

AN ANALYSIS OF THE DEPICTION AND CAPTURE OF MOVEMENT
BOTH IN LINE AND IN SCULPTURE AND THE METHODS BY
WHICH THIS HAS BEEN ACHIEVED.

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INTRODUCTION

The depiction of movement in art has been one of the great challenges for countless artists and many different movements (most notably the futurists), who dedicated themselves to this phenomenon. The more that one studies about movement, the more one realizes how considerable the subject is, and that it is not simply the act of, say, moving a physical object from one point to another. In order to begin, therefore, it is necessary to be aware of the true meaning of movement.

Movement is defined in the Oxford Dictionary as follows:-

Move: Change position of, put or keep in motion, shake, stir; change posture of (body); to affect (person) with emotion.

Movement: Moving; military evolutions; moving parts of a mechanism (i.e. clock); mental impulse; progressive development of poem, story, etc.

All around us there is movement. Indeed our bodies are given life through movements created by nature. The moment that movement ceases, we die. Everywhere we look there is activity. Tidal waves, traffic lights, streams of speeding cars and aeroplanes, and now rockets and space capsules and the growing haste of mankind.

This outward haste has its inner counterpart. Our interior world is shaped by the restless speed of bad consciences. We are forever searching for success and relationships and we set goals and values in a relentless hurry. The whole emphasis of our modern world is on performing faster and more efficiently, producing more and acquiring power and possessions which both corrupts and corrodes us.

The last few decades have seen a massive acceleration of progress. When one perceives that what is now achieved in decades was formerly considered in centuries, the full understanding of our plight becomes even more apparent.

Indeed, it seems that the individuals' role is meaningless and out of scale with the pace of happenings around us.

Our perceptions of movement affect us in different ways. For example, the invention of new toys that perform various unusual functions draws the attention of consumers, and in quick tempo toys are bought by admiring adults for their children. However, once the toy is being used by the child, the once fascinated adult soon loses interest as the movement becomes monotonous, whilst the child's immature mind keeps its fascination for a greater length of time before it too becomes bored. Yet despite this seemingly obvious rejection of monotony, most human beings live a very repetitive life style. i.e. working from 8 - 5 each day, content with the rhythm and pattern of their daily lives.

In this lies one of the most important aspects of movement in all forms of art:-

The ability of the subconscious to guide the conscious mind in various directions without the conscious mind being aware of why it is actually happening. In the chapters that follow I aim to break down and understand movement and then apply that knowledge to observations of the work of various different artists and sculptors.



MOVEMENT - REALITY OR ILLUSION ?

Many experiments have been carried out over hundreds of years searching for the complete understanding of movement. Scientists, artists psychologists and many others have spent a great deal of time trying to analyse it and our responses to it.

Leonardo Da Vinci, who spent more time working on his scientific discoveries than painting, was faced with this problem continuously and many of his sketches reveal these efforts.

In his essay "Orientation, Direction, Cheirality, Velocity and Rhythm" (1965) Stanley W. Hayter investigates motion and explores certain avenues which help in the understanding of the perception of motion. He found that each of the five elements in the title of his essay were necessarily involved in any discussion of motion.

"Orientation" signifies direction in regard to the position of the spectator (where is he); "Direction" as north-going or south-going (where he goes); "Cheirality" refers to right or left handedness; "Velocity" is how far and how long, and "Rhythm" is the continued sense of how often. "It may not be clear immediately that all of these terms, except for the first, involve the consideration of time" he continues " In any field of vision the possibilities of motion can be no less than two.

- 1) The actual displacement of the object, and
- 2) the displacement of the eye or the viewer. - The latter occurs when the dimensions are greater than the maximum visual angle."

In a series of experiments made at the New School (1940-41) it was found that in scanning a field, without exception the eye moved from left to right. This



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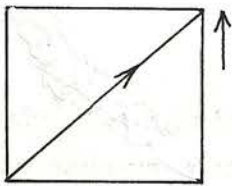


IMAGE. Fig 2A.

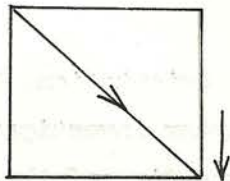


Fig 2B. MIRROR IMAGE.



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occurred with left handed people and also orientals. This is borne out in the experiment at Fig. 2 in which there are two frames, frame a) being an original painting entitled "Dawn Flight" and frame b) being an exact mirror image of frame a). It was found that a diagonal in a rectangle from lower left to upper right was read in an upward direction, while the mirror image from lower right to upper left was followed by the eye in a downwards direction. It is interesting also to note that one's perception of the mirror image is also very different to that of the original painting. There is a fluidity in frame a) which is somehow lacking in frame b).

Consider for a moment the work of a printmaker in this context. The artist who draws on the plate with inspired desires of creating certain effects of movement has to consider that the mirror image that is actually printed will read in exactly the opposite way. This naturally will have a profound effect on how the print reads to the onlooker.

Samuel Hayter's examination of rhythm also produces some interesting points to consider. Rhythm can be described as the repetition of certain elements at either equal, increasing or decreasing intervals as long as a coherent connected system is present.

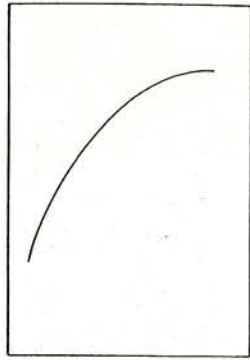
Graphically, movement can be expressed in lines. However, here too, our perception of what we see is conditioned by some subconscious control. Certain lines or curves drawn on a sheet of paper read as specific types of curves. In Fig. 3A the curve is read as convex and that in Fig. 3B as concave - on reflection they could be either, but why then is our initial perception as detailed above ?

In Fig. 3A', the inclusion of a stronger line to intersect the curve in 3A causes it now to appear concave. Likewise in 3B' a thicker interrupted line causes the curve to appear convex.

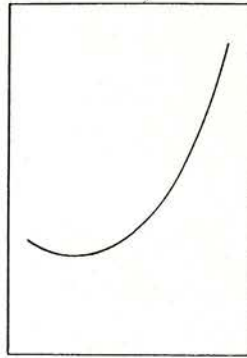
Switching now to directional eye flow observe the line in 3A. The eye runs up the line, decelerating at its peak. In 3A', however, the eye is first drawn to the thicker line running downwards and then to the thinner line. Here (Fig. 3A'') the original line is perceived as running both upwards (bottom left) and downwards (top half) with the crossing point of the thick line becoming the vortex. The thinner line in no way affects the direction of the thicker line.

In 3B the eye rushes upwards with accelerated speed, and in 3B' in which the thicker line is intercepted, the thinner line still maintains its original directional flow. The eye is drawn to the thicker line at first glance, but as it

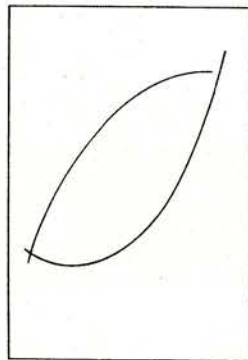
Fig. 3



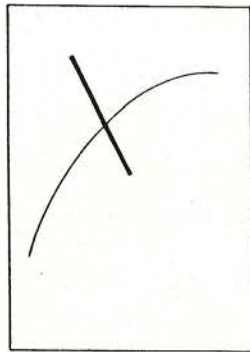
3A



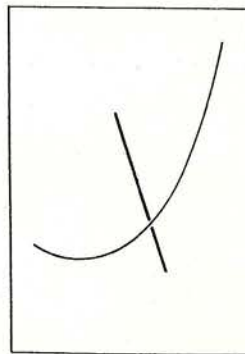
3B



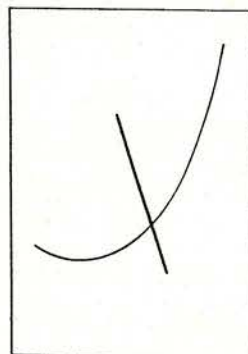
3AB



3A'



3B'



3B''

progresses down the line it is compelled to rush upwards along the thinner line once more. The bottom portion of the thick line appears to run downwards from the junction with the thin line. If, however, the thick line is joined up it has a remarkable effect on the impression of the drawing. The thin line appears concave once more, and unlike 3A' where the top part of the thin line appears to run downwards, this thin line retains its original character running upwards, despite the intersection of the thicker line. The thick line also now has a much more dominant role in the picture, but now the eye is captivated by a need to run both ways. The initial desire is to run downwards but the instant the thinner line is intersected, the eye is compelled to run upwards again.

Taking this experiment one step further, observe Fig. 3AB in which both curves are placed in the same frame. The initial perceptions of 3A and 3B are as first seen: convex and concave, but immediately the eye is caused to reconsider and an assessment of a concave - convex arrangement arises. Since neither curve dominates, no clear definition can be made.

Milton Cohen's studies took him beyond the movement of the subject. The actual interrelation between the viewer and the subject he considered to be of greater importance and he sought to understand the observer. He was a kinetic artist who realised that no matter what efforts were made to create movement in the subject, the understanding of man's powers of perception was of prime importance.

Edward Muybridge's photographic studies of animals and humans in motion have had major influences on art since then, the most obvious of these being the movement of the horse at full gallop which had been painted or drawn "incorrectly" by artists before that date (1878).¹ Quite apart from the factual information gained from these, the illusory perceptions of these picture phases are particularly revealing. At Fig. 4 (Plate 3) is an example of Muybridge's studies; a man walking at ordinary speed seen from the side and from the front. Compare frames 2A and 5A. Set aside the knowledge that the man is walking at a constant speed in each photograph, and look at these two frames individually. In 5A the eye is caused to rush up the figure, aided by the parallel created by the right arm and the thrust forward of the right leg

Note 1: Rodin maintained that an instantaneous photograph is deceptive because it illustrates a frozen movement and did not necessarily create movement itself. He therefore defended Gericault and Toulouse-Lautrec who painted race horses with their four legs simultaneously extended, which never occurs in reality but is indicative of the sensation experienced by the artist watching a race. Since the artist depicts his visual feelings (albeit illusory) the result is nearer the truth than any photograph.

creating a strong overall impression of movement, quite apart from the obvious physical aspect. In 2A however, the eye is drawn to the wrist of the right arm and from there wanders up and down though without any acceleration at all. The figure appears almost static.

Examining exactly the same shots but from the front, (see line B) the figure, at a glance is in almost the same position throughout the series. However, on closer inspection they all differ considerably. 2B - 5B lack any flow to the movement of the body, whilst 1B (rather dark unfortunately) and 6B have a flow through the body providing it with the illusion of movement. (Note details on fold back sheet).

Fig. 5 shows similar photos of a man walking at half stride. The same factors apply to the various frames in this sequence.

In Fig. 6 (Plate 68) 12 frames of two men wrestling covering a wide variety of positions are included. In reality frames 3,4,5,6, and 9 are probably the fastest moving instances. For the eye however, frames 4 and 7 are the two most dramatically active pictures. In each case the eye is drawn speedily through the compositions of both creating the effect of movement.

Marcel Duchamp's "Nude descending a Staircase" is based on a series of photographs of a woman moving down some stairs and was probably influenced by Muybridge's work. It was a way in which to combine and show how to captivate a series of motions in one picture. Another of the futurists, Severini, in his painting "Suburban Train Arriving at Paris" has painted a picture of what looks like one photograph cut into strips and spread apart, causing the eye to move along the painting from left to right, from one puff of smoke to the other, creating a lateral rather than spatial movement.

In contrast to the fact that life is made up of a series of continuous movements, a natural human reaction is to retain static images in their minds. Indeed the average reaction towards a moving sculpture is one of distaste. Perhaps the mind feels happier retaining either natural movement (in other words that which derives directly from nature) and mechanical movement (movement of man-made objects) as long as they both have a purpose and a reason for being so. Where a piece of machinery has no purpose other than to perform a motion, our rational senses discount it as uninteresting and purposeless. Here we enter into the aspect of psychological considerations.

To take these one step further, it is also interesting to note that when there appears to be absolute silence and absolute stillness, the human senses react with fear and concern, a moment that novelists may describe as "an eerie stillness". A human kept in absolute isolation with no changes at all in his scenario day or night will begin to hallucinate, as the mind cannot conceive its surroundings being empty of movement of some kind for any length of time.

Movement is thus a combination of many elements and cannot therefore be limited successfully to any single element, and the ultimate success of a piece of art depends upon how the artist manages to interpret and utilize each of these fundamental components.

Suburban Train Arriving at Paris by Severini (Tate Gallery, London. Rights reserved A.D.A.G.P., Paris 1972).



Fig 7.



Rearing horse - Leonardo Da Vinci

MOVEMENT: ITS APPLICATION IN ART

William Falkner observed that it is "the aim of every artist to arrest motion, which is life, by artificial means and hold it fixed so that a hundred years later when a stranger looks at it, it moves again, since it is life".

What this statement clarifies is that every piece of work carried out by any artist whether attempting to capture the movement of a specific creature or of merely painting a landscape, movement is undeniably the most important factor. Every consideration has to be given to the observer's eye and the methods by which to cause it to move around the piece of work as the artist wishes. This regrettably is not as easy as it sounds. There is a large proportion of society who will never truly understand what the artist is trying to say.

In his book "Animal Painting and Anatomy" Frank Calderon observes, whilst discussing a landscape with cattle in a field that "...The people who would be delighted with the (cattle) would not be those to whom your conception would appeal. They would be the people who would be interested in the cattle alone as cattle, and would judge them as such and not as a part of a pictorial poem. To them the picture would be the cattle. They would not appreciate the things that go to make up an harmonious picture ..."

Calderon goes on to explain the importance of the artist's ability to draw the viewers' eye. "The eye has to be led into the picture, right away into the farthest distance, unconsciously it may be, but naturally carried from one object to another, and yet the 'raison d'etre' of the picture must never be overlooked the eye must be compelled to look at the principal features. The whole must be united, as it would be in nature, or the illusion fails."

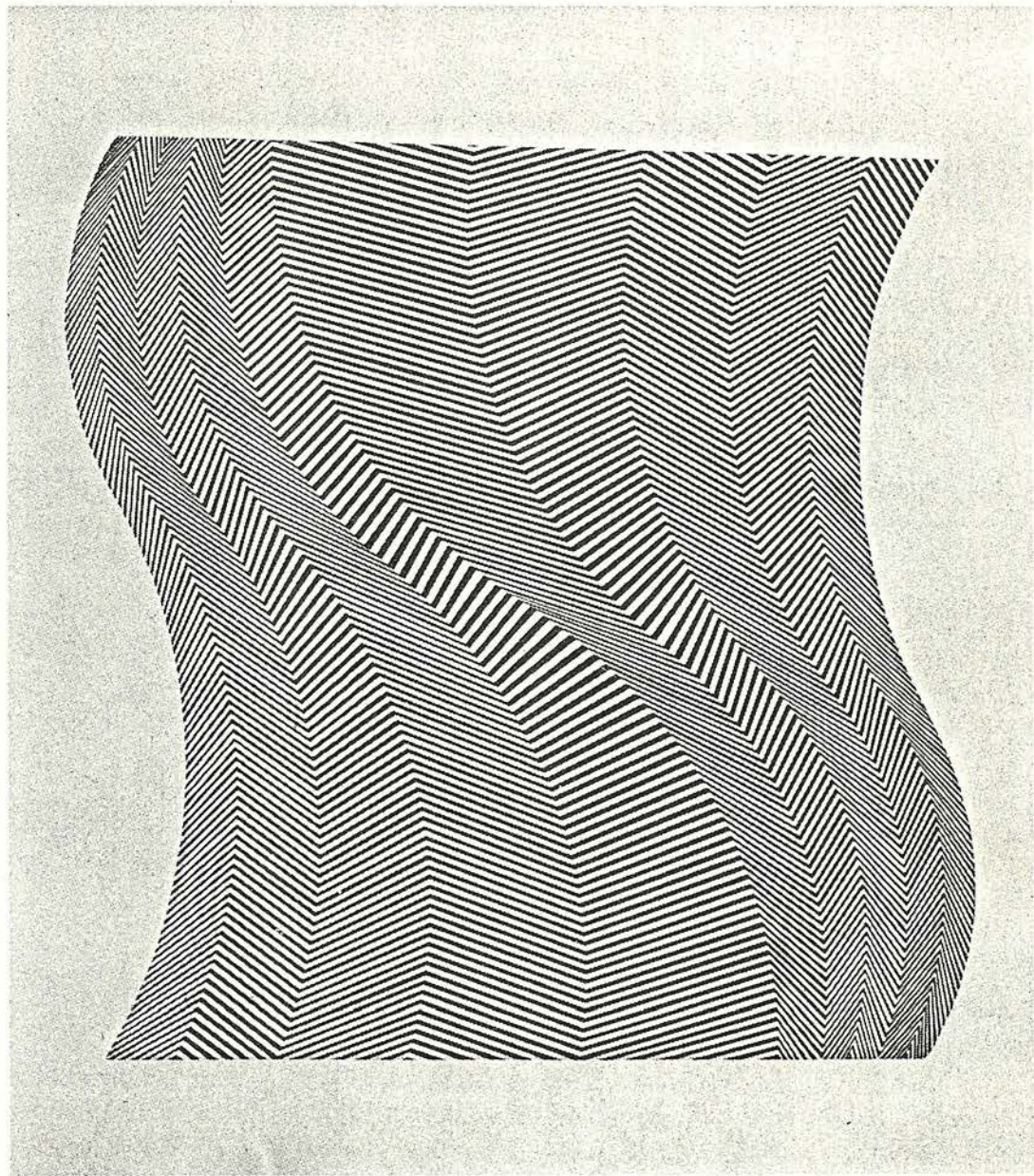


Fig. 8. Bridget Riley. *Twist*.

Fig 9.

UMBERTO BOCCIONI

*Development of a
bottle & Space.*



It is without doubt extremely difficult to capture the actual motion of a subject in a motionless picture or sculpture, but despite these limitations, artists have produced effective translations and illusions of movement (Fig. 7). The application of any kind of mark on a piece of paper has a kind of visual energy and it is not difficult to see that the means of creating limited illusions is possible. The eye readily follows strong linear directions and this can give the impression of movement.

The study of, say, a miner digging at a coal face may provide the artist with many quick impressions, but his challenge now is how to translate this movement into drawing. A slightly more difficult problem would be the study of a running tap. How does the artist record the water movement? It moves so quickly in reality that it appears to the onlooker as a blurred movement. He could depict it either as blurred, but runs the risk of losing all movement and even character, or to arrest the water in a static moment risking the possibility of creating a sense of motionless solidity. Either of these will work, but depend entirely upon how the artist accomplishes and unifies the whole of the drawing.

Bridget Riley, along with other Kinetic artists, sought to achieve the illusion of movement through use of lines, and achieved a sensation which is largely the result of "spatial ambiguity". (Fig. 8).

The Kinetic effects cause the viewer to change continually his idea of where a particular point is in the picture. The illusion that what is seen is actually 3 dimensional and consequently ridged along the paper/canvas whilst rationally knowing that it is not causes the eye to become confused, thus creating an effect similar to that made by observing an object in motion.

Umberto Boccioni, one of the futurists, believed that the problem of capturing "Time unfolding through motion (becomes) one of fusing two separate modes of being in which the object would participate". The first involved structure and material essence of the object ("absolute motion") and the existence of the object in real space ("relative motion") i.e. when the viewer moves around the object finding new groupings between it and neighbouring objects. In 1912 he produced "The Development of a Bottle in Space" (Fig. 9) a still-life arrangement of a table, bottle, dish and glass. The bottle has been broken into bottle-shaped profiles fitted inside one another, drawing the viewers' eye up the bottle. This is a remarkable piece of sculpture with one major fault - it cannot be viewed from the rear and still achieve the power of the sight from the front.

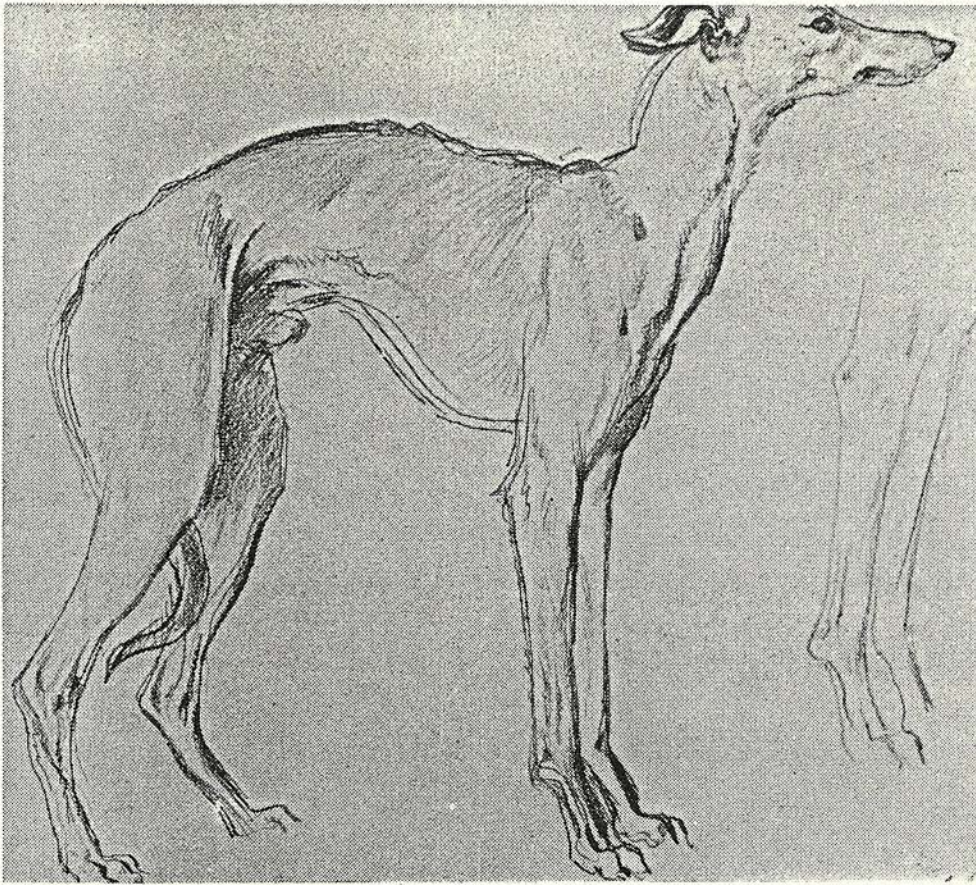


Fig. 10 Whippet by Augustus John (Cooper Art Gallery, Barnsley).

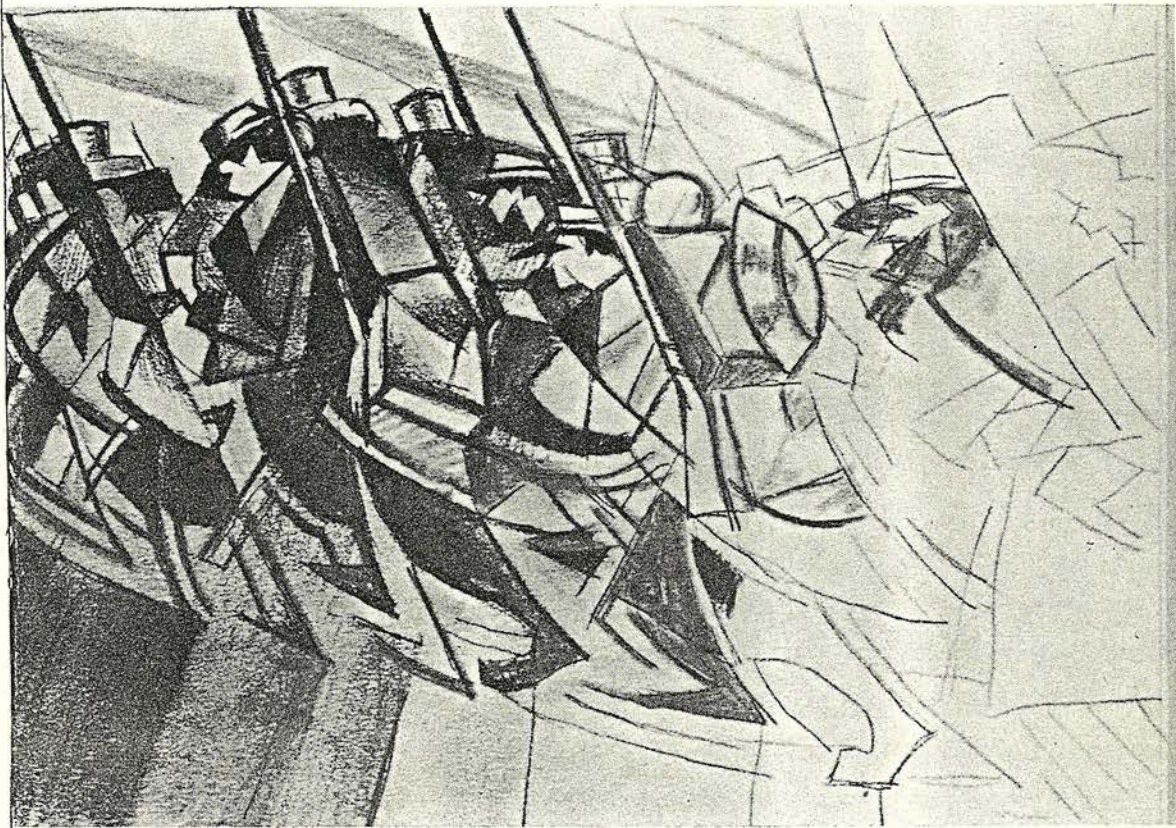


Fig. 11 Study for Returning to the Trenches by Nevinson (Tate Gallery, London).

His application of the knowledge that the human eye is drawn to rhythmic patterns by compelling the viewer to wind up and around his bottle, jumping across the gaps without any obvious barriers is extremely successful.

Almost all forms, and particularly natural forms, contain movements and tensions. This can be clearly seen by comparing a Natural History Speciman in a museum with exactly the same speciman in a zoo or in the wild.. The live creature has an inner vitality which implies strength and movement, whilst the museum piece remains motionless and lifeless, despite any efforts made by a taxidermist. The depiction of this vitality requires careful analysis of the animal, precise positioning of points of articulation and careful use of light and shade to express the areas of tension as against the more relaxed areas. (Fig 10)

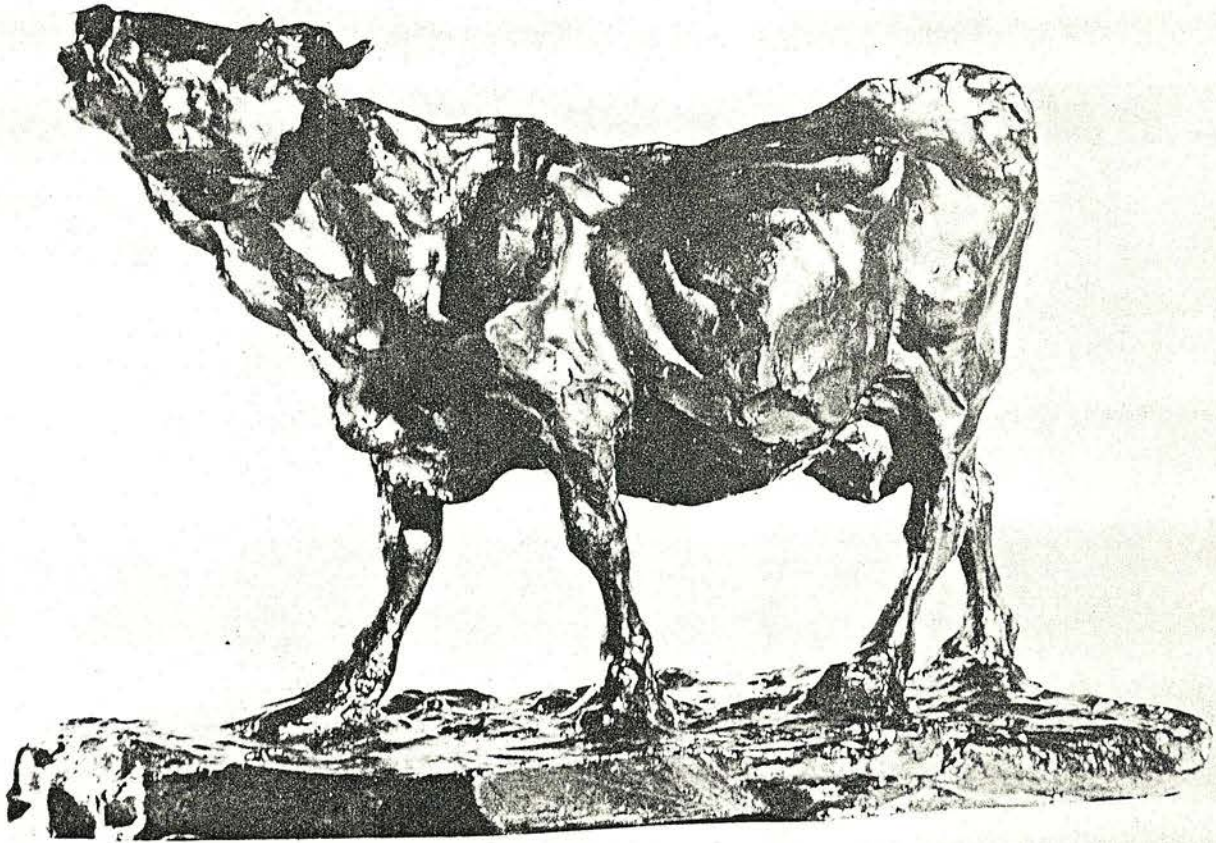
Movements and tensions can also be translated into rhythms in such a way that they cause the eye to move across the subject systematically and give the impression that the subject is not static. Rhythmic use of line can also be used to display a total sense of movement across the picture. Fig 11 shows how the use of carefully selected flowing rhythms can convey a strong sense of movement, ideal for the subject matter in question.

Inevitably, much of the capture of movement is done from memory as it is clearly impossible to keep the subject in any one position for any length of time.

Rembrandt Bugatti made the study of animals his life and work and would spend many hours and days studying them in great detail. By remaining constantly close to the animals, Bugatti was able to observe the wonderful spontaneity of their natural selves and to capture that movement successfully. (Fig. 12).

Takis, a young Greek sculptor, works with magnets. It is his aim to create a perpetual motion machine. However, there is argument to suggest that if movement is perpetual, it loses its meaning, and therefore periods of rest (absence of motion) are required to give the necessary emphasis to the movement itself.

Whether searching to create the spontaneous movement of an animal or the movement of a viewer's eye across a painting, the artist needs an appreciation of how to create the illusion of movement. It also requires constant practise and considerable effort to succeed.



COW BELLOWING
0.23 x 0.38 Dated '01.

Fig 12.

Photograph - Sladmore Gallery

So far the earliest recorded work by Bugatti, cast when he was sixteen.