

**OPTICS FOR ARTISTS
NOTES AND OBSERVATIONS UNIT FIVE
FOREWORD**

IN THIS UNIT, you will learn about:

- * The Parts of the Eye and their role in the process of vision.
- * The basic vision defects and how to correct them.
- * How two slightly disparate views are fused into one three-dimensional world.
- * How persisting images smooth jerky movements into a semblance of continuity.

OUTLINE OF LECTURE: (The lecturer reserves the right to vary.)

LECTURE-DEMONSTRATIONS UNIT FIVE

PHYSIOLOGY OF THE EYEBALL

FIND YOUR BLIND SPOT

DISCUSS DGI EYE

MY THREE PAIRS OF GLASSES

CONTACT LENS HANDLING

LOOKING THROUGH AN ASTIGMATIC EYE

EYE MICE

PERCEPTION

LOOK THROUGH A PING-PONG BALL TO SEE BRIGHTNESS ADJUSTMENT

RUB YOUR EYES TO SEE PHOSPHENES

SIMULTANEOUS CONTRAST DEMONSTRATION

OPTICAL ILLUSIONS

PERSISTENCE OF VISION

THAUMATROPE, ZOETROPE, AND FANTASCOPE

STROBOSCOPIC DEMOS

PULSED WITH ELECTRONIC FLASH

SPINNER AND STROBE

THE SPIRAL AFTER-EFFECT

STEREO VISION

HOLE IN THE HAND

DEMONSTRATIONS UNIT FIVE

THE EYEBALL AND PERCEPTION

LOOK UP THE STRING

STEREO VIEWING DEMONSTRATION

PULFRICH PENDULUM

WILD VISION

FILL IN THE BLANKS ON THE AMBIGUOUS DEPTH CUES

SLIDE SHOW: You will view the following phenomena vicariously through the magic of photographic transparencies:

**SLIDE SHOW, UNIT FIVE
The Old "First Day of Class" Slides**

OPTICS	THREE MEN PERSPECTIVE
WAVEFRONT INPUT	LONGER SHORTER ARROWS
WOODCUT INSIDE OF EYEBALL	POGGENDORF ILLUSION (2)
PHOTO OF MY RETINA	ROOM WITH ILLUSIONS
RODS AND CONES	NECKER CUBE (2)
OPTICAL CHIASM	MISSING PIE SLICE (2)
FOVEAL VISION	HERING ILLUSION (2)
SACCADIC MOTION	PARALLEL LINES (2)
SHIMMER	BIGGER CENTRAL CIRCLES
PENROSES' IMPOSSIBLE TRIANGLE	GOBLETS OR FACES
WIDGET	REVERSING ANIMAL HEADS
HOCKNEY PHOTO-COLLAGE	ANTHROPOMORPHISM
THE INVENTION OF PERSPECTIVE	HERMANN GRID
TRIANGULATION	SUBJECTIVE CONTOURS (2)
TRIANGULATION OF DISTANCE TO MARS, CLOUDS, AND RANGEFINDER	NEGATIVE AFTERIMAGES (3)
CONVERGENCE OF EYES	THAUMATROPE
ONE FINGER, TWO FINGER	FANTASCOPE
CHARLES WHEATSTONE	PHENAKISTOSCOPE
WHEATSTONE STEREOSCOPE	STEREO CARD RIFFLER
WHEATSTONE IMAGERY	FILOSCOPE
STEREO REALIST	KINEMATOFOR No.4
IKE W/REALIST	DANGERS OF VOLUNTEERING FOR PERCEPTUAL STUDIES
REALIST ADS	
SHUTTERING SYSTEM	
ANAGLYPHS	
TRYLON AND PERISPHERE	
HAPPY MEAL	
MOM, DAD, JUNIOR AND SIS WITH VIEWMASTER PROJECTOR	
MOVIE ADS (4)	
3-D TV PREDICTION	
CREATURE OF THE 3-D TV	
PARALLAX PANORAMAGRAM	
NIMSLO	

SLIDE SHOW, UNIT FIVE

READING: The Articles or Handouts which you will read in the following pages are:

The first Reading in this Unit, **510 ANATOMY OF THE EYE**, is a page to fill in the notes of what each part of the eye does during the lecture. The next one is the cover page of the instructions of **515 THE HUMAN EYE by Lindberg**, which is the model we examine in class. To understand accomodation, **520 OPTICAL ENGINEERING NOTE #11: THE DENOYER-GEPPERT EYEBALL MODEL** highlights a novel demonstration item. To satisfy your curiosity **525 RETINAE** describes dramatically the damage a Class IV laser can do to an eyeball.

On a lighter note, **535 OPTICAL ILLUSION CARDS EXPLAINED** illustrates some characteristics of how the eye works and **536 PopArticle** is the pathway to an article that explains how they are applied in Op Art. The gamut of stereo viewing systems is run out in **550 Stereo Devices** (*BONUS TRACK: 551* Illustrates all these!) while **555 The GENEALOGY OF THREE-DIMENSIONAL IMAGING SYSTEMS** gives an overview of the systems that have been tried (and abandoned). **OPTICAL ENGINEERING NOTE #19: THE EFFECT OF VARYING THE BASELINE DISTANCE IN PHOTOGRAPHIC STEREOGRAMS** shows how to increase binocular disparity for a better 3-D kick.