; as a result, we have a total of several thousand elements, without counting the infinite combinations which would again spring from a union between the various dif-

ferential and summational tones. All this would be the product of a simple chord of eight members. Now imagine an orchestra of eighty pieces performing a symphony by Tschaikowsky, with its myriad notes, its contrapuntal and thematic intricacies, harmonic beauties, and instrumental contrasts: the mind is baffled when it attempts to picture the realm of secondary tones called into being by such a work. What a chaos of interrelations, what fragmentary agreements, what paradoxical disagreements, what struggle and friction and strife! When we leave the realm of sound and pass into that of vibration, the picture grows still more perplexing. The atmosphere of the concert-hall, agitated by all these crossing and recrossing impulsions, is a veritable macrocosm, rivalling in complexity the more tangible system of material nature. What philosopher, examining the atmospheric waves, could explain the apparent anomalies, giving the reason and governing principles of the chaotic interplay of elements? Yet deep down in the region of the fundamental tones are the laws of thorough bass and melodic beauty which firmly guide the course of it all, the explanation of all the seeming

irrationality and disorder. The conclusion is forcibly impressed on the mind that we also may be living in a region of overtones, and that we are subserving deep laws of purpose and beauty by our faltering endeavours.

Modern music is based on the tempered scale. Accordingly, the chromatic series of notes includes twelve tones within the space of an octave, represented by the seven white and five black keys of the piano. In strict accuracy there ought to be several dozen of them with separate keys for all the sharps, flats, and double-accidentals. F[#] is not exactly the same in pitch as G^b, C^{##} not the same as D. The differences are so minute, however, that they have been disregarded: some intervals have been slightly raised, others lowered, the result being that we can pass upwards or downwards and make unrestricted use of accidentals, without anywhere receiving a noticeable shock of faulty intonation. Only a trained ear will be offended by the deviations from absolute perfection of the intervals of the tempered scale. The advantages are obvious. If it is difficult enough to master the technique of the piano and organ as they are, how immeasurably

more difficult would it be if there were such a number of keys to the octave. Slight imperfections, then, have been introduced for the sake of larger advantages. But the imperfections are only slight from the point of view of the human listener, who appreciates the music in its entirety. The physicist with his delicate instruments, listening for differences of pitch or examining the aspects of vibration, might find them considerable; still more so a being which was unable to hear the music at all, but lived entirely in the realm of partials or atmospheric vibrations. To such a being the irregularities might be serious matters; indeed, they might constitute the opaque, irrational, and hopelessly evil aspects of life. And yet they would be the means by which larger good was realised. May we too regard the universe as a gigantic tempered system of experiences; may the discords, defeats, and sufferings—great from our point of view, but slight from that of the totality—be the means by which higher values are attained; and may we hope eventually to pass into the domain of reality, and share in the beauty we have helped to create?

The considerations of this section have

formed a digression. We have purposely passed from the realm of temporal change into a region of more general observations. The fundamental object of the essay has been to enforce just this broader conclusion, that the aspects of human life may form the fragmentary elements of higher unities, imperceptible from our restricted point of view. We do not insist that these unities depend on a magnified temporal sweep; they may and they may not. But one conclusion may be upheld in all seriousness: and that is the general proposition that there are different, interconnected levels of experience, that our conduct may have unseen results of which we have no conception, but that we may some day come to share these results through a radical transformation of being.

NOTE, P. 185 *et seq.*

The problems involved in changes of temporal span are so complex, to be sure, that scientific accuracy can hardly be expected in dealing with them. Von Baer's results as to changes of visual appearance depend on two conditions: (1) that vibrations exist whose rate of frequency will, under the postulated changes of span, correspond to that of our own light rays; (2) that these vibrations are actually emitted by the bodies which are not visible.

If the span were reduced a millionfold it would require vibrations a million times as rapid as those of light to affect

the optic nerve. Do such vibrations exist? If not, the very conditions necessary for vision will be lacking. The same will be true if the vibrations in question, though existing, are not connected with the bodies which are now visible. Some bodies are attuned to all the rays in the spectrum, some agree with a limited number of them, and some reflect none at all. So it is conceivable that but few or none of our visible objects would, under the altered circumstances, send back the rays subserving light.

However, we may neglect these possibilities, and proceed on the assumption that the conditions will be fulfilled. We are not preparing an accurate survey of a known region, but are indulging in semi-poetical speculations regarding the unknown. Our object is to suggest the peculiar nature of the results which might ensue from alterations in temporal span. There is no doubt that these results would be more remarkable still if the conditions stated were not fulfilled. It is impossible to picture the universe in that case, but we can be assured that it would exhibit wide departures from what we are accustomed to seeing.

ORGANIC EVOLUTION IN THE LIGHT
OF COMPARATIVE PHILOLOGY

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I

LANGUAGES are the outcome of development. The French tongue of to-day grew out of the Old French of the Middle Ages, and the Old French developed out of still remoter forms, originating ultimately in the Low Latin of the Romans. Latin, again, was derived from a more ancient predecessor, forming the root both of the classic idiom and various other primitive Italic dialects. The Germanic dialects had their origin in a common tongue, likewise the Slavonic. All the so-called Indo-European languages, indeed, could be traced back, were our knowledge complete, to one original source. Apart from historic evidences, there are certain indications in the languages themselves which indubitably point to this interrelation. These are matched by corre-

sponding phenomena in the animal and vegetable kingdoms, thus suggesting a similar evolution.

A word from an ancient tongue gradually alters its form as we follow it through the succeeding dialects, until at last it presents a totally different aspect,—so pronounced in some cases that a superficial examination fails to reveal any similarity to the original form. The Latin *scribere* becomes *escrivre* in Old French, a change which is further extended in the modern *écrire*. *Alter* passes into *altre*, and this again into *autre*. In the tenth century *anima* had been transformed into the French *anime*; by the eleventh it had become *aneme*, by the thirteenth *amne*, while to-day it greets us under the form of *âme*.

In view of such phenomena, recurring in thousands of words and dozens of languages, we should be led to the hypothesis of a gradual transformation even without the actual historic evidence. The peculiarly convincing feature is the fact that the alterations all point in one direction; they form an even, continuous series, the members of which lead from end to end by gradual and more or less regular steps, just as a tone succeeds its

neighbour in the musical scale. If this were not so,—if *anima* were succeeded by *âme*, this by *amne* and this again by *anime*, if *scribere* were followed by *écrire* and *écrire* by *escrivere*,—the difficulties besetting the proposed explanation would be great. As it is, the deduction is well founded that the later forms of a series are outgrowths of the former. To regard all the various forms as independent creations, fashioned through the ingenuity of man or by the fiat of some deity, and without reference to the previous ones, would be a monstrous assumption.

Exactly similar is the case in the animal and vegetable kingdoms. Geology presents a host of organic remains which, in a broad and general way, and often also in detail, exhibit a serial change. In the early geologic ages we only meet with the very lowest forms of invertebrate life. Higher ones follow, but vertebrates are not to be found until a subsequent age. They are originally represented by a kind of reptilian fish. Later this passes into true fishes on the one hand, resembling the modern ones, and, through amphibians, into genuine reptiles on the other. Birds and low mammals next appear, the latter grad-

ually passing into higher and more specialised forms, and culminating with the appearance of man. The same general advance, from the lowest to the highest forms, is apparent in the vegetable kingdom.¹ In many details, likewise, we meet with the identical principle. Birds, so radically distinct from other vertebrates, and especially from reptiles, are connected with the latter by certain intervening members, partly reptile and partly bird. True mammals are preceded by marsupials, whose manner of producing the young is intermediate between that of the higher and the lower orders. Horses are at first represented by small animals with four toes; the size gradually increases and the number of toes is diminished, until at present we retain but a single one—the hoof—while the remnants of two others—the splint-bones—are hidden beneath the skin.

Here, also, the convincing feature lies in the constancy of direction. To be sure, there are gaps in the record, and many links necessary to exhibit the process in its com-

¹ In general our illustrations will be drawn from the animal kingdom; but they could easily be duplicated in the sister-realm.

pleteness are lacking; but the theory of evolution does not stand alone in this respect. A series of words, too, may lack certain members, yet we assume the connection between the newer and the older forms. The geological record, indeed, bears great resemblance to the remains of the Indo-European languages. In some cases the transformation can be followed rather closely; in others extensive *lacunæ* exist in our knowledge. However, there are so many traces of progressive change, and the whole presents such a general appearance of growth, that we can hardly resist the force of the accumulated evidence.

II

The preceding remarks deal with single lines of transformation; but as a branch does not confine its growth to a solitary course,—forking out instead into smaller twigs,—so words diverge and follow separate paths. The Latin *mundus* has not only developed into the French *monde*, but a simultaneous process has led to the Italian *mondo*, the Spanish and Portuguese *mun-do*, and the Provençal *mon*. *Tempus* likewise has pro-

duced the French *temps*, the Italian *tempo*, the Spanish *tiempo* and the Wallachian *timp*. If it were possible to trace the history of a native Indo-European word from its original form in the mother tongue, we should very likely meet with an initial disjunction corresponding to the ancestral languages of the Eastern and Western branches of the Aryan race. The Western form, to confine ourselves to this, would again divide into various secondary differentiations, answering to the mother tongues of the European subdivisions of this race. Each of these would once more diverge as the racial ramification was continued. The Teutonic word would branch out into several co-ordinate members, corresponding to the ancestors of the Low German, High German, and Scandinavian tribes. The Italic one would produce, besides various sister-forms, the distinctively Roman or Latin type, which would engender the forms characteristic of the Romanic nations. The same process would be exemplified in other words as well, and would consequently apply to the languages in their totality,—these being nothing but collections and arrangements of words. The result, as we actually

find it, is that treelike classification of the Indo-European languages, in which one great class is divided into numerous constituent members, which are again subdivided into smaller and smaller divisions.

In the grouping of organic life, the first dichotomy gives rise to the animal and vegetable kingdoms. Both of these are again divided into sub-kingdoms, the sub-kingdoms into classes, the classes into orders, the orders into families, the families into genera, and the genera into species. The inference from this resemblance would not unnaturally be that the mode of origin of the two systems was identical,—an inference which is strengthened by many geological facts. “In the earliest Eocene,” remarks Le Conte, “the great branches of the mammalian class were very near together, though their point of union has not yet been found. As time went on, these separated more and more widely, and gave off sub-branches, which again divided, and so on. In general terms, it may be said that some of the *existing orders* may be traced back to the Eocene. Many of the existing *families* commenced in the *Miocene*; *existing genera*

in the *Pliocene*; but existing *species* only in the *Quaternary*.”¹

It is significant when one line of evidence thus exactly matches and confirms another. We shall repeatedly meet with the same mutual furtherance of arguments.

III

Having followed the verbal mutations along various simultaneously progressing lines, let us compare the members produced. The following table presents words which have sprouted from a single stem, exhibiting the forms which they have assumed in various interrelated languages:—

English	two	three	seven	thou	me	mother	brother	daughter
Germanic								
Dutch	twee	drie	zeven		mij	moeder	broeder	dochter
Icel'ic	tuó	thriu	sió	thu	mik	modhir	brodhir	dottir
High-Germ'n								
Moeso-Gothic	zwei	drei	sieben	du	mich	mutter	bruder	tochter
Lithuanic	du	tri	septyni	tu	manen	moter	brolis	dukter
Slavonic	dwa	tri	sedmi	tú	man	mater	brat	dochy
Celtic	dau	tri	secht	tu	me	mathair	brathair	dear (??)
Latin	duo	tres	septem	tu	me	mater	frater	
Greek	dūo	treis	hepta	sū	me	meter	phrater	thugater
Persian	dwa	thri	hapta	tum	me	matar		
Sanskrit	dwa	tri	sapta	twam	me	matar	bhratar	duhitar

(Taken from Whitney's *Language and the Study of Language*, p. 196. New York, Charles Scribner & Co., 1868.)

¹ Le Conte, *Compend of Geology*, New York [c. 1898], p. 381.

The first thing to impress us, in scanning this table, is the remarkable similarity of the words of like meaning. There are differences of detail, but they are always superimposed upon a deeper and more essential resemblance. The immediate inference is that there must be some relation between the various forms, and that they could not have been produced separately, without connection with one another. Historical information, of course, reveals the nature of the relation: the words resemble each other because of their common origin; in the course of time they underwent alterations at the hands of different subdivisions of the parent stem, but always retained a resemblance to the original form, and consequently to one another.

In the organic realms also there are fundamental resemblances or types, corresponding to the generic similarities of the words. The skeletons of vertebrate animals form a corroboration. If the class of vertebrates is analogous to the system of Indo-European languages, its subdivisions may be compared with the members of this system; but since the relations between languages are typified

perfectly in single representative words, like those above, they may also be compared with the words. As in these, there is an essential resemblance throughout, coexisting with the greatest variety of accidental differences. The structural nucleus is the vertebral column, ending at one extremity with the head, at the other with the tail. To this are (indirectly) attached the limbs, which consist of a single bone joined to the framework, a double one for the fore limbs, and numerous smaller members which culminate at the extremities in fingers, toes, and so forth. The parts may be twisted about most extravagantly, and may subserve the greatest variety of functions, yet there is always the same fundamental resemblance. In the human being and bird, only the two hind limbs are used for walking; in the horse and lion, all four; the limbs of the bird and bat are instrumental in flying, those of the seal have been modified for swimming. In some cases they are covered by hair, in other instances by feathers, and at times again by a smooth skin. The fingers of the bat are elongated to such an extent as nearly to equal the body in length; the pterodactyl, an

extinct species, had a single finger thus fantastically enlarged. Reptiles and whales have long bodies and short limbs; human beings, monkeys, and cows, long limbs and proportionally short bodies. In some families the tail is prominent, in others it is only moderate in size, and in still others, like the human being, it is represented by a mere remnant. Yet, in spite of all these startling variations, there is no more doubt regarding the identity of form throughout than there is concerning the resemblance of the words in the table.

Here also there must be a relation; the animals could not all have been produced separately and independently of one another. And the same explanation presents itself again: they are interrelated through genetic ties, their similarity being the result of derivation from a common source. This conclusion is rendered doubly plausible through the solidarity or organisation of the resemblances. If the Latin *mundus* and *tempus* were in Italian transposed into *domon* and *potem*, while Portuguese exchanged the syllables so as to produce *munpo* and *temdo*, the relations between the various

forms would be dubious in nature.¹ Everything in the parent words would be retained in the derivatives, to be sure, but the "homology" of the parts, their collocation and grouping, would be inexplicable. Now, just as the various elements of a word always hang together in their proper places in all the related forms, so the organic aspects of a species of animals correspond, homologically, to those of the other species in the same class. There is no chaotic shifting of members, as in the Italian words, and the members never take it into their heads to jump from one division of the animal kingdom into another, as in those from the Portuguese tongue. The sequence of bones in the limbs is never reversed: we never find five bones next to the framework and one at the extremity. The internal, jointed skeleton of the vertebrates goes with their brain, red blood, and five senses; the external skeleton of the insects with their white blood and nervous ganglia. No creature with an external skeleton has a central brain, none with an internal framework has white blood. If evolution were

¹ The Italian forms, it will be remembered, are *mondo* and *tempo*, the Portuguese ones are *mundo* and *tempo*.

not the true hypothesis, if every type of life were independently created, without reference to the others, there is no reason why the members of the body might not arbitrarily be shaken up and rearranged, or why a species might not possess some of the essential features of one class, and some of another;—why, for example, a sea urchin might not, along with a general organisation resembling its own, possess limbs like those of vertebrates, or why an alligator might not have six or more legs, similar to many articulates. An animal's organism is conjugated entirely in the language of its class. A vertebrate is a vertebrate throughout, an insect is an insect. This is so even where there is apparent similarity, among members of different classes, and where the functions and modes of life are similar. A butterfly resembles a bird in the possession of wings and the ability to fly, but with respect to fundamental structure there is no agreement whatsoever. A snake has the same appearance as a worm or caterpillar, yet its essential formation is highly different. Essentially it is more closely allied to gorillas, while the caterpillar takes rank with the butterfly.

The reference to these cases of apparent resemblance, accompanying essential difference, leads to another feature characteristic of verbal developments, which further amplifies the analogy between the two realms. Words, likewise, have superficial resemblances attending fundamental disparity. I refer to those parts of speech which sound alike but are spelled differently, mean different things, and have different origins, such as *one, won; been, bin; I* and *eye*. The resemblance in these cases corresponds to that between the wings of the butterfly and bird, superficial in nature and without foundation in deeper identity.

One more structural feature must be mentioned. Many words contain letters which are never pronounced; examples are the *w* in *two* and the *gh* in *thought, might, and right*. The explanation of the silent letters is that they were originally sounded, but were later omitted, although retained in the spelling. The *w* in *two* is matched in the Latin *duo*, the Slavonic *dwa*, and the German *zwei*, the *gh* referred to, in the German *dacht, Macht, and Recht*. Similar in principle are the cases where a letter represents a contraction of an

older syllable or word. Instances abound in English proper names, such as *Stevens*, *Richards*, *Williams*,—the *s* being an abbreviation of *son*. Indeed, in most of these cases a fuller form, approximating the original more closely, still remains coexisting with the other, as in *Stevenson*, *Richardson*, and *Williamson*. Finally, there are words in which every trace of members which were formerly present has been lost. Witness the French *un*, in which the last syllable of the Latin *unus* has completely disappeared, and the English *bring* and *weight*, which have dropped the *an* and *ge* of the Anglo-Saxon *bringan* and *gewiht*.

This presence of useless or abortive members, bearing the aspect of remnants, finds its precise analogue in the realm of life. Indeed, it is one of the most significant arguments for evolution. Many cave-fish possess useless, rudimentary eyes, destined never to see. Certain insects have undeveloped wings, totally unserviceable for flying. Human beings carry about the rudiments of a tail in the lower bones of the vertebral column. Whales are furnished with dwarfed bones corresponding to the hind legs of their fellow-vertebrates; and the same is true of certain snakes. The

case of snakes is especially interesting, as only a single variety retains these remnants, while the majority show no trace of them; these correspond, accordingly, to the words in which every vestige of certain syllables has been lost. Finally, we may mention the splint-bones of horses, referred to above as the remains of former members, and the stunted toes of dogs and cows. The only plausible explanation of the presence of such useless appendages is afforded by the hypothesis of evolution. All these rudiments are relics of former organs. Like the philological parallels, they have dwindled away, for reasons beyond the scope of this inquiry, to abortive vestiges. In some instances the reduction has been carried so far that every trace of the organs has disappeared. The evidence for evolution is especially strong where, as in the case of the splint-bones, we possess the actual fossil remains of forms in which the dwindling had not yet begun.

IV

The resemblance between related languages is greater in some instances than in others.

This is especially apparent in the number of native words bearing a genetic similarity to each other. The parts of speech resembling one another in Sanscrit and the Western tongues are comparatively few; those in Greek and Latin are more numerous; while closely related dialects, like Swedish, Norwegian, and Danish, employ almost the identical stock of words. The degree of affinity between the words in question also varies from tongue to tongue. The Provençal *paire* and *man* are similar to the French *père* and *main*, but differ considerably from the Italian *padre* and *mano*. Italian words, again, show more resemblance to Latin than to French ones, Portuguese to Spanish than to Wallachian. In general, the resemblance between languages is greatest where the languages are most closely related, and least where the affinity is remote. But those tongues are most closely related in case of which the separation of the nations which speak them, or the derivation from the common mother tongue, was recent, while those are more distantly affiliated which are the result of a longer isolation. In other words, the amount of divergence tends to vary directly as the period during

which the process of differentiation was continued.

Here, again, organic life affords a parallel. The flora and fauna of geographical regions which have long been severed—through intervening seas, mountain-chains, and the like—show wider divergences than is the case where the isolation has been less ancient. Continents separated by oceans are stocked with totally different forms of life, although the climatic conditions may offer no obstacle to the existence of similar species. The mammals of islands separated from the mainland by shallow straits of water differ less from those of the mainland than the mammals of islands which are sundered by deeper channels, the reason being that the insulation is probably more recent in the former than in the latter case. A curious confirmation of the same principle is afforded by the Malay Archipelago, where the quadrupeds on each side of an imaginary line through the water show greater differences than those of the various constituent islands. Soundings reveal that the water along this line is deeper than elsewhere, thus again indicating a difference in the period of separation.

Another remarkable fact is that existing animals resemble in type the fossil species of their respective continents. If a modern French word had been preceded, in the Middle Ages, by the Anglo-Saxon form of the same word, while the English equivalent had similarly been antedated by the Old French, there would be reason for surprise, and the transformation of one form into the other would not be evident. Similar would be the condition if the living species of one continent resembled the dead ones of another, and *vice versa*, a state of affairs which would be perfectly natural if all species had been separately created. If the violation of the principle of continuity, however, speaks against the theory of evolution, its observance ought to be an argument for it.

V

The preceding lines of proof have all been based on the analogy with language. There is one highly significant feature of the organic realm, however, involved in embryological development, which fails to find its analogue in the realm of words. The growth of a

person's character has often been regarded as a miniature representation of the development of the whole race, the individual passing through the same stages which the nations have traversed before him in the course of time. However true or untrue this may be, it is a fact that many animals embryonically exhibit the stages which their forerunners must have traversed according to the theory of evolution; and this, reason the evolutionists, is just what might be expected on the basis of their doctrine. Man, for example,

begins from a speck of living matter similar to that from which the development of a plant begins. And, when his animality becomes established, he exhibits the fundamental anatomical qualities which characterise such lowly animals as the jelly-fish. Next he is marked off as a vertebrate, but it cannot be said whether he is to be a fish, a snake, a bird or a beast. Later on it is evident that he is to be a mammal; but not till still later can it be said to which order of mammals he belongs.¹ "

At one time he reveals piscinal traits, at others he manifests surprising resemblances

¹ Romanes, *The Scientific Evidences of Organic Evolution*, London, 1882, p. 64.

to his fellow mammals: his great toes project at an angle from the foot, he has a tail, longer than the legs, and during the sixth month of embryonic life he is covered from head to foot with hair, except only the palms of his hands and soles of his feet. What is especially remarkable is that the sequence of conditions agrees so closely with the general development of life on the planet, as revealed by geology, and indicated in a previous section. There is a parallelism between the two, the one forming a miniature copy or epitome of the other.

Passing from individual species to whole classes of animals, we again meet with a remarkable parallelism. Beginning with a common progenitor and simultaneously progressing along their special lines, the members of a class have, according to the doctrine of evolution, given rise to a tree of life in which single primitive forms split into ever-increasing ramifications. This process is strikingly pictured in the embryological development of many related species. The first stages are alike in such cases, no matter how highly differentiated the adult animals may be. Then the greater subdivisions of the class

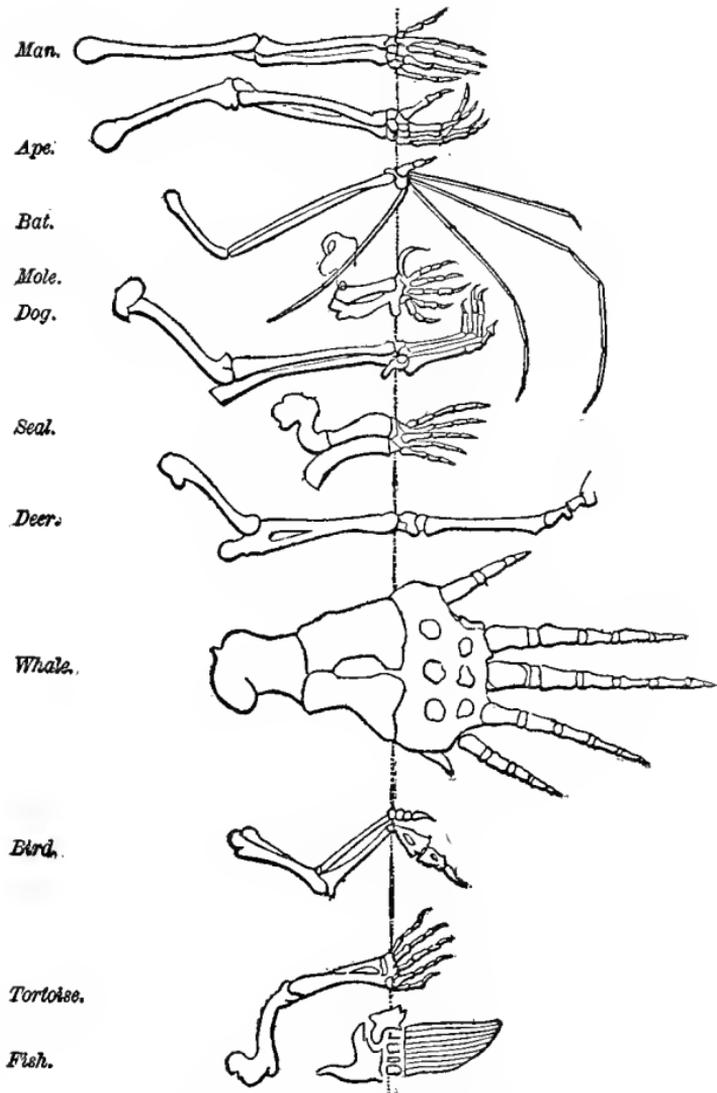
begin to appear, and later the more minute ones, until finally the species stand forth clearly separated from one another. The facts of geology, classification, and embryology accordingly all agree with each other, one line of argument reinforcing the other, and all together raising an almost irresistible presumption in favour of the doctrine of evolution.

In this solidarity or organisation of the lines of proof lies one of the most convincing features of the evidence. Everything tends in one direction, everything supports the evolutionary hypothesis, nothing runs counter to it; at most, there are gaps in the evidence, which, however, are easily explained by the imperfection of the records. The facts of embryology cover those of geology, as well as of classification. The argument from rudimentary structures is confirmed by geology in cases like that of the horse; and where a rudiment, like the human tail, is embryonically preceded by a larger organ, embryology and morphology reinforce each other; the similarity of the living and fossil organisms of a continent, finally, affords an agreement between the facts of geology and geographical distribution.

Not only, therefore, do the lines of phenomena individually show a remarkable resemblance to those of comparative philology, but they exhibit a solidarity which is highly convincing; and in the facts of embryology, both in their isolation and their connection with the other phenomena, there is an additional body of evidence, which seems to render the case for organic evolution even stronger than that for the transformation of languages. The only advantage on the philological side springs from the actual historic evidence of a transformation. This of course we shall never possess in the case of the organic realm; the process of evolution had no eye-witnesses who might have transmitted their knowledge to us. But if ever an inference regarding facts not directly experienced was justified, it would seem to be the present one. So coercive is the evidence that it virtually amounts to demonstration.

NOTE, P. 220

As a counterpart of the table of words, we subjoin a figure representing the anterior limbs of certain vertebrates (taken from Steele's *Fourteen Weeks in Zoölogy*), which illustrates the typical similarities of the species in question.



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