



THE SUBSTANCE: ALBERT HOFMANN'S LSD

An Icarus Films Release

Directed by Martin Witz

2011 / English / 90 minutes / Switzerland-Germany

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SHORT SYNOPSIS

In 1943, Swiss chemist Albert Hofmann made a sensational discovery: a powerful molecule with the power to alter both the scientific world and human perception itself. But did its benefits outweigh its dangers? *The Substance: Albert Hofmann's LSD* investigates the discovery and history of LSD in a fascinating historical, scientific and cinematic trip.

LONG SYNOPSIS

In the spring of 1943, the year the first A-bomb was built, Swiss chemist Albert Hofmann discovered a powerful substance that would become an A-bomb of the mind: lysergic acid diethylamide or LSD. *The Substance: Albert Hofmann's LSD*, directed by Martin Witz, is an informative and entertaining investigation into the history of a drug so potent that mere fractions of a milligram can turn a subject's perception of time and space upside down.

Never-before seen archival material and new interviews with principal historical witnesses—including Hofmann himself, interviewed before his death—are used to chart the drug's discovery from a Basel chemistry laboratory to Hofmann's first experiments on himself. Viewers learn how the 1950's brought Cold War experiments by the American military and the CIA, who saw LSD as a potential weapon. Meanwhile, international psychiatrists and consciousness researchers tried to unlock the drug's medicinal possibilities, wondering whether it might be an effective tool for contemporary psychiatry or neuroscience.

In the early 1960s, Hofmann's "miracle drug" escaped from the lab. The psychedelic substance appealed to the counterculture: hippies, protesters and dropouts. Could LSD be a fuel for social and political revolution? "Turn on, tune in, drop out!" proclaimed LSD champion Timothy Leary, and hundreds of thousands followed him into a world of LSD-induced experimentation. Could spiritual peace be achieved at the flick of a chemical switch?

Though it pained Hofmann to see his "sacred" LSD appear on international anti-drug blacklists, he continued his research into its medicinal possibilities. In 2007, a hundred years after the scientist's birth, his theories found vindication. Switzerland's Federal Office of Public Health approved the clinical use of hallucinogenic substances exploring LSD's possibilities as a palliative remedy, providing relief for the terminally ill. The notoriety and sense of possibility surrounding the drug persist to this day. *The Substance: Albert Hofmann's LSD* follows the story of LSD on a fascinating historical, scientific and cinematic trip.

SELECTED FESTIVALS

Official Selection, Locarno Film Festival
Official Selection, Seattle International Film Festival
Official Selection, BAFICI Buenos Aires
Official Selection, One World Human Rights Film Festival, Prague
Official Selection, Festival de Cine Europeo, Seville
Official Selection, Festival dei Popoli, Florence
Official Selection, International Documentary Film festival, Amsterdam
Official Selection, DOK Leipzig

DIRECTOR BIOGRAPHY

Born in 1956, the films that **MARTIN WITZ** has worked on have been presented at the Cannes Film Festival, the Locarno Film Festival, the Sundance Film Festival, and the Berlinale. Witz began his career as a screenwriter on narrative fiction films, including WENDEL (1987), DREISSIG JAHRE (1989) and AM ENDE DER NACHT (1992), directed by Christoph Schaub; FILOU (1988) directed by Samir; and LUDWIG 1881 (1993) directed by Fosco and Donatello Dubini.

Witz then turned to documentary; he wrote NOEL FIELD (1997) and VON WERRA (2000) for director Werner Schweizer. Witz was editor and sound recordist for ELISABETH KÜBLER-ROSS: FACING DEATH (2002) and A SONG FOR ARGYRIS (2006), both directed by Stefan Haupt and released by Icarus Films; DAVID WANTS TO FLY (2010) directed by David Sieveking; ANGRY MONK (2006) directed by Luc Schaedler and an Icarus Films release; and WAR PHOTOGRAPHER (2002) directed by Christian Frei, an Oscar-nominated and Peabody Award-winning documentary and an Icarus Films release.

Witz moved to the director's chair with documentaries for European broadcaster Arte including MALARIA (2002) and INDISCHE REGEN-ERNT (2005). His first documentary film for the big screen, DUTTI DER RIESE (2007), turned the spotlight on Switzerland's largest supermarker chain, Migros. THE SUBSTANCE is his second feature film.



SCREEN DAILY FILM REVIEW

The Substance: Albert Hoffman's LSD

10 August, 2011

Reviewed by Mark Adams, Chief Film Critic

In April 1943, as war raged in Europe, in his research lab in Basel in neutral Switzerland chemist Albert Hofmann accidentally came across a hitherto unknown substance. After experimenting with a weak solution of it on himself, he realized that it was an extremely potent drug that altered human perception radically...he had discovered the drug later to be known better as simply LSD.

The power of LSD in the 1960s was that it 'reinforced the notion that change was possible' and help bolster the youth movement of the period. Martin Witz's fascinating film traces the history of the drug, from its early tests, possibly military applications and to its eventual fame as drug-of-choice for the hippie generation, and it is a wonderfully mounted montage of archive footage and interviews that makes for compulsive viewing.

...A series of interviews with Albert Hofmann himself (he was interviewed in 2008 just before his 100th birthday, though he later died aged 102) helps track the early development of the drug and also pinpoint his involvement in different manifestations of it through the years.

In Switzerland, chemical company Sandoz started to manufacture the drug, offering it to psychiatric circles, where it was viewed as a way of offering experimental psychosis and analysis. Naturally enough the world's secret services were soon interested. The CIA tested it as a truth serum while the US Army thought it might offer a way of impairing enemy troop performance.

There is wonderful footage of US Army trials as soldiers try to keep a straight face and answer serious questions, with one soldier testing the drug reduced to what Army doctors' described as 'cosmic laughter'...simply laughing uncontrollably in the face of his predicament.

The LSD story is carried on through Ken Kesey and the Merry Pranksters and their legendary hippie trip across the UK, and eventually to radical Harvard academic Timothy Leary and his collaborator Ralph Metzner who initially received an academic sanction to experiment with the drug. Eventually fired from Harvard – LSD was "too good not to share with everybody," admitted Metzner – they based themselves at impressive country estate Millbrook on the East Coast and kept on 'testing' the drug. The power of LSD in the 1960s was – as one interviewee noted - that it 'reinforced the notion that change was possible' and help bolster the youth movement of the period. Leary and his followers eventually relocated to San Francisco, but Albert Hofmann began to reproach Leary for giving the drug to people Hofman thought too young. "It is something that requires a certain maturity," said Hofman.

Leary and his chemists advocated offering LSD for free—and made sure it was shipped out to US troops in Vietnam—but at the beginning of the 1970s, the unpredictable substance landed on the black list as the drug culture became more and more criminalized. Ironically, today, some psychedelic substances are being used for lawful purposes for the first time.

THE HISTORY OF LSD

LSD-25 (or diethylamide of d-lysergic acid) was first synthesized on November 16, 1938 by Albert Hofmann in the Sandoz chemical-pharmaceutical laboratories in Basel, Switzerland (now NOVARTIS). Together with professor Arthur Stoll, founder and director of the pharmaceutical department, he began studying the medicinal plant *squill* and the fungus *ergot* as part of a program to purify and synthesize active constituents for use as pharmaceuticals. In the course of the research on lysergic acid derivatives, whose main goal was to obtain a respiratory and circulatory stimulant (an analeptic), he first synthesized LSD. Though the substance caused excitation in some of the tested animals, these effects were not considered of sufficient interest pharmaceutically speaking to be further explored, so that they initially dropped this line of inquiry and did not pursue it further.

Five years later, in 1943, Hofmann was reviewing the results of early pharmacological tests on LSD and decided to investigate the stimulating effects on the central nervous system indicated in animal experiments. Working on the synthesis of a new sample of LSD, he accidentally absorbed a small amount of the drug and serendipitously discovered its powerful effects. The following is Albert Hofmann's own description of the perceptual and emotional changes that he experienced as a result:

"Last Friday, April 16, 1943, I was forced to stop my work in the laboratory in the middle of the afternoon and to go home, as I was seized by a peculiar restlessness associated with a sensation of mild dizziness. On arriving home, I lay down and sank into a kind of drunkenness, which was not unpleasant and which was characterized by extreme activity of the imagination. As I lay in a dazed condition with my eyes closed, (I experienced daylight as disagreeably bright) there surged upon me an uninterrupted stream of fantastic images of extraordinary plasticity and vividness, accompanied by an intense kaleidoscope-like play of colors. This condition gradually passed off after two hours."

THE PLANT ERGOT

Ergot or *ergot fungi* refers to a group of fungi of the genus *Claviceps*. The most prominent member of this group is *Claviceps purpurea*. This fungus grows on rye and related plants and produces alkaloids that can cause *ergotism* in humans and other mammals who consume grains contaminated with its fruiting structure, *ergot sclerotium*. In the Middle Ages, ergot poisoned thousands of people who ate infected rye bread. Ergot was used by pregnant women to speed up labor and staunch bleeding after childbirth, though in the 19th-century, physicians deemed the latter practice too dangerous because high dosages could lead to such strong contractions that they endangered the baby.

In 1907, English chemists G. Barger and F.H. Carr extracted the toxic *ergotoxine* from ergot. In 1918, Swiss chemist Arthur Stoll isolated *ergotamine*, a purified alkaloid, which was derived from ergot and served as a basis for many circulatory stimulants. In the 1930s, the chemical structure of the principal alkaloid of ergot was established and the Americans W. A. Jacobs and L. C. Craig isolated the lysergic core of ergot, which constituted the basis for the discovery of LSD.

FILM CREDITS

Written & Directed by Martin Witz
Narration Hanspeter Müller-Drossaart
Camera Pio Corradi
Sound (USA) Russ Jaquith
Sound (Switzerland) Balthasar Jucker
Editing Stefan Kälin

With Albert Hofmann
Stanislav Grof
Martin A. Lee
James S. Ketchum
Franz X. Vollenweider
Carolyn Garcia
Ralph Metzner
Nick Sand
Roland Griffiths
Clark Martin

Story Consultant Carl-Ludwig Rettinger
Picture Design Patrick Lindenmaier
Titles Paul Avondet
Music Composed by Marcel Vaid
Musicians Martin Schumacher (Clarinet)
Martin Birnstiel (Cello)
Bernhard Bamert (Trombone)
Pardeep Schroeder (Guitars & Gongs)

Sound Design Roland Widmer, Stefan Willenegger
Sound Mixing Guido Keller

Research Alison Guss, Susan Hormuth, Ondřej Vavrečka, Michel Dind
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Science Consultant Franz X. Vollenweider
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Many Thanks Andreas Hofmann, Beatrix Nabholz-Hofmann, Carol & Michael Randall, Janeen Delany, Judy Goldhaft & Peter Berg, Bernardine Dohrn, Tatiana Müller Charles Grob, Tim Scully, Therese Müller, Peter Mettler, Peter Gasser, Roger Liggerstorfer, Roshi Joan Halifax, Lucius Werthmüller, Dieter A. Hagenbach, Beat Hirt, Milos Vojtechovsky, Eva Zaoralova, Vera Fischelova, Alena Baxova, Magaly Tornay, Luc Schaedler, Ute Hammann, Basil Gelpke, Jennifer Fox, Thomas Thümena, Rudolf Santschi, Rosmarie Witz, Jolanda Gsponer, Jean-Martin Büttner, Felix Hasler, Sandra Steffan, Mary Cosimano, Nicolas Langlitz, Tilly Büttler, Kendra Meyer, Michael Horowitz, Eric Noble, Rick Doblin, Jürgen Ast, Christoph Schaub, Ruedi Jost, Hana Joch, Judith Zingg

Footage "Albert Hofmann 2005"
DreamTeam Medienproduktion – Ralf Breier

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The Beatles "All You Need Is Love"

BBC recording at the Abbey Road Studios, London 25.6.1967

Grateful Dead "The Eleven"

CBS recording in Golden Gate Park, San Francisco 22.8.1967

Jimi Hendrix "Wild Thing" from "Jimi Plays Monterey" by Chris Hegedus and D.A. Pennebaker courtesy of Pennebaker Hegedus Films and The Monterey International Pop Festival Foundation. The Film, Festival and Audio recordings were produced by Lou Adler and John Phillips - Monterey 18.6.1967

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