the war had prevented from touring with the expressionist Der Sturm group in Berlin. Klee also exhibited in an expressionist context in Zurich during 1917, but his own direct contact with Dada came only later, in Munich during 1919/20.

The bio-mechanics of Lissitzky and Meyerhold around 1921, the *Dynamic of the City* of Moholy-Nagy in 1921–2 and Schlemmer's abstract *Triadic Ballet* at the Bauhaus in 1922–3 all share roots in an earlier abstraction of the body undertaken in dance and theatre by Dalcroze, Laban and Adolphe Appia. This first movement, however, while it collectivistically saw theatre as free and unalienated space, was hostile to intellectualism. Some of its strands led to post-war Expressionism, notably through Bruno Taut and such 'fantastic' films as *The Golem*. It makes a late appearance in the symbolist prologue to Leni Riefenstahl's *Olympia*, shot by Bruno Ganz (a modernist cinematographer released from Nazi detention to film this sequence) and a Laban-esque dance of fire and water (a style by then absorbed into the state cult of the natural body, in part through the films of the former dancer Riefenstahl herself).

Other strands lead further east to revolutionary Russia, where Meyerhold proposed 'the cinefiction of theatre' and for which Léger illustrated Ehrenberg's *And Yet It Moved*, published in Berlin and Moscow in 1922. Kandinsky, in Russia from 1914 to 1921, was director of the theatre and film section of the state Department of Visual Art under its supremo Lunacharsky. The formalist circle produced theorised accounts of film language (barely known in the West until a half-century later). But despite plans and talk, and the industrial factory links which some exhorted, Russian artists made no experimental films of their own outside the national studio systems of the Russian Federation (later the Soviet Union). Freed from commercial restraint, while subject to official approval, the urge to experiment passed solely through the school of Soviet montage (Eisenstein, Kuleshov, Vertov, Dovzhenko) and its later rivals and heirs. The radicals were bolstered by the unexpected fame achieved by their films in the West, although both Eisenstein and Vertov were to be highly suspect in their independence. While there was no place for a Western-style artistic film avant-garde – which the Soviets themselves disdained, if Eisenstein's rejection of the abstract film is typical – the strict stylistics and determined documentarism of Shub and Vertov, as well as their battles with officialdom, form part of the avant-garde's broader history.

The German writer Robert Musil, in his 1925 'Notes towards a dramaturgy of film' inspired by Bela Balaszs, claimed that film language 'curves away' from reality without ever losing it, so that it is 'a frontier between two worlds'. But just as in the early modernist poetics of Kruchenykh and Khlebnikov, pioneers of the Russian avant-garde who split word and sound from sense and reference to inaugurate 'concrete poetry', so too some film-makers turned to 'absolute' or non-referential abstraction. In this case their immediate model was the abstract painting of their time, itself partly inspired by the non-referential art of music.

The absolute film

This was the case around 1916/17 in a series of Chinese-style scroll-drawings made in Switzerland by the Swedish artist and Dadaist Viking Eggeling.[92] Himself the son of a musician and a minor painter in the style of the cubists and Derain, his sequential experiments began as investigations of the links between musical and pictorial harmony. He pursued this analogy in collaboration with fellow-Dadaist Hans Richter from 1918, leading to their first attempts to film their work in Germany around 1920. Then they quarrelled, and Richter turned to a more hard-edge geometrical style closer to Bauhaus constructivism. Eggeling worked on alone, assisted by a young Bauhaus student, Erna Niemeyer. He died in 1925 shortly after completing his *Diagonal Symphony*, which was premièred in the famous November Group presentation (Berlin, 1925) of abstract films by cubist, Dada and Bauhaus artists: Richter, Ruttmann, Léger, Clair and (with a 'light-play' projection work) Hirschfeld-Mack. After that, it was hardly seen again until its re-release by Richter (who had inherited many of Eggeling's scrolls and drawings) in the USA during the 1940s, probably cut to half or possibly a third of its original length.

The ten minutes which remain are unique in the history of abstract film. *Diagonal Symphony* bridges the two kinds of cine-poem of the 1920s and 1930s, the camera-eye films of Chomette and Dulac and the fully abstract films of the German group, although unlike either of these it is strictly flat and frontal. Its forms and shapes, while highly abstract, evoke musical patterns and notation just as they echo the early drawings of 1915–20 in which Eggeling derives abstract forms from the study of landscape. *Diagonal Symphony* is a delicate dissection of almost art deco tones and lines, its intuitive rationalism shaped by cubist art, Bergson's philosophy of duration and Kandinsky's theory of synaesthesia, all of which are referred to in Eggeling's written notes. Here too, Jakobson's dyad is suggestive but not exhaustive. The film metonymically plays on sequences of lines, curves and cones, all of which are introduced early in the film and systematically but not predictably varied until it ends. At the same time it articulates with great clarity its metaphoric relation to musical form through its visual systems of harmony, fusion and disjunction. The metaphor, or analogy, is made the stronger by Eggeling's insistence that his film be shown silent. And here too, as with Chomette, the poetics of the film crucially depend on its absolute control of form and rhythm, its serene velocity, shot with a single-frame animation camera.

Like Eggeling's work, the abstract films of Richter, Ruttmann and Fischinger were based on the concept of painting with motion, but also aspired towards the visual music implied in such titles as Richter's *Rhythmus* series (1921–4) and Ruttmann's *Opus I–IV* (1921–5).[93] Eggeling's *Diagonal Symphony* also announces a musical aspect in its title, as do such key figurative cine-poems as Dulac's *Thèmes et variations* 1928, Léger's *Ballet mécanique* and other films of the period. For the purely abstract (or 'absolute') film-makers, the musical analogy had a special resonance. This wing of the avant-garde was strongly idealist, and saw in film the utopian goal of a universal language of pure form, supported by the synaesthetic ideas expressed in Kandinsky's *On the Spiritual in Art*, which sought correspondences between the arts and the senses. In such key works as *Circles* (1932) and

Motion Painting (1947), Fischinger, the most popular and influential of the group, tellingly synchronised colour rhythms to the music of Wagner and Bach. Although Richter and Ruttmann made advertising films which drew from their abstract experiments, they saw their commercial work as a separate venture. Fischinger, however, used studio-production methods to create the most pleasurable films of the new abstract cinema. He embraced the pop classics and 'light music' as soundtracks which could open his films to wider non-specialist audiences, rather like Norman McLaren in the next generation of film artists. It is no surprise that he exerted a strong influence on Disney films, with which he was briefly associated after he moved to the USA in the 1930s, although to what degree is still unclear, especially in his troubled and brief employment on the production of *Fantasia*.

Fischinger's work was carefully preserved by the artist, his wife Elfriede and – in later years – the American curator William Moritz. He is one of the few abstract film-makers of his generation for whom there is a full archive.[94] Some experiments of the period, by Werner Graeff and Kurt Kranz among others in the Bauhaus circle, were never completed or are lost. Only Eggeling has so far attracted a full art-historical monograph (from his homeland, Sweden). The surviving work has been preserved by the film-makers or in archives. Even the relatively well-known and much-screened films of Richter and Ruttmann exist in varied versions.[95] A specially composed score for Ruttmann's *Opus* by Max Butting exists, but has rarely been played live and never recorded. Some archival prints bear traces of original colour, but the films of the period are generally now seen in monochrome prints without their original sound accompaniment. Léger and Richter often showed their early films in this form to the end of their lives, although Duchamp was more careful to track down unapproved variants of *Anémic cinéma* in circulation. Shorn of sound and colour,[96] the general effect has been to render these films perhaps even more austere than their makers intended (with the exception of Eggeling) although they have always been regarded as a 'peak' of pure film art since they first appeared in the 1920s.

Hans Richter's early abstract films from the *Rhythmus* series, mainly 1923–5, were reissued and re-edited over twenty years later by the film-maker after he emigrated to the USA. Others, such as *Vormittagspuk* (*Ghosts Before Noon*, 1928), acquired new soundtracks. What remains of the originals is enough to demonstrate the vitality of the early work, and his growing and rapid mastery of technique. The first stabs at the new abstract film, preserved in *Rhythmus 23*, are reassuringly rough-textured, as Richter works out a language of basic forms in screen space. Like the cubist painters he turns to cut-outs, graphics and drawing to create sequences of receding and expanding squares and rectangles. Interspersed with this sometimes 'raw' material are linear drawings which echo Eggeling's very different aesthetic of visual music and pure flatness. Like his contemporary Walter Ruttmann, Richter was more concerned to explore the visual dynamics of film. Both their styles are generally more robust and optical than Eggeling's, and they prefer regular clear basic shapes over his delicacy of line and diagonal matrix.

Tonal subtlety is more important to the abstract film than can easily be recognised on the 16mm and video copies which circulate today. Here again, Eggeling

pursues a different goal. Influenced by cubist figurative painters like Derain (and perhaps Braque), and by Kandinsky's linear abstraction, he uses film as a medium to record drawing in time. He finds formal equivalents in film for post-cubist ideas. One of these is in the viewer's relation to the projected image. The angular plane in *Diagonal Symphony* reduces the viewer's 'human-centred' fantasy identification with the screen which broader, frontal shapes evoke (Ruttmann wittily plays on this to turn curves into dancing legs at the end of *Opus IV*).

A second formal equivalent taken from cubist drawing is the linear unfolding of small, tonal clusters which suggest the complementary relations sketched by Eggeling in his notebooks: open/closed, dark/light, etc. The carefully graded tonality, and the many kinds of line and form which are used, recall the complex armature of classic cubist art. This is all the more remarkable in that the film is achieved by moving cut-out silverfoil shapes rather than by direct drawing. It is shown in negative to emphasise white on black, so the film-maker had, as it were, to work in reverse tonalities when making the film, rather like a printmaker.

Of the early abstract film-makers, Walter Ruttmann was the most sustained and ambitious up to 1925. Trained as an architect and with professional animation skills, like Fischinger he exploited the technique of the industrial rostrum camera (whereas Richter and especially Eggeling set up makeshift devices in their studios). Ruttmann stands somewhere between Richter's purist constructivism of abstract signs and Fischinger's fully blown anthropomorphism in which shapes and sounds evoke human sensations. His work merges both of these modes. The overt 'narrative' in the sequence *Opus I–IV* is a battle or dance between curves and hard-edge forms such as triangles and rectangles. The Richter–Eggeling programme for a 'universal language', announced in 1919, was implicitly taken up by Ruttmann from 1921 when he embarked on his *Opus* series. Ruttmann shifted abstract film from the purely formal plane towards a 'universal symbolism' of music, myth and the body. These codes animate the forms in abstract play.

At the same time, the *Opus* series explores abstract form in film more thoroughly than did Ruttmann's co-pioneers. More assured in its grasp of screen geometry than most abstract films of the era, it decisively engages with off-screen space and the multi-layered plane. Ruttmann investigates rhythm with the same confidence, including slow and irregular pulsation where the general trend was to go for speed. The sequence ends with an optical display of horizontal flicker and vertical flow. It recalls the 'eye-opening' tropes of frames, windows and camera shutters with which Vertov – the former 'cubo-Futurist' – begins *Man with a Movie Camera* (1928).

Despite the promise of visual revelation with which the *Opus* films concludes, Ruttmann made no more abstract films after 1925. It was the high-point of the movement, which ends with Eggeling's death and the return of the repressed image in 'the new objectivity' and surrealism. The constructivist impulse was about to wane as the chief radical art language, and within a few years suffered both state repression (in Germany and the USSR) and rejection by the documentary-based political left. Ruttmann's later career falls into this history. The shift is symbolised in the opening shots of his now-classic documentary *Berlin* (1927), in which abstract shapes melt into railway tracks and disappear. Only the film's subtitle – 'Symphony of a Great City' – harks back to the musical aspiration of pure

abstract film. The expressionist side of Ruttmann, seen in his 'Dream of Hawks' animation for Lang's *Kriemhild's Revenge* (1924), surfaces as melodrama crossed with the naturalism of his Italian co-production feature *Accaio*, made in the 1930s. He also worked with Leni Riefenstahl in Nazi Germany, and ended his career making state-sponsored and army training films before dying, probably in action, in 1945.

Fischinger alone of the German group pursued abstract animation throughout his career, which ended in the USA, when several other German film-makers turned away from this genre after the mid-1920s, partly because of economic pressure (there was minimal industrial support for the non-commercial abstract cinema) as well as shifts in taste. Richter, who also made fashion and advertising films, turned to lyric collage in *Filmstudie* (1926), mixing abstract and figurative shots in which superimposed floating eyeballs act as a metaphor for the viewer adrift in film space. His later films pioneer the surrealist psychodrama.

Cubism and popular film

While cubism sought a pictorial equivalent for the newly discovered instability of vision, the cinema was moving rapidly in the opposite direction. Far from abandoning narrative, it was encoding it. The 'primitive' sketches of the period 1895–1905 were succeeded by a new and more confidently realist handling of screen space and film acting. Subject-matter was expanded, plot and motivation were clarified through the fate of individuals. Most crucially, and in contrast to cubism's display of artifice, the new narrative cinema smoothed the traces of change in shot, angle of vision and action by the erasure-effect of 'invisible editing' to construct a continuous, imaginary flow.

Nevertheless cubism and cinema are clearly enough products of the same age and within a few years they were to mutually influence each other: Eisenstein derived the concept of montage as much from cubist collage as from the films of Griffith and Porter. At the same time, they face in opposite directions. Modern art was trying to expunge the literary and visual values which cinema was equally eager to incorporate and exploit (partly to improve its respectability and partly to expand its very language). These values were the basis of academic realism in painting, for example, which the early modernists had rejected: a unified visual field, a central human theme, emotional identification or empathy, illusionist surface.

Cubism heralded the broad modernism which welcomed technology and the mass age, and its openly hermetic aspects were tempered by combining painterly purism with motifs from street life and materials used by artisans. At the same time cubism shared with later European modernism a resistance to many cultural values embodied in its own favourite image of the new, the cinema, dominated then as now by Hollywood. While painters and designers could be fairly relaxed in their use of Americana, being independent at this time of its direct influence, the films of the post-cubist avant-garde are noticeably anti-Hollywood in form, style and production.

The avant-garde films influenced by cubism therefore joined with the European Art Cinema and social documentary as points of defence against the market domination by the USA, each attempting to construct a model of film culture outside the categories of entertainment and the codes of fiction. Despite frequent eulogies of American cinema, of which the surrealists became deliberately the most delirious readers (lamenting the growing power of illusionism as film 'improved'), few surviving avant-garde films resemble these icons. Only slapstick, as in *Entr'acte* (1924), was directly copied from the American example, but this too has its roots tangled with Méliès and the primitive trick-film, which was as much a European as an American genre.
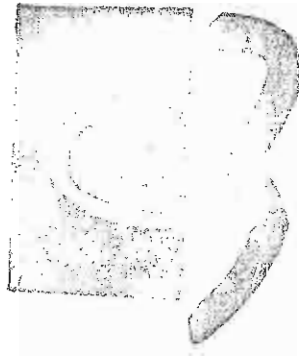
Dada and surrealist film

As has been described, in France some film-makers, such as Henri Chomette (René Clair's brother and author of short *'cinéma pur'* films), Delluc, and especially Germaine Dulac, were drawn to theories of 'the union of all the senses', finding an analogue for harmony, counterpoint and dissonance in the visual structures of montage editing. These were fundamental to the birth of the 'cine-poem', a genre also pursued by Storck and Ivens with a documentary twist which is traceable down to the early films of the aptly named 'Free Cinema' (UK) and 'New Wave' (France) in the 1950s and 1960s. But the surrealists in France during the 1920s rejected such attempts to 'impose' order and musical structure where they preferred to provoke contradiction and discontinuity. Perhaps they were made especially hostile by the collective name given to Dulac, Delluc and their followers, who were dubbed the 'Impressionists'.

Surrealism was, like Futurism before it, a fully fledged group of the kind which dominated modern art between the two world wars.[97] It had leaders, notably Louis Aragon, Paul Eluard and André Breton (the moving spirit, and by the end the only survivor of the triumvirate). It had too a quasi-party structure in which group loyalty bulked large, a series of journals, no less than two major manifestos and several minor ones, a theoretical position, political commitments initially to communism and then to Trotskyism, expulsions and heretics (Dali, Artaud, Bataille and many more) and, above all, a project – the overthrow of rational thought and of the barriers between art and life.

The movement was founded in 1924 from the debris of Dadaism. Both groups were directly linked to the devastating world war of 1914–18. Dada was a loose collection of artists who gathered in or around Zurich during 1916, some of them pacifists, others war-wounded or resisting conscription in their native countries.[98] Neutral Switzerland was their refuge, as it was for Lenin – who may have visited the famous dada nightclub, the Cabaret Voltaire – and the young Walter Benjamin, a friend and neighbour of Dada's prime mover Hugo Ball.

Ball's diary, published in 1927 as *Flight Out of Time*, records the rapid and explosive growth of Dada:[99] its improvised performances, its neo-Futurist magazines, its eclectic evenings at the Cabaret, its emphasis on chance and disorder, its invention of the simultaneous poem (random texts chanted, sung and shouted by several performers at once), its tactic of provocation. Dada, a nonsense or trans-sense word invented in 1916, was even more of a protest movement than the

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