Film Block 0

1957-1959 16 mm, b/w and color, silent. 13 min.

Black Movie, version 2 color, 198 sec. Idea, montage: Marc Adrian Camera: Kurt Kren Editing: Marc Adrian, Kurt Kren

1. Mai 1958 (May 1, 1958) b/w. 165 sec. Camera: Kurt Kren Director and editor: Marc Adrian

Wo-da-vor-bei (Where.Here-Before-By) b/w. 70 sec. Camera: Kurt Kren

Schriftfilm (Script Film) b/w, 328 sec. (Concept: 1954)

Marc Adrian, Wo-da-vor-bei © VBK, Vienna, 2005

WITORYS OF All ST. SS CANTE.

Marc Adrian, Black Movie © VBK, Vienna, 2005

Film Block 1

1962-64, sound, total 17 min. Random, 1963, 285 sec. Text I, 1963, 154 sec. Go, 1964, 148 sec. Text II, 1964, 220 sec. Orange, 1962-64, 180 sec.

Film Block I contains all of the films that I completed between 1962 and 1964. As in most of my works, my operational modus was methodical invention, i.e., the works are placed on a pre-drawn blueprint. In this way, all personal and aesthetic touches are rendered impossible in the final product, and total loss of control is assured. I reject every kind of teaching and entertainment in the content, as well as everything that I could possibly tell an imaginary audience: every form of significance or personal mythology must be produced by the viewer, since only total chaos can ensure the freedom of the individual. In Random (the first film made with the help of a computer), an actual, mathematically defined random program was developed, since no author is capable of producing a random event, not even if he does so unconsciously. Text I and Text II are also made using randomly generated mathematical series: $Text\ II$ is a pure permutation. $Text\ I$ was developed from a computer data storage program. Words were selected according to the requirement that they both have the same meaning and spelling in German and English. Go is also a permutation film. Here, it is especially apparent how pure formal structures can lead the observer's conscious mind to create meaning. Orange is a randomly generated montage of verbal and visual associations, which may conjure up the image and concept of an orange.

Marc Adrian in a radio interview, San Francisco 1970.



Marc Adrian Text I, 1963 © VBK, Vienna, 2005

Peter Weibel

Expanded Cinema: Material Films, Film Actions (without Film), Project and Concept Films

(2007)

More intensely than their European colleagues, Austrian filmmakers have been involved with the expansion of film (all types of performances, with and without film). The expansion of the art of filmmaking began with a material concept: the transformation of film as illusion to film as material. The materiality of celluloid — scratches, blank and color film, overexposed material, spoilage and leftovers, edits, glued and printed celluloid (such as Peter Weibel's Fingerprint [1968], where fingerprints were applied directly onto glass film) — became the starting point for creating films. During a performance in January 1967, Weibel read the following statement:

The site of the film is not the screen or the cinema, but the emulsion on celluloid, and the filmmaker. Material thinking and subjectivism are the parameters of Viennese films. They do not force viewers in front of a flat reality some imagine they have represented on a flat screen. We do not polish the dusty notion of reality. Whatever is on the celluloid will be screened. This can be a stroke directly applied by the subject, the image of a person caused by illumination; this chemical corrosion on celluloid.



I. to r.: Ferry Radax, Hans Scheugl, Peter Weibel. Kurt Kren, Peter Kubelka, Ernst Schmidt Ir.

Ernst Schmidt Jr. is the master of material films (e.g., Filmreste [Leftover Film], 1966/67). Along with Kurt Kren and Hans Scheugl, he has done the most to extensively develop the aesthetics of material film. Expanded cinema began when Weibel took a further step and applied the principle of materiality of film to all of film technology, such as the projection process (changes in speed and light, switching on and off, moving the projector, etc.), the screen, the cinema, etc. Everything was declared part of the material of film. This led to reflection on the fundamentals of film as a medium. These experiments with the medium of film, its laws and premises, even led to a third step, a "film without film," meaning, film without celluloid. Everything could become a film. Films no longer had to be filmed. Weibel produced the first expanded movie in Austria at an event planned in conjunction with Kren, Ernst Schmidt, and Scheugl in January 1967, known as Nivea. For one minute, Weibel stood immobile in front of the screen, as if in a still frame, holding a Nivea ball, while blank frames were projected onto the screen. The sounds of a camera on tape could be heard. An accompanying manifesto stated:

if the site of the film is not the screen, houses can be projected back onto houses and bodies onto bodies. if the image and the object are the same, representation and celluloid become superfluous, houses are presented as "houses" and nivea as "nivea." once the celluloid is dispensed with, film is created without film, technological means of reproduction are replaced by directness, and that invalidates the objective character of film, it is not the state's "reality" that is reproduced, but rather, the subject and his or her direct experience prevail. (Weibel.

This formal deconstruction of film elements, where elements could be exchanged or replaced with others (e.g., electric light with fire) or left out (e.g., celluloid) was artistically liberating and opened up a myriad of new possibilities. The identity of image and object as the identity of the site or the projection surface is a recurrent theme. During the 1967 performance, Weibel also projected an 8 mm-film onto his body ("the film is created by the filmmaker and projected back onto him," Body Film.Nr. 1, Weibel 1967). The human body is turned into a projection screen. Subsequently, films were produced to suit this specific projection site, such as the film of a surgical operation projected onto a naked stomach, or clouds onto a hairy chest. In 1968. Scheugl made Sugar Daddies, for which he filmed graffiti in public toilets and then showed the film in other public toilets. In 1968, Ernst Schmidt Jr, projected a moving curtain onto the real, also moving curtain of the screen. The projectionist was asked to synchronize the movements as much as possible. This film was called Ja/Nein (Yes/No). Another type of identity had begun to play a role for Scheugl in 1967: the identity of the length of a piece of film and the length of a street. Wien 17, Schumanngasse is a car ride down a street, Schumanngasse, from beginning to end. The drive down the street was filmed in a single take, in approximately two minutes. The duration of the film and the drive, the length of the street and the film, real and reproduced time, the speed of the camera and the speed of the car in which the camera was transported were all identical: space became time. In 1968, Scheugl also made a film without film by substituting a strong piece of thread for the celluloid: ZZZ Hamburg Special. A spool of thread was placed on the winding axis of the projector, and the thread was threaded through the projector.

Schmidt, Jr. worked directly on celluloid before he dispensed with it altogether. In Weiß (White, 1968), real holes were punched into blank white film. Because of the afterimage effects, traces of the scratches could



Hans Scheugel 777 Hamburg Special 1968



Ernst Schmidt Jr., Prost (Cheers) 1968

Film Block 0

1957-1959 16 mm, b/w and color, silent, 13 min.

Black Movie, version 2 color, 198 sec. Idea, montage: Marc Adrian Camera: Kurt Kren Editing: Marc Adrian, Kurt Kren

1. Mai 1958 (May 1, 1958) b/w, 165 sec. Camera: Kurt Kren Director and editor: Marc Adrian

Wo-da-vor-bei (Where.Here-Before-By) b/w, 70 sec. Camera: Kurt Kren

Schriftfilm (Script Film) b/w, 328 sec. (Concept: 1954)

Marc Adrian, *Wo-da-vor-bei* © VBK, Vienna, 2005

WHOOPS OF MILESPORE WATER	1.4
BACK HONE 2/197 IN AUG - 30: UUDII HONE GIODE: 240 : 22	64- 65;
\$21-55(-) 5 - 2 - 3 - \ \(\) \\(\) \(\)	44474444
· W -2(1/1)+0 · .2(+ s ·) - [] · -2(+ s ·) / (4)	- 1

	- 3 - 00 -13 - So -5 - 30 - 14 (3)42 3 -
¥ 5	SALD I E C S. C S. S S
. 2	-14 16 - 3 1 1 3 1 1 3 1 1
- 4	
	그가 말고 었다지? 요한 생기가 준다 생긴 지않는 것으로 가입한다.
٠ ٤	
• 5	- 510-4 45 + 40 - 4 - 4 39 + W 43
• W	~ 2 ('MHD = ~ X + S = 3 + U = ~ X + S = 3 (4) +
٠.	-2479+954 - U24 M+4 FL V F
۰۵	- 2+ C14M+33+ W14+ DD- A I
• 6	"Id forture and a contribution and a feet for the
ěć.	and the second s
-:-	- 19-24 A 1 1919 A 1 1 A 2 1971 A 1 1 2 3 T
- 7	- 37 G
• 5	-43+ Sen & Ben 4+ Nen 3- Stn 5 -
- 9	- 2+ 2 - 5+ 20 -43+ 20 -21 - 40 -21 - 1
- 5	5+ G++++ + 9+++5+ W+ + 5+ 5+++ 3 +
• 0	~ ZF 5 · · · 8 * Mo - 5 4 * 20 · · / 3 - 5 · · · /
. 0	-13+ W 3+ E 3 . D 3- C 5
• 10	~ 15 history 5 + 0
08	"71 # 20 m 34 Com 24 + 170 m 12 m 20 m 2 /21 m
• 7	" Was a wall to me to the to the to the to the to the total total to the total total to the total total total to the total tot
٠	TO A CONTRACTOR OF THE PROPERTY OF THE PROPERT
- 7	The state of the s
٠,	7 41 41 41 41 41 41 41 41 41 41
- 4	
٠,٠	
• 4	5 - 9 - 55 + 5 - 0 - 0 - 0 - 15 5 1/4 to 17 1
• 5	The second of th
• 4	3 - V 8 - 3 1 5 L (1 55 f))+f + - 1
• 5	3 . C 13 . G
- G	- 3- 20-13- 40-15- 40-16- 16-15 (de) - 5
• 6	m de Cener Cretanisti de ne el como de la
	3- 9- 5- 3- 19- 14 - 19- 31 Grand
	- 0 41 81 0147 810 477 811 97 81 792 DUT IP
: 2	= = = = = = = = = = = = = = = = = = =
- 2	THE RESERVE AND AND AND AND THE PARTY OF THE
- 2	" \$550 E " " SYT
• 6	" SELA - " 3 5 1/2 5 5 4 2 5 5 4 3 5 10 10 10 10 10 10 10 10 10 10 10 10 10
, y	
e Q	
۰S	1 34 + St 1 5 - + R. + 1 5 - 1 1 1 1 1 2 1 1 3 4 1 3 4 1 3 4 1 1 1
- 9	- 55 + W 1+ 3 34 Mi+ c = - 0,7 + GE 0 - 24 RA -
•-	

Marc Adrian, Black Movie © VBK, Vienna, 2005

Film Block 1

1962-64, sound, total 17 min. Random, 1963, 285 sec. Text I, 1963, 154 sec. Go, 1964, 148 sec. Text II, 1964, 220 sec. Orange, 1962-64, 180 sec.

Film Block I contains all of the films that I completed between 1962 and 1964. As in most of my works, my operational modus was methodical invention, i.e., the works are placed on a pre-drawn blueprint. In this way, all personal and aesthetic touches are rendered impossible in the final product, and total loss of control is assured. I reject every kind of teaching and entertainment in the content, as well as everything that I could possibly tell an imaginary audience: every form of significance or personal mythology must be produced by the viewer, since only total chaos can ensure the freedom of the individual. In Random (the first film made with the help of a computer), an actual, mathematically defined random program was developed, since no author is capable of producing a random event, not even if he does so unconsciously. Text I and Text II are also made using randomly generated mathematical series: Text II is a pure permutation. Text I was developed from a computer data storage program. Words were selected according to the requirement that they both have the same meaning and spelling in German and English. Go is also a permutation film. Here, it is especially apparent how pure formal structures can lead the observer's conscious mind to create meaning. Orange is a randomly generated montage of verbal and visual associations, which may conjure up the image and concept of an orange.

Marc Adrian in a radio interview, San Francisco 1970.



Marc Adrian Text I, 1963 © VBK, Vienna, 2005

Expanded Cinema: Material Films, Film Actions (without Film), Project and Concept Films

More intensely than their European colleagues, Austrian filmmakers have been involved with the expansion of film (all types of performances, with and without film). The expansion of the art of filmmaking began with a material concept: the transformation of film as illusion to film as material. The materiality of celluloid — scratches, blank and color film, overexposed material, spoilage and leftovers, edits, glued and printed celluloid (such as Peter Weibel's *Fingerprint* [1968], where fingerprints were applied directly onto glass film) — became the starting point for creating films. During a performance in January 1967, Weibel read the following statement:

The site of the film is not the screen or the cinema, but the emulsion on celluloid, and the filmmaker. Material thinking and subjectivism are the parameters of Viennese films. They do not force viewers in front of a flat reality some imagine they have represented on a flat screen. We do not polish the dusty notion of reality. Whatever is on the celluloid will be screened. This can be a stroke directly applied by the subject, the image of a person caused by illumination; this chemical corrosion on celluloid.



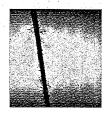
In the studio Praml, 1967 I. to r.: Ferry Radax, Hans Scheugl, Peter Weibel, Kurt Kren, Peter Kubelka, Ernst Schmidt Jr.

Ernst Schmidt Jr. is the master of material films (e.g., Filmreste [Leftover Film], 1966/67). Along with Kurt Kren and Hans Scheugl, he has done the most to extensively develop the aesthetics of material film. Expanded cinema began when Weibel took a further step and applied the principle of materiality of film to all of film technology, such as the projection process (changes in speed and light, switching on and off, moving the projector, etc.), the screen, the cinema, etc. Everything was declared part of the material of film. This led to reflection on the fundamentals of film as a medium. These experiments with the medium of film, its laws and premises, even led to a third step, a "film without film," meaning, film without celluloid. Everything could become a film. Films no longer had to be filmed. Weibel produced the first expanded movie in Austria at an event planned in conjunction with Kren, Ernst Schmidt, and Scheugl in January 1967, known as Nivea. For one minute, Weibel stood immobile in front of the screen, as if in a still frame, holding a Nivea ball, while blank frames were projected onto the screen. The sounds of a camera on tape could be heard. An accompanying manifesto stated:

if the site of the film is not the screen, houses can be projected back onto houses and bodies onto bodies. if the image and the object are the same, representation and celluloid become superfluous. houses are presented as "houses" and nivea as "nivea." once the celluloid is dispensed with, film is created without film, technological means of reproduction are replaced by directness, and that invalidates the objective character of film, it is not the state's "reality" that is reproduced, but rather, the subject and his or her direct experience prevail. (Weibel, 1967)

This formal deconstruction of film elements, where elements could be exchanged or replaced with others (e.g., electric light with fire) or left out (e.g., celluloid) was artistically liberating and opened up a myriad of new possibilities. The identity of image and object as the identity of the site or the projection surface is a recurrent theme. During the 1967 performance, Weibel also projected an 8 mm-film onto his body ("the film is created by the filmmaker and projected back onto him," Body Film Nr. 1, Weibel 1967). The human body is turned into a projection screen. Subsequently, films were produced to suit this specific projection site, such as the film of a surgical operation projected onto a naked stomach, or clouds onto a hairy chest. In 1968, Scheugl made Sugar Daddies, for which he filmed graffiti in public toilets and then showed the film in other public toilets. In 1968, Ernst Schmidt Jr. projected a moving curtain onto the real, also moving curtain of the screen. The projectionist was asked to synchronize the movements as much as possible. This film was called Jal/Nein (Yes/No). Another type of identity had begun to play a role for Scheugl in 1967; the identity of the length of a piece of film and the length of a street. Wien 17, Schumanngasse is a car ride down a street, Schumanngasse, from beginning to end. The drive down the street was filmed in a single take, in approximately two minutes. The duration of the film and the drive, the length of the street and the film, real and reproduced time, the speed of the camera and the speed of the car in which the camera was transported were all identical: space became time. In 1968, Scheugl also made a film without film by substituting a strong piece of thread for the celluloid: ZZZ Hamburg Special. A spool of thread was placed on the winding axis of the projector, and the thread was threaded through the projector.

Schmidt, Jr. worked directly on celluloid before he dispensed with it altogether. In Weiß (White, 1968), real holes were punched into blank white film. Because of the afterimage effects, traces of the scratches could



Hans Scheugel, ZZZ Hamburg Special, 1968



Ernst Schmidt Jr., Prost (Cheers), 1968

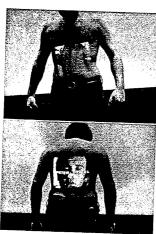
Marc Adrian

Random, 1963

even be seen in the holes. In *Prost* (Cheers, 1968), a line was drawn through a strip of film until it hit the margin (cheers!), then back again, and so on. The moving line casts light and shadows in the projection room in line in Valie Export's expanded movies, the formal characteristics of film determine its relationship to reality: reality is seen as the results produced by mechanisms of representation. In *Cutting* (1968), the element, movie screen, is replaced by paper, cloth, and skin screens. Houses are projected onto a paper screen and the windows are cut out with scissors. McLuhan's sentence, "the content of the writing is the," is also cut out onscreen, and out of an undershirt. Another part is the shaving of chest, stomach, and public hair. Naked skin becomes a screen; hair functions as a body signal. The fifth part is a talking movie without signs: Export takes Weibel's phallus into her mouth — "this demonstrates body language as a type of non-verbal articulation" (Weibel).

1968's Tapp- und Tastfilm (Fumble and Feel Film) is also about the body as a screen. A central topic of the movie industry, the woman as a sex object, is considered through the means of film. The dominating character of the screen as a manipulative medium is also expressed in the 1968 film performance, Ping Pong. A dot appears on the screen for a brief moment. It seems to be hopping because it always appears at a different unexpected place. The actor tries to hit the dot with a racket and a Ping-Pong ball. A dialogue between image and object, film and reality, made with the means of film. An action film — a film for action.

A joint performance with Weibel and Export, Aus der Mappe der Hundigkeit (From the Portfolio of Dogdom, 1968), is a response to a public news poster, Aus der Mappe der Hundigkeit (From the Portfolio of Humanity). Export led Weibel by a leash around his neck along Vienna's main street. Walking on all fours, Weibel turned another feature typical in film (especially cartoons) into reality — the graphic transformation of humans into animals. "the apparently symbolic reality of film is transferred into the blazing reality of all our senses. this film performance creates reality, re-creates it out of the patchwork of ideologies" (Weibel 1970).



Peter Weibel, Welcome-Action Lecture Nr. 1, 1967



Valie Export and Peter Weibel during the Tapp- und Tast-Film (Fumble and Feel Film), Munich 1968 © VBK, Vienna, 2005

During the years 1967 to 1970, filmmakers analyzed the relationship between reality and recording apparatus. As the quotes have already made clear, the medium for expression and representation definitively medium allows for an expansion of reality and experience, and opinion was that only an expansion of film as from socialization" (Weibel 1970), "for art expands the borders of social reality" (Weibel 1969). If "grammar is what first allows sensations to arise," as Oswald Wiener writes in his critique of "Actionism," then grammar

has to be explored in order to explore sensations. If reality is on our side of language, language has to be analyzed if reality is to change. If "form constrains experience," one has to escape from it. But if "experience itself is of a formal nature, then experience [itself is the constraint — and forms have to be shattered in order for the experience to stop" (Wiener 1969). By smashing the forms of film, and through the search for and discovery of film's linguistic character, these filmmakers tried to liberate experience and dissolve the boundaries of reality. Unlike the Actionists, who wanted to bridge the gap between reality and sensation, they were aware that between reality and consciousness, reality and experience, there is always a registering apparatus — be it the eye, form, language, or the camera. Those artists, in doing away with constraints on experience and limits of reality, did not assume a dualism, but a triad instead: reality-medium-image of reality (consciousness, sensation, experience). During his film performance Exit (1968), in which fireworks, rockets, smoke, and flying objects whizzed into the audience from the screen where films were shown, sending the audience fleeing onto the streets (smoking out and fogging in the cinema), Weibel shouted through a megaphone into the movie theater:

fire is light, cinematography is light, cry the reactionaries, and they shall get it — the motion picturel film is misunderstood as a language of images, the image of the world that provides language reflects the state and its image of the world, the film industry is the state organization that provides those images of the world that correspond with the state's image, in rejecting the language of images, film no longer presents the state's image of the world, but changes the world...

The longing for a changed reality smashed the images, abolished the reproduced images. Weibel was the most radical in formalizing film, by defining film as a calculation of variables, where screen, soundtrack, celluloid, speed of recording, etc. are variable elements that can be exchanged, linked in different ways, altered, replaced, and left out. This evolution of a different notion of medium and reality can best be grasped in a isequence of quotes by Weibel:

whether it is a negative or positive copy is a question of the emulsion and not of the real truth value (the correspondence of object and reproduction), the filmmaker works with celluloid strips, not with realities, sound and image are blank spaces (variables) occupied by the filmmaker according to his intentions. he can work directly on celluloid or with the help of the camera, the concept of reality does not exist for the filmmaker (1967). film is an aggregate of calculations and operators used to encounter reality — a system of basic configurations and rules, this aggregate is a convention that can be changed at any time, filming is the production of reality with the means of the aggregate film, from the available elements of the calculated film, e.g., celluloid, cinema, screen, position of the camera, etc., I can take an arbitrary number, in an arbitrary order, and put them to arbitrary use, one can use a mirror instead of celluloid, a string instead of a ray of light, chemical reactions instead of photo reactions, and so on (1968), film is to be understood as a function with the following variables: object, celluloid, camera, projector, screen, and so on, that is f(o, c, ca, p, s, x). expanded cinema also means expanded reality, altered media produce an altered world. expanded cinema is an exploration of reality by experimenting with light, sound, electricity, group mechanisms, gamma-rays, and reactions of enzymes (1969). film, photography, and the phonograph are extensions, elongations, expansions, of our spatial and temporal structures, structures of experience, communication, expansions of our reality and consciousness (1971).

These metafilms (films about films), film performances, action films, material films, project films, and film installations should develop "images of a different reality or a reality different from the one in the picture represented by the state" (Weibel 1970). As the form of film expanded, the future of media art was born.

"Kunstexpansionen: Grenzkunst," Österreich zum Beispiel, Otto Breicha and Reinhard Urbach, eds. (Salzburg: Residenz, 1982) pp. 36-65.

Martin Arnold pièce touchée

Martin Arnold born 1959 in Vienna. Studied Psychology and Art History. Independent filmmaker from 1988. Concept and organization of the 1990 symposium Im Off der Geschichte, Stadtking, Vienna, together with G. Schlemmer and P. Tscherkassky Numerous lectures in Europe and the U.S.A., including Cinematique, Paris, Hamilton College, Utica College, and Colgate University in New York, and University of Illinois in Chicago. Guest lectures at the University of Wisconsin, 1995. Visiting Professor at the University of Wisconsin in Milwaukee, 1996/97. Guest professor at the Academy of Fine Arts in Frankfurt, 1998/99. Professor at the University for Artistic and Industrial Design in Linz, 2000. Member of Austria Filmakers Coop, SYNEMA society for film and media (1990) and founding member

Films 1985 (O.T-1 (16mm, color, silent, 10 min.) 1986 (O.T-2 (16 mm, color, silent, 10 min.) 1988/99 (O.T-3 (unfinished) 1989 pièce touchée (16 mm, b/w, sound, 16 min.) 1993 pissage à l'acte (16 mm, b/w, sound, 12 min.) 1

of Sixpack Film (1991).

min, DW, sound, 12 min.) Jesus Walking on Screen (trailer, 35 mm, DW, sound, 1 min.; Camera: Johannes Hammel) Kühstraum Remise (trailer, 35 mm, DW, sound, 1 min.)

1994 Brain Again (trailer, 35 mm, color, sound, 1 min.)
In Futurum (16 mm, color, 2 min., Camera: Hammel, work in progress)

1996 Don't – Der Österreichfilm (Commissioned for the 100 years of Cinema celebrations in Vienna; 35 mm, Filmtransfer from digital-beta-video), b/w, 3 min.) 1997 Viennale Spot (trailer, 35

mm, b/w, 1 min.) 1998 Alone. Life Wastes Andy Hardy (16 mm, b/w, 15



Martin Arnold

In pièce touchée (16 min., 1989), Martin Arnold deconstructs one single shor of a film, Joseph M. Newman's The Human Jungle (1954). This shot is eighteen seconds long. In the back of a room, a man opens a door, turns off the light in the foyer, closes the door and approaches a woman sitting in an armchair in the foreground. This woman lays her newspaper aside, while the man bends over and kisses her briefly. Both smile; she gets up, the camera pans up with her and follows them with a side-angle pan shot as both actors cross and exit the room. The film's optical bank, designed by Arnold, in which each frame is reproduced from all positions (left, right, above, below) comprised two years of work and a total of 148,000 single frames. pièce touchée shows us a new interpretation of film space and time. It moves constantly back and forth in small and smallest blocks of frames. Opening the door and entering the room becomes an adventure for the man. Just tiny crack at first, which repeatedly closes, then slowly broadens, finally allowing the door to open. The film appears to offer a dream-like resistance Hardly is the man's body inside the room — the door still open — when the image is mirrored, and the door, now on the opposite side, is closed. The repeated opening and closing, opening and closing is transferred to the man turning him into a whirling dervish, while the woman in the foreground appears to twist from her middle.

Peter Tscherkassky, BLIMP. Zeitschrift für Film, 16 (Spring 1991): 41-42

It became nearly impossible to support the idea that movement studies (such as Eadweard Muybridge's photographs and zoopraxiscope demonstrations and the Lumière brothers' extended cinematographic observations of everyday or exotic situations) and movement magic (such as Georges Méliès's "trick film" and its numerous followers) existing outside of narrative development could be sufficient. Nevertheless, in all the decades since Griffith, movement studies and magic have remained essential elements of avantgarde cinema. In the case of young Austrian filmmaker Martin Arnold, "movement studies" and "movement magic" are core strategies for the deconstruction and transformation of the visual and audio conventions of Hollywood.

Scott MacDonald, Avantgardefilm Österreich. 1950 bis heute, eds. A. Horwath, L Ponger, G. Schlemmer (Vienna: Wespennest, 1995) p. 285.

Four persons at the breakfast table: an American family, locked in the rhythm created by the editing table. A passage à l'acte develops its sharpness, its effects comparable to the non-circuitous power of heavy metal or scratching in rap music. It is Martin Arnold's first attempt to work freely with sound (in pièce touchée, he operated with an extremely reduced, subliminal soundtrack on a loop, which had a machine-like sound). Arnold tears apart both the black and white imagery as well as the sound of his base material. A fragment from To Kill a Mockingbird (Robert Mulligan, USA 1962), stripped of its conflict-laden story of racism, becomes the basis for a study of the visual and acoustic subtext of film stereotypes, an analysis of the standard family mealtime situation and familiar gestures, which have been reduced to mere poses.

Stefan Grissemann, "Metal Beat. Methoden der Verstümmelung und der Neuordnung in Martin Arnolds Film passage à l'acte," BLIMP. Zeitschrift für Film, 22/23 (Spring 1993): 10-11

Gert Pfurtscheller

Planning and Imagination of Movements

The motor system is responsible for planning, executing, and controlling movements. It is made up of the central and peripheral nervous systems, which are activated, parallel, and hierarchical. A movement is initiated by a sequence of coordinated local and temporal muscle activities originating in the primary motor cortex. Simultaneously, constant feedback is given from the muscles to the brain relaying the present state of the movement. Before the muscle can be activated, however, a neuronal activation pattern must be generated to guarantee a specific movement, for which not only information about the present state of the musculoskeletal system is needed but also input on the environment. Thus it is clear that a number of neuronal systems over many areas of the cortex are needed for the planning phase of, for example, a voluntary finger movement. The most important structures are the motor cortex, premotor cortex, supplementary motor cortex, somatosensory cortex, basal ganglia, thalamus, and cerebellum.

Although the sensorimotor structures are in different anatomical locations, they all must be preactivated before each voluntary movement, transferring their status to a higher statue of excitability. They must be prepared to "design" the desired movement. The readiness of different neuronal structures can be detected on the scalp through two potential changes: the Bereitschaftspotential (or readiness potential), a slow negative shift of the cortex, and an amplitude decrease (desynchronization) of electroencephalogram (EEG) rhythms, which are generated in the sensorimotor areas. This desynchronization begins two seconds before movement and is localized over the contralateral sensorimotor areas.

Our group (G. Pfurtscheller, C. Neuper, M. Pregenzer, G. Florian, G. Edlinger, B. Ortmayr, T. Strein) at the University of Technology in Graz, Austria showed in a number of experiments that characteristic EEG changes are found not only during planning of movement but also during the imagination of such a movement. Since these EEG changes are regionally localized and movement-specific, they can be used for an EEG-based control system where movement-specific "thoughts" are transformed into control signals via EEG changes. In the future, patients with severe motor disabilities can use these signals for control of prostheses. Further research is needed before this can be realized. However, an important step in this direction has already been made — that is, the proof that the conscious imagination of simple movement patterns leads to measurable potential changes on the human scalo.

This research was supported by the Fonds zur Förderung der wissenschaftlichen Forschung project P9043 and P112087 and by the Allgemeine Unfallversicherungsanstalt AUVA.

Motor Imagery / F3





Time course and EEG power changes over the left and right hemisphere during imagination of left and right hand movement. Note the large power decrease over the controlateral side.

Sequence of ERD maps (interval 125 ms) during right motor imagery.

Experimental setup with 3 classes, where the cursor had to be moved into the indicated target.

Gert Pfurtscheller, born 1939 in Kitzbühel. Studied electrical engineering at the Technical University Graz. Researcher at the I. Physiological Institute Erlangen, 1969-1970. Habilitation in the field of electrical physiology, 1972. Researcher at the Burden Neurological Institute, Bristol, 1969-1970. Professor at the Technical University Graz, 1977: Head of the Department of Medical Informatics: 1982, Guest professor at the Children's Hospital, Vancouver, 1986. Head of the Ludwig-Boltzmann Institute for Medical Informatics and Neuroinformatics, Graz. 1987. Guest professor at the Groote Schuur Hospital, Kapstadt, Director of the institute for Biomedical Engineering at the Technical University Graz. 1996, Lectures on neuronal networks, digital signal processing, and medical computer science.

References:
Kalcher, J., D. Flotzinger, C.
Neuper, S. Gölly, and G.
Pfurstcheller. "Graz BrainComputer Interface II: Towards
Communication Between
Humans and Computers Based
on Online Classification of Three
Different EEG Patterns." Medical
& Biological Engineering &
Computing 34 (1996): pp.
382–388.

Pfurtscheller, G., D. Flotzinger, and J. Kalcher. "Brain-Computing-Interface. A New Communication Device for Handicapped Persons." Journal of Microcomputer Applications 16 (1993): pp. 293–299.

Pfurtscheller, G., and C. Neuper. "EEG-Based Brain Computer Communication Systems." Telematik 1 (1995): pp. 25–29.

Pfurtscheller, G., D. Flotzinger, M. Pregenzer, J. Wolpaw, and D. McFarland. "EEG-Based Brain Computer Interface (SCI)." Medical Progress through Technology 21 (1996): pp. 111–121.

Pfurtscheller, G., and F. H. Lopes da Silva, eds. *Event-Related Desynchronization*. Amsterdam: Elsevier, 1999.