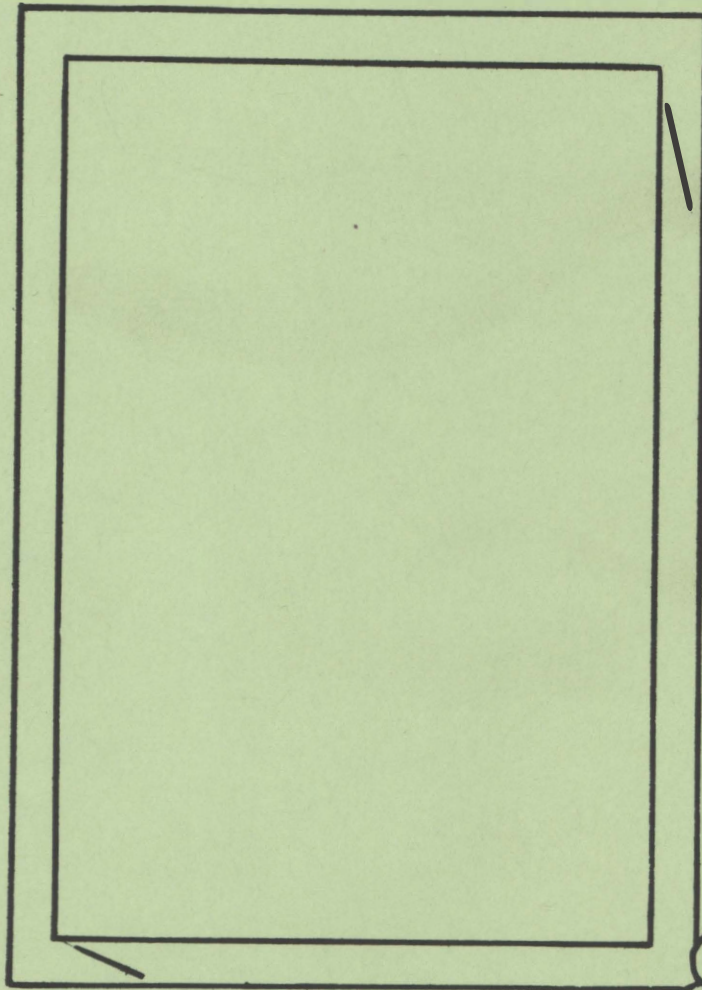
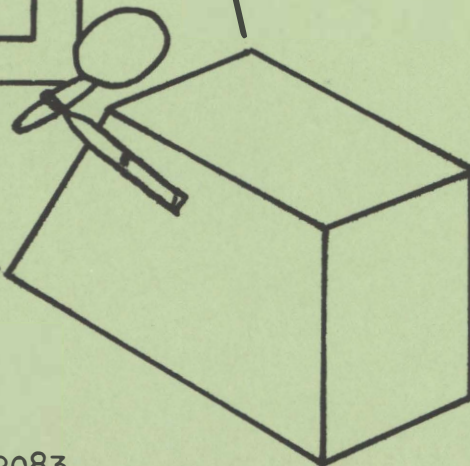


Crabb

Colorahma



The
Painting-
with-Light
Projector



By:

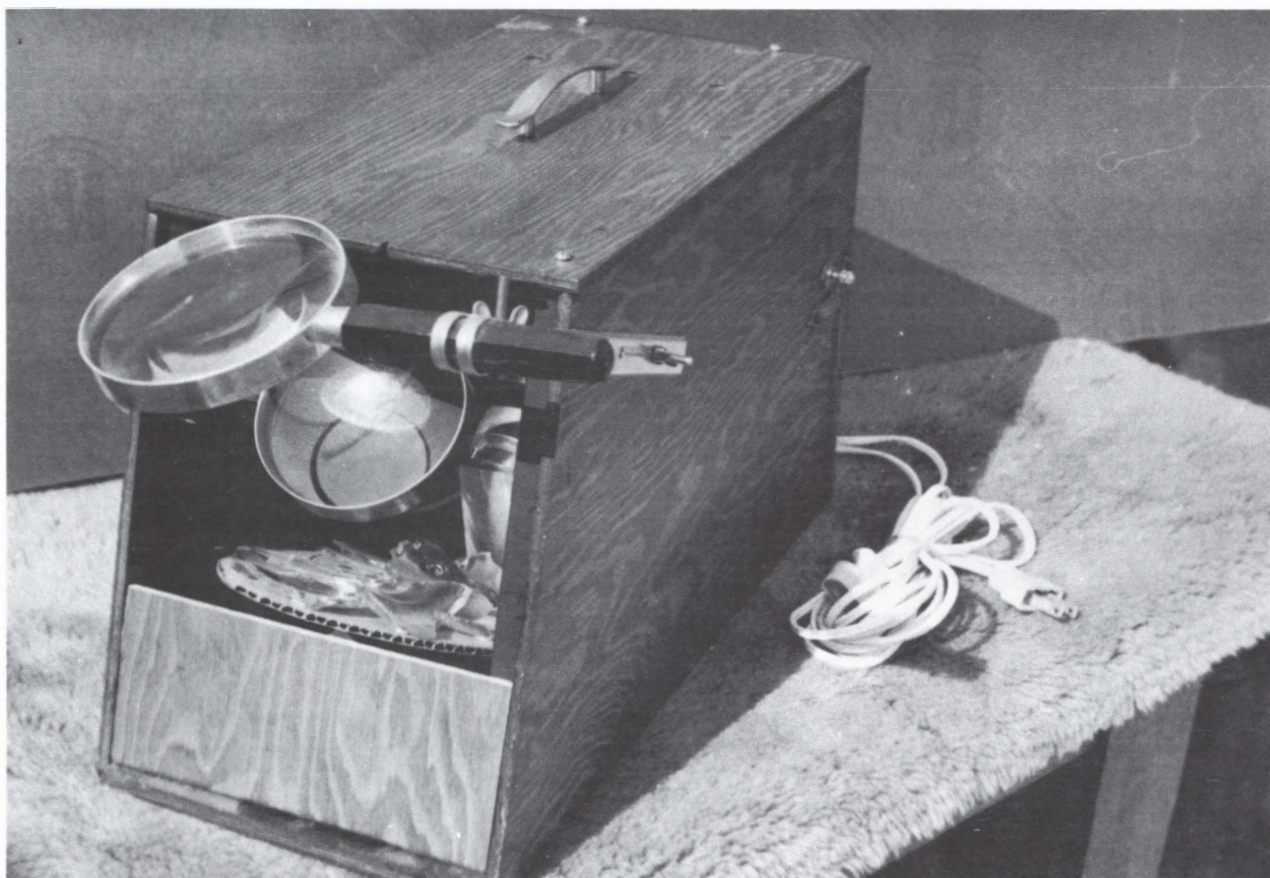
Riley Hansard Crabb
Director, BSRA
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2018



The Colorahma Projector

C O L O R A H M A

Painting With Light -- The New Age Art Form

by Riley Hansard Crabb

Colorahma represents eight years of experience in building equipment and in giving color-music concerts across the nation. As a part of our lectures in metaphysics and developing ESP we have made it a point to test the conscious and subconscious reactions of mixed audiences to moving color, combined with suitable music, and sometimes with the addition of perfume or incense.

People generally like such color concerts for their esthetic and spiritual reactions, some for its therapeutic value. One spectator wanted to buy our projector right after the concert! He was a chronic insomniac and this was the first thing he'd seen in years of searching that put him to sleep without the use of drugs.

Color therapy is thousands of years old. Pythagoras made use of

it in his philosophical school at Krotona. Its value was known to philosopher-healers of China, India and Egypt. Here in the United States Dr. S. Pancoast established the value of chromo-therapy in his (her?) clinical practice in Philadelphia a hundred years ago. See his book, "Blue and Red Light".

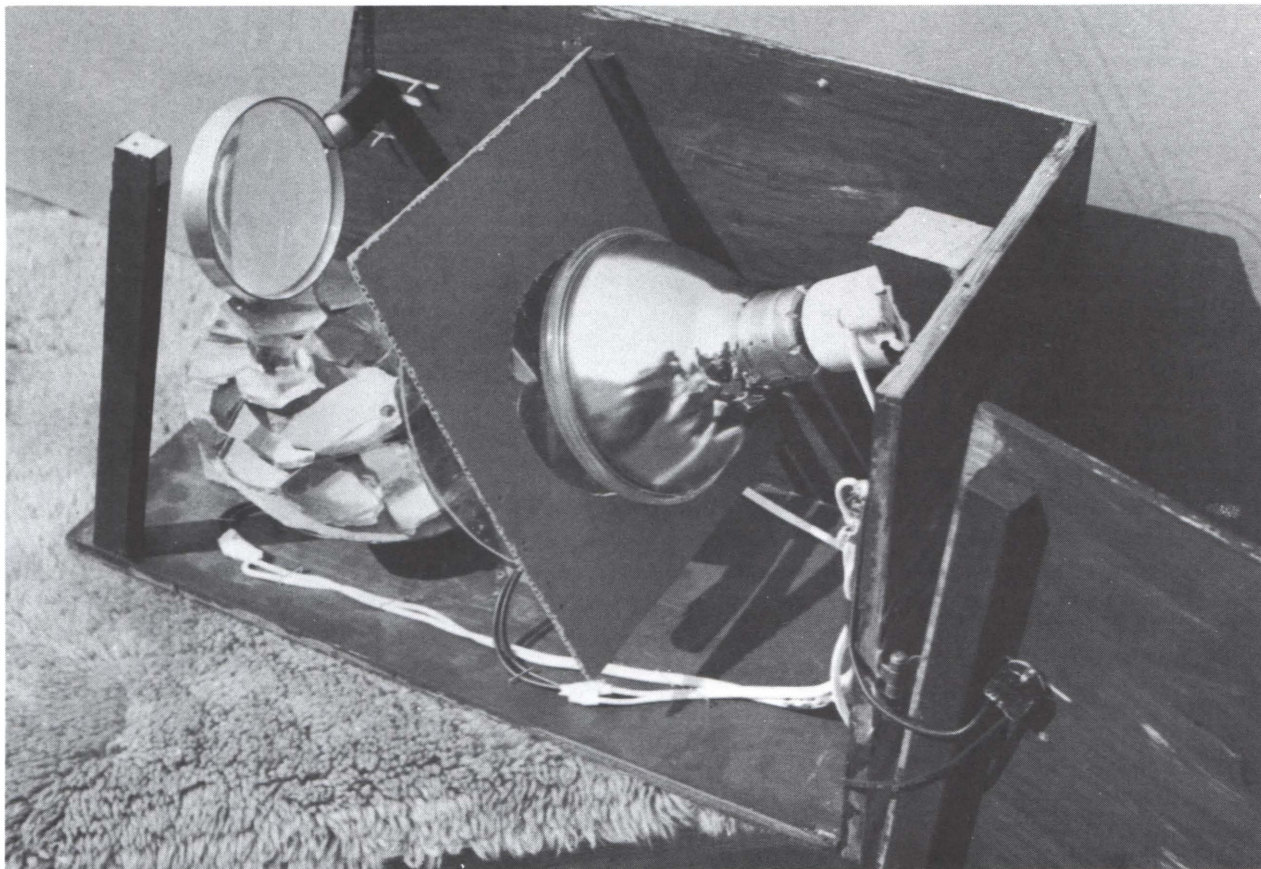
One thing we've proven, it is absolutely essential to build a color organ or projector that produces endless variety in its flow of abstract patterns and color. When your audience, whether it is you alone or a group of people, can predict the sequence that is about to appear on the screen or wall, then your color-painting has lost part of its charm. There is no longer that mystery of witchery. If you are to hold your viewer's undivided attention you must produce in miniature the endless Mystery of Creation, a succession of unpredictable "tomorrows". This, if you follow our directions, your little, inexpensive Colorahma projector will do.

A few years ago Maulsby Kimball put together a representative collection of modern art for a tour of the country. He correctly pointed out that abstract painting represented the change of consciousness which is coming over mankind in this New, Aquarian Age. Our intuition is opening up and we are beginning to see, only dimly now, perhaps, beyond or through our limiting three-dimensional world into another level of consciousness. This is a world of fluid light descending constantly into crystallized, 3-D forms. To put it mathematically we could invert Einstein's famous formula and say that Energy divided by Light squared equals Matter. The abstract painter catches an inspired glimpse of this process of creation and precipitates it in color on canvas. Optical Art is one indication of this recognized change in consciousness.

That's just it, painting does capture and fix some aspect of universal beauty. If it is good art it continues to inspire us. Why? Because each time we see the painting we are a different person. Thus we react differently to the same painting and it continues to charm us.

But with this New Age art form, painting-with-light, our moving-color projector duplicates the fluid, ever-changing nature of the higher realms. This is dynamic, not static, painting! True it is only two-dimensional as it flows across the screen but proof of its effectiveness is when the color comes off the wall, seemingly, and you can see through or into it. This means that you have experienced a slight change of consciousness momentarily and are looking into the 4th Dimension. The Colorahma might be called a mechanical psychedelic!

The basic ideas in Colorahma are not original with us. Most of them have been patented at one time or another and are now in the public domain, but we would like to acknowledge our indebtedness to Claude Bragdon, Maurice Wetzel, Bob Beck, Bob Williams and



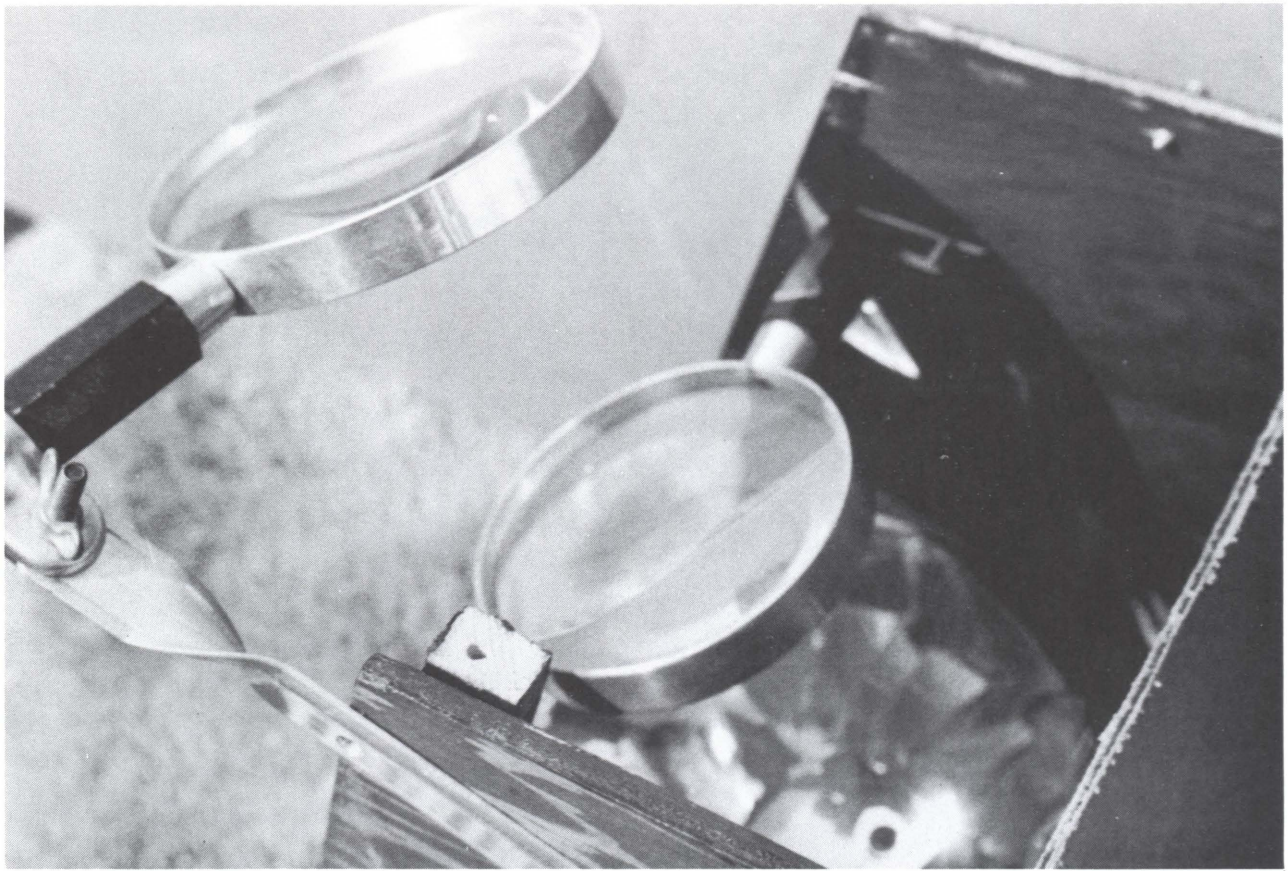
Interior View of Colorahma, Pic No. 2

Ed Skilling for ideas and suggestions incorporated in this finished product. The parts and materials are standard items and should be available in any moderate-sized city.

LIGHT - The General Electric 150-watt Outdoor Spotlight, white or clear is the only light-source that will produce the brilliant-colored patterns claimed for our Colorahma machine. An indoor or outdoor floodlight will not do.

COLOR - Standard Theatrical Gelatins for stage spotlights, or the heavier, transparent Acetate colors. Theatrical gelatins can be purchased at motion picture supply houses or at display advertising stores. The Acetates can be obtained from dealers in plastics.

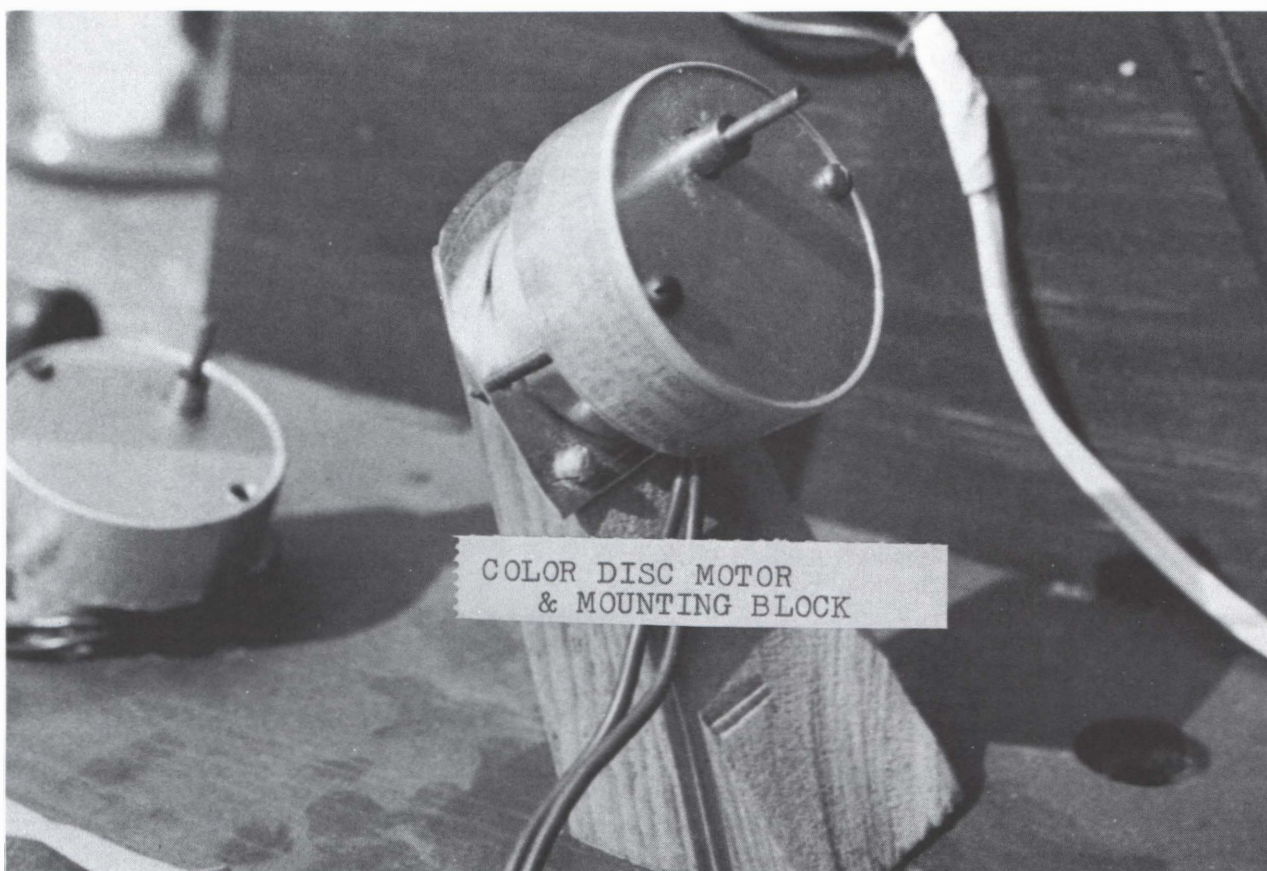
LENSES - These two standard-sized reading-glass lenses shown on the next page are absolutely essential to produce brilliant spots of color and pattern amid dark shadows for contrast. The upper or outside fixed lens is 4 in. in diameter or larger,



The Lens System, Pic No. 3

with a 5 in. handle. The inside revolving lens is 3 or $3\frac{1}{2}$ in. diameter. The handle is sawed off to only 2 in. length, if the handle is hollow plastic, the hollow will have to be filled with a $\frac{7}{16}$ in. wooden plug. In this drill a centered hole, $\frac{1}{8}$ in. diam. and $\frac{1}{2}$ in. deep to fit on the Revolving Lens Motor shaft.

CONCAVE MIRRORS - Have your garageman or service station save a couple of burnt out automobile headlamps for you. Put one in a paper bag. Smash it gently with one blow of a hammer. Pick out the silvered pieces. These are to be glued, silver-side up, on the Mirror Disc. Pieces of mirror glass from flat mirrors will not do. Curved or concave mirrors are part of the lens system and must be used to focus the colored light through the two reading-glass lenses shown above. Broken concave mirror pieces produce the abstract, random patterns so desirable in moving-color projection. Pick out enough larger pieces from two busted lights to cover the $6\frac{1}{2}$ in. Mirror Disc, with pieces set at different angles to throw the light in random directions. The largest curved



Industrial Timing Motors, Pic No. 4

piece should be set at the center of the Disc. This will create sudden, huge flares of color across your screen. Very spectacular.

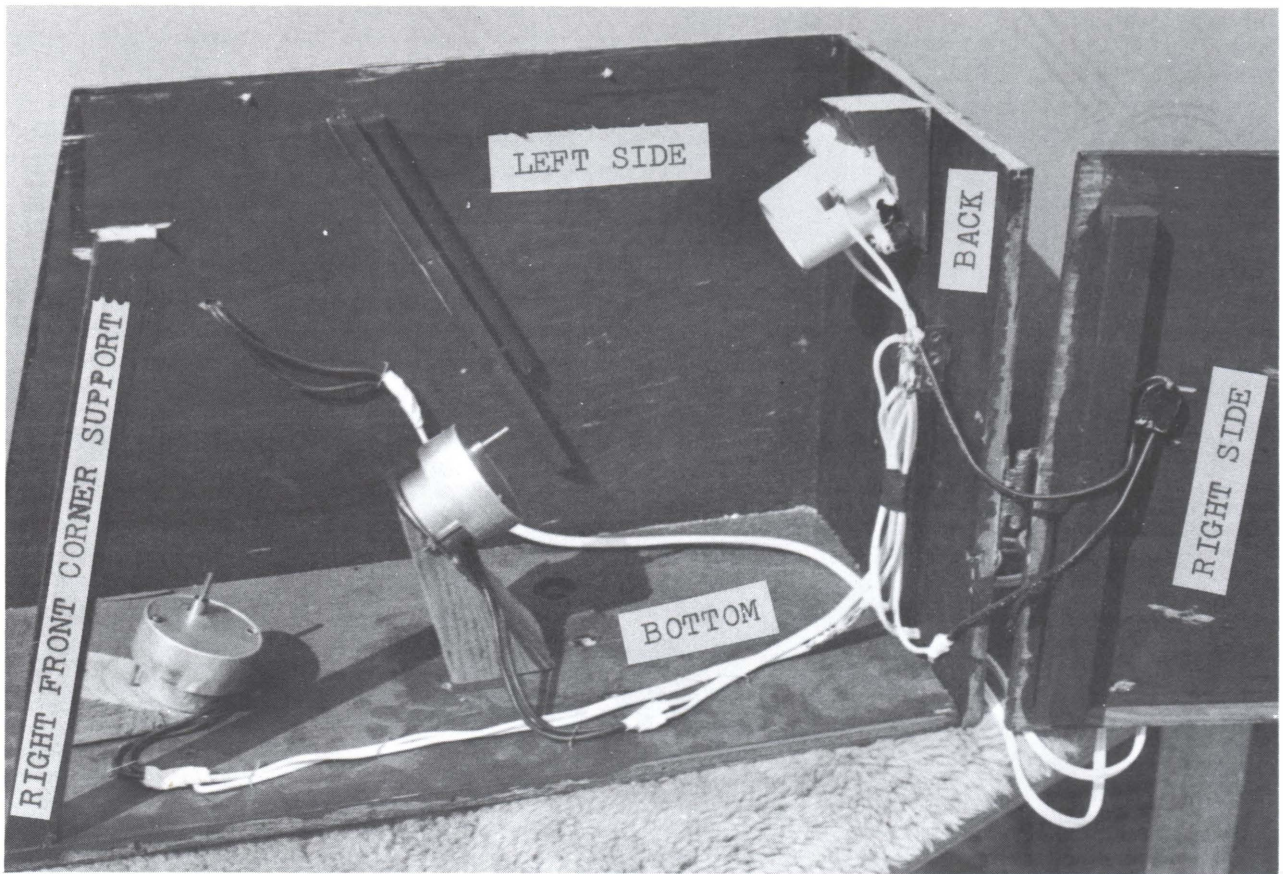
MOTORS - Three, small, fractional horsepower, industrial timing motors are used. It is absolutely essential that these revolve at different, fixed, fractional speeds IF your Colorahma is to provide the endless variety of color and pattern claimed for it.

No. 1, for the Revolving Lens, $1/4$ rpm.

No. 2, for the Rotating Mirror Disc, $2/3$ rpm.

No. 3, for the Rotating Color Disc, $4/5$ rpm.

We use Bristol Std. Synchronous Timing Motors, Model No. 425, which retail at \$5.25 each (1969). These are mfg. at Old Saybrook, Conn. We buy them postpaid from Minarik Electric Co., 224 East Third St., Los Angeles, Cal. 90013. Other small industrial timing motors will do as well if they run silently at the required speeds!



Cabinet Interior, top removed, Pic No. 5

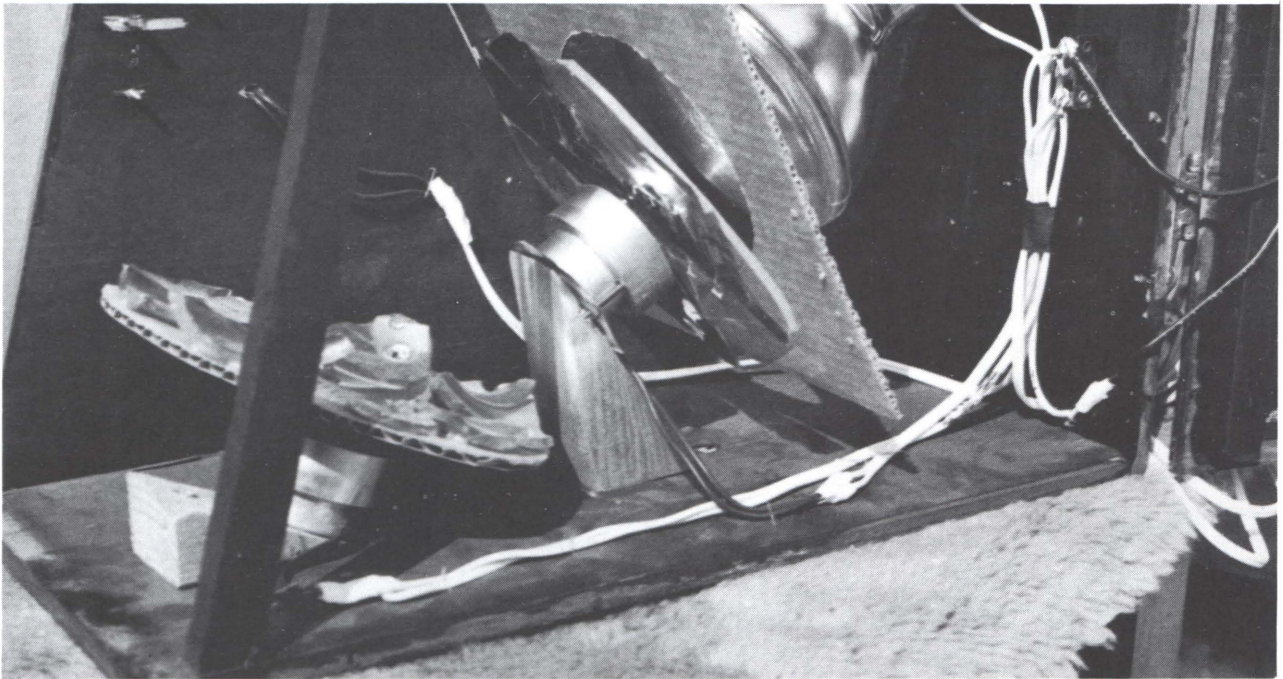
CABINET - $16\frac{1}{2} \times 10 \times 7\frac{1}{2}$ in. plywood. $\frac{3}{8}$ in. plywood for the Back and Bottom Pieces; $\frac{1}{4}$ in. for Sides, Front and Top Piece.

PARTS - - Miscellaneous nails, screws, hinge or hinges, drawer handle, glue, lamp cord (about 12 ft.), flat black paint for interior, stain for exterior.

Largest single item of direct cost is the timing motors, around \$16 for the three, new. Next would be the two reading-glass lenses, \$3 to \$4 each, then the GE 150-watt spotlight. For this you must use a porcelain socket. Plastic will char from the heat of the lamp. You can mount a small ventilation fan under the light if you like. We haven't found it necessary. \$30 should more than cover the cost of the parts.

PREPARATION OF PARTS

THE MASK - From a piece of corrugated cardboard cut a rectangle 7×8 in. In the center of this cut out a $4\frac{1}{2}$ in. circle. Paint the mask dull black, both sides. This is for masking out all unwanted light from the spotlight.



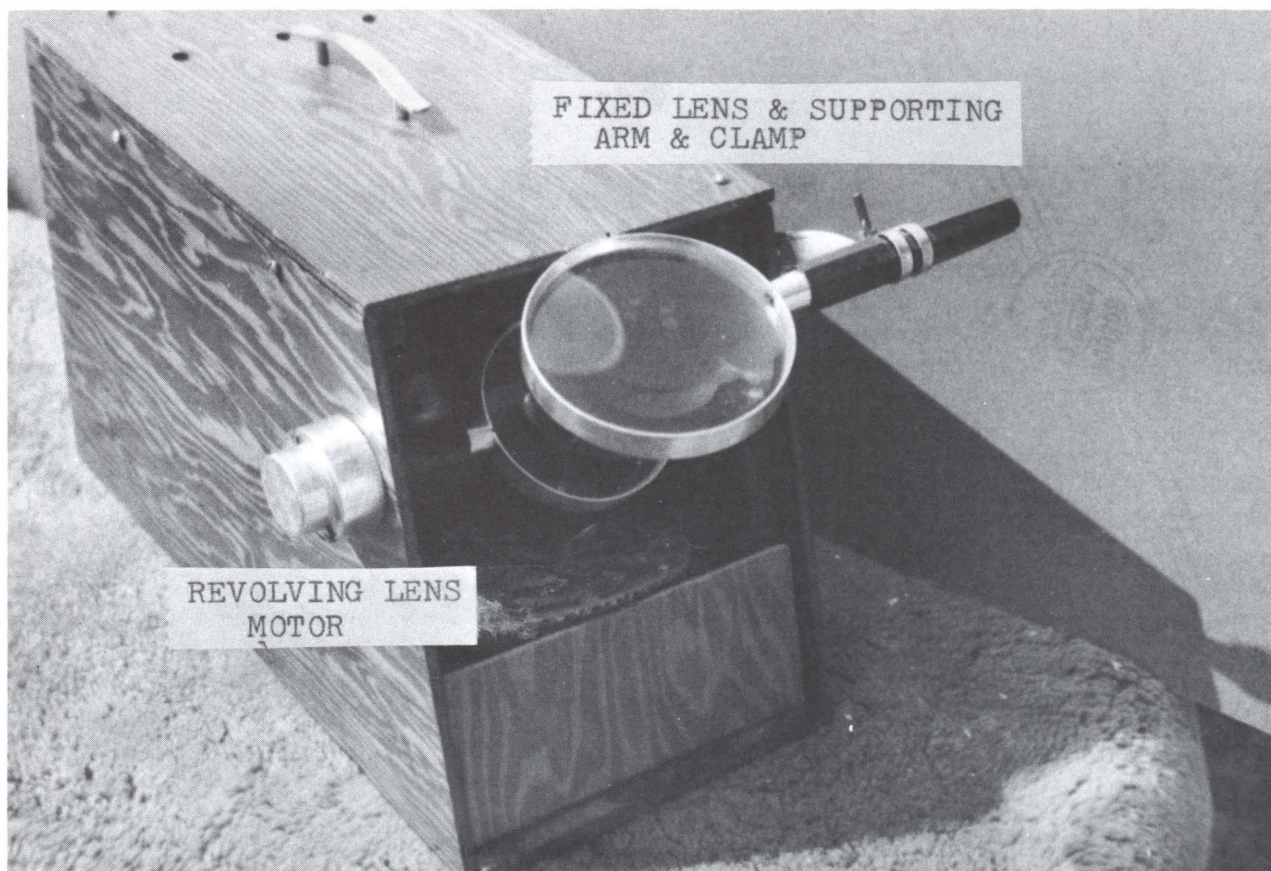
Lamp, Color Disc, Mirror Disc Sequence, Pic No. 6

WOODEN-BLOCK LIGHT & MOTOR MOUNTS - Three are required, cut to 30 degree angles as shown in pics and drawings, from a 2x4. One, 4 in. long is the mount for the Color Disc motor. Two blocks, 2½ in. long are for the light socket and the Mirror Disc motor.

THE MIRROR DISC - Cut a 6½ in. circular disc out of thin plywood, aluminum sheet or corrugated cardboard. On this are glued the pieces of silvered, concave glass from a busted auto headlamp. Before gluing the pieces on, better make a wooden hub to receive the Mirror Disc motor shaft, which is 1/2 in. long and 1/8 in. diameter. We use 3/8 in. plywood, cut 2 in. square. In the center of this drill the motor shaft hole, then nail and glue this hub to the center of the Mirror Disc.

THE COLOR DISC - Cut a 6½ in. circular disc from Lucite or other clear plastic sheet 1/8 in. thick. If you cant obtain plastic sheet or had no scroll saw for cutting a circle, then make a 6½ in. "disc" out of chicken wire. This will support your six, pie-shaped wedges of colored gelatin or acetate just as well as the plastic. This Disc will require a motor shaft hub also but it need be only 1½ in. square.

COLOR GELATINS - The six colored gelatins we use are the three primary colors: Red, Yellow and Blue; and the three secondary colors: Green, Orange and Violet. Mount them in any order you like. To simplify cutting the pie-shaped wedges of color to the right size, draw a 6½ in. circle on paper and divide it into six



Revolving Lens Motor and Fixed Lens, Pic No. 7

equal sized segments with heavy lines. Lay the gelatin or acetate sheet over this and cut the right-sized pieces with razor or Friskit knife. Tape them together with transparent Scotch tape, then tape the full circle color assembly to the plastic or wire disc.

COLOR THERAPY - If you want to experiment with the effects of color on consciousness, monochrome discs can be made using shades or tints of one color only. If you want to create a blue or melancholy mood, use only the cool colors, violet, blue and green. If you want to stimulate an active mood, use only the warm colors, red, yellow and orange, or shades or tints of the same.

THE FIXED LENS SUPPORT - The $4\frac{1}{2}$ in. or larger outside lens is supported by an 8 in. piece of aluminum strip $\frac{3}{4}$ in. wide. Any other soft metal will do, soft because you must put a 90 degree twist in it at the upper end, to support the lens horizontally across the open front of the Colorahma, as shown above and in picture No. 3, page 4.

We found an excellent clamp for the fixed lens handle in the dime store. It was part of a bicycle rear-view mirror assembly, to be clamped on the handlebar. Standard 8-32 bolts, 1 in. long, with wing nuts, are used to bolt the metal strip to the outside of the Right Side Piece, and to also bolt the handle clamp to the upper

end of the metal strip.

The fixed-lens support strip is bolted to the Right Side Piece in such a way that the whole assembly can be raised or lowered to change the setting or focus of the fixed lens in relation to your projection screen or wall. You will want to experiment with the setting and tilt of this lens when operating your Colorahma, to get the most effective throw or spread of light upward. Set the Colorahma on the floor, pointing directly toward a clear white or pastel colored room wall and about a foot away. When turned on and running, and with the room totally dark, it will at times fill an 8x16 ft. wall with colored patterns.

CONSTRUCTION

1. Mark and cut Back, Bottom, Sides, Top and Front Pieces from plywood sheet, sand edges. Drill ventilation holes as indicated in Top and Bottom Pieces. Drill screw holes for Handle in Top. Drill 1/4 in. hole near lower right hand corner of Back Piece for electric cord.
2. Assemble Bottom Piece and Back Piece with glue and nails. Add Left Side Piece, glued and nailed, leaving Right Side and Top open for mounting of motors and other hardware.
3. Fasten light-mounting block to inside top center of Back Piece, with a 1 1/2 in., flat-head screw.
4. Mark 30 degree line on inside of Left Side Piece, as shown in drawing and nail two 1/4-round supports (See Pic No. 5, page 6) 8 in. long, to make support slot for cardboard mask. These 1/4-rounds should be close enough to hold the mask snugly without glue, as the mask will have to be shifted up or down to exclude white light from getting out front.
5. Drill 1/4 in. hole in Left Side Piece, 6 3/4 in. up from bottom and 1 in. in from front, for insertion of Revolving Motor Shaft housing.
6. Paint inside of all cabinet pieces with flat black paint to absorb stray light.
7. Two-point terminal lug for electrical connections should be fastened to inside of Back Piece, 4 in. up from bottom and 2 in. in from right side. (Pic No. 6, page 7).
8. Fasten mounting block for Color Disc Motor to Bottom Piece, 8 in. in from front and centered, with a 1 1/2 in. flat-head screw through the bottom. (Pic No. 5, page 6).
9. Fasten mounting block for Mirror Disc Motor to Bottom Piece, 2 in. in from front and centered, with 1 1/2 in. flat-head screw.
10. Fasten Right Front Corner Support to Bottom Piece at right front corner, 1/4 in. in from front and side, with screw and glue. (See Pic No. 2, page 3 and Pic No. 5, page 6).

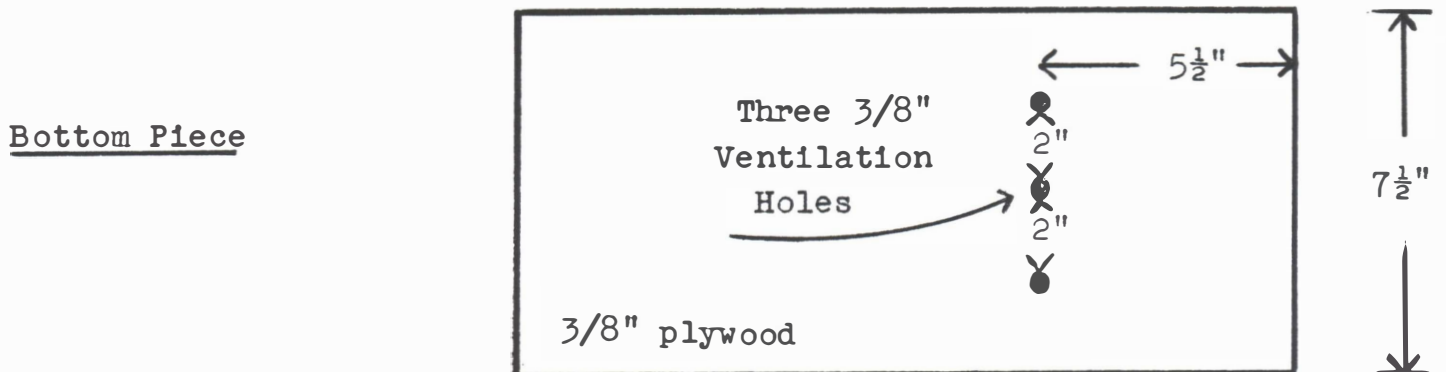
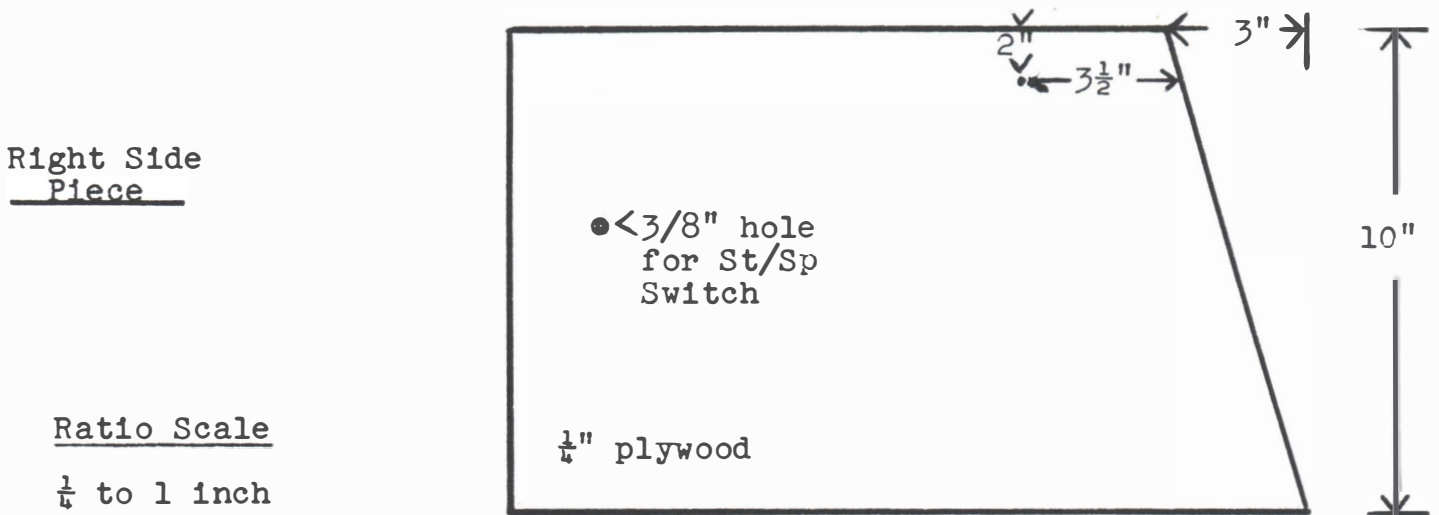
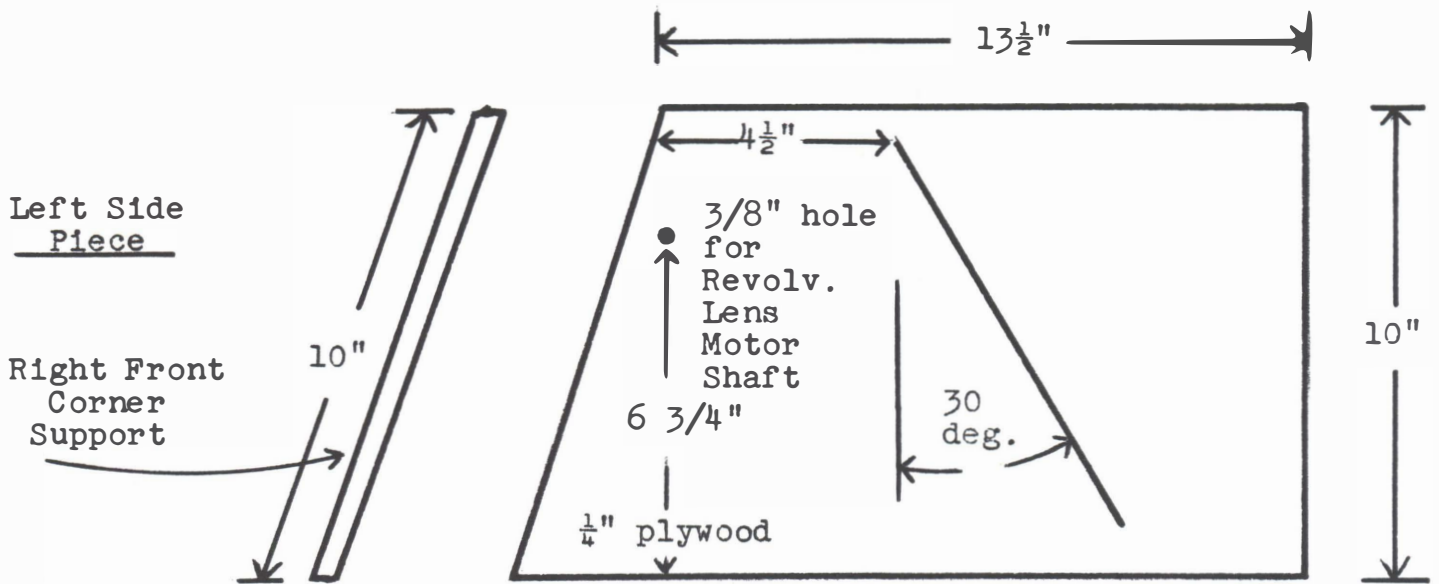
11. Mount porcelain light socket on light-mounting block.
12. Mount Mirror-Disc motor on mirror disc block.
13. Mount Color-Disc motor on color disc block.
14. Mount Revolving Lens motor on outside of Left Side Piece.
(See Pic No. 7, page 8).
15. Drill $3/8$ in. hole in Right Side Piece for Start/Stop Switch and mount switch. (See Pic No. 5, page 6).
16. Attach hinge or hinges to Right Side Piece, then attach Piece to Back. (See Pic No. 5, page 6).
17. Insert 8 ft. light cord through $1/4$ in. hole at bottom of Back Piece and solder one wire to one terminal lug. Solder other wire to one lead from St/Sp switch.
18. Solder other St/Sp switch lead to other terminal lug.
(See Pic No. 5, page 6).
19. Attach wire leads to lamp socket terminals and solder other ends to terminal lugs.
20. Insert the 150-watt GE spotlight in porcelain socket, plug 8 ft. lamp cord into 115vac wall outlet, and snap St/Sp switch a few times to check performance and connections. Unplug cord before next wiring operation.
21. Solder extension wires to Mirror-Disc, Color-Disc and Revolving Lens Motor leads (As shown in Pics 5 and 6, pages 6 and 7) and solder leads to respective terminal lugs. Plug lamp cord in again and check connections.
22. The Revolving Lens motor turns so slowly, $1/4$ rpm, that you may have to mount the revolving lens on it to show movement when checking electrical connections. Mount the Mirror Disc and the Color Disc on their respective motor shafts, for a trial run with St/Sp switch on.

Be sure motor lead wire connections are taped for insulation and also that they are taped or tacked down so they don't interfere with rotation of mirror and color discs.
23. Mount cardboard mask in slot between the spotlight and the color disc. This must be adjusted up or down so no white light comes through the lens system to spoil Colorahma images on wall -- unless you want white light as part of your over-all pattern.
24. Finish the inside of the Colorahma cabinet by coating motor and light mounting blocks with flat black paint, if you haven't already done so, also the inside of the Right Side Piece, Top Piece and Right Front Corner Support Piece. The outside of the

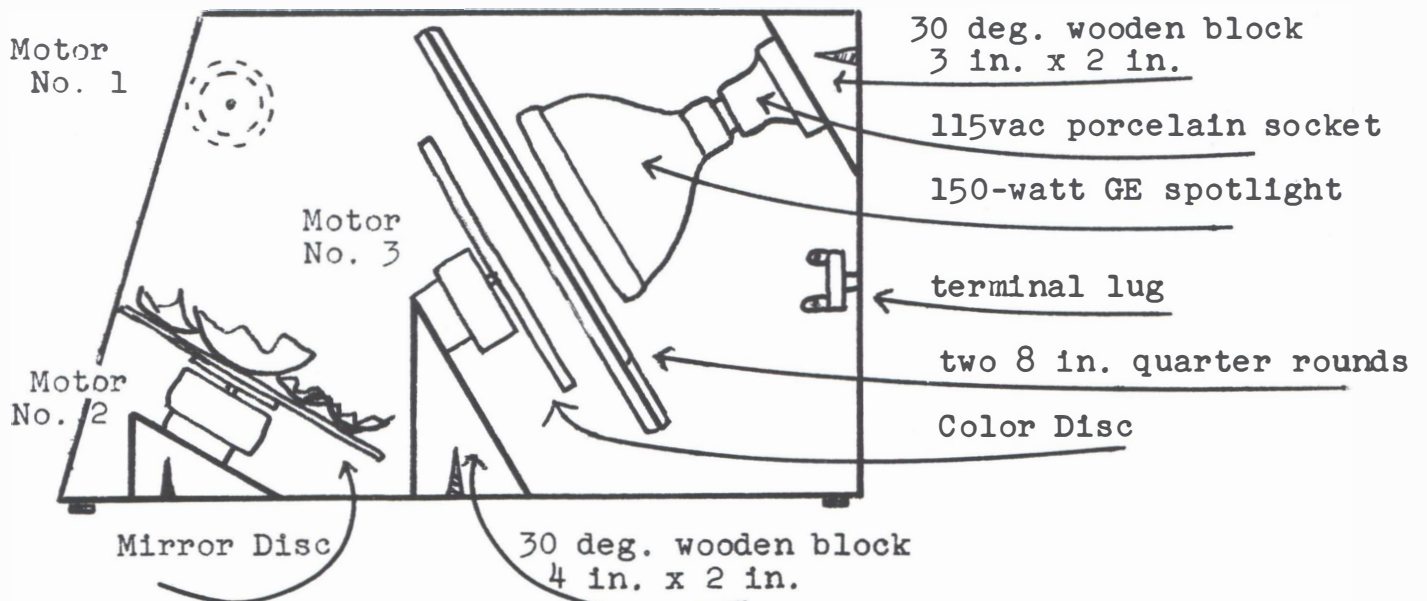
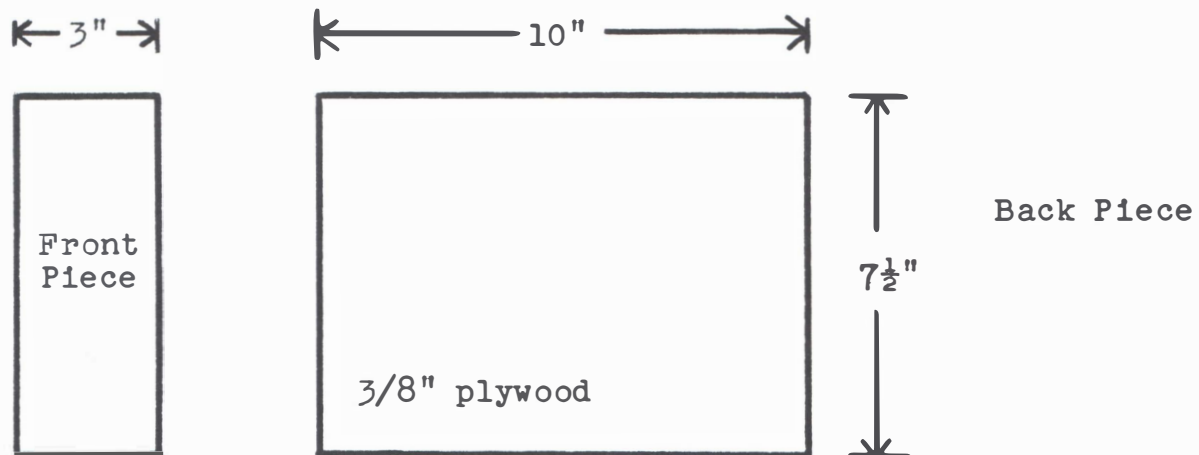
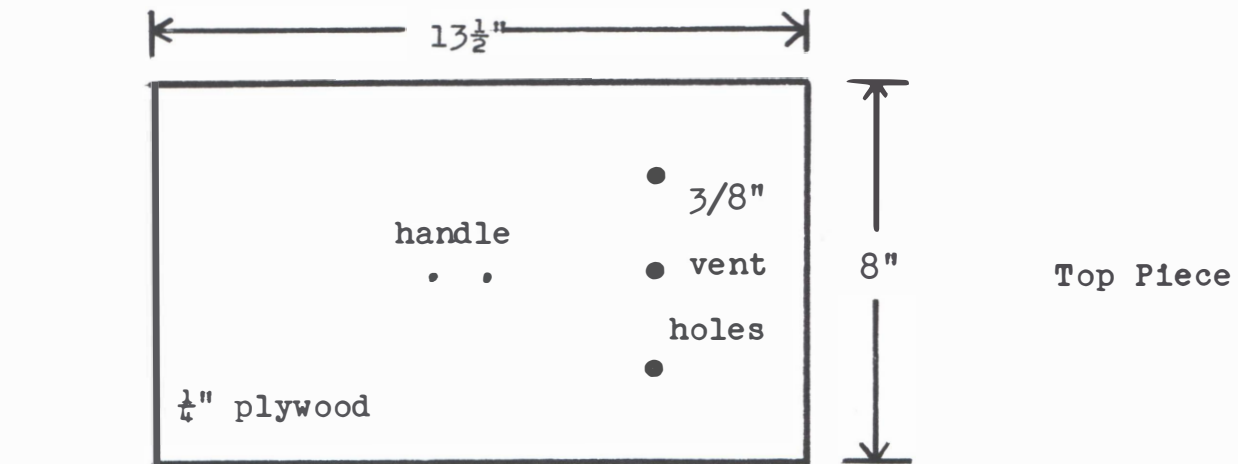
Colorahma can be finished to your taste with stain or paint.

25. The exposed, mirror-bright silver surfaces on the mirror disc will tarnish in time. We increase the useful life of these concave mirrors by spraying them lightly with transparent Artist's Fixative, available at hobby shops and art supply stores. Clear spray laquer will do also but it doesn't spread as smoothly and evenly as Fixative.
26. Place a plastic furniture bumper or metal chair glide under each corner of the Bottom Piece to hold the Colorahma off the floor. This allows cool air to come up through the bottom three ventilation holes.
27. Screw the Top Piece in place. Tack the Front Piece on, to the Right Front Corner Support Piece, Close the Right Side. Place the Colorahma at the bottom of wall or screen, and you are ready for a Painting-With-Light concert!

THE COLORAHMA CABINET



THE COLORAHMA CABINET - page two



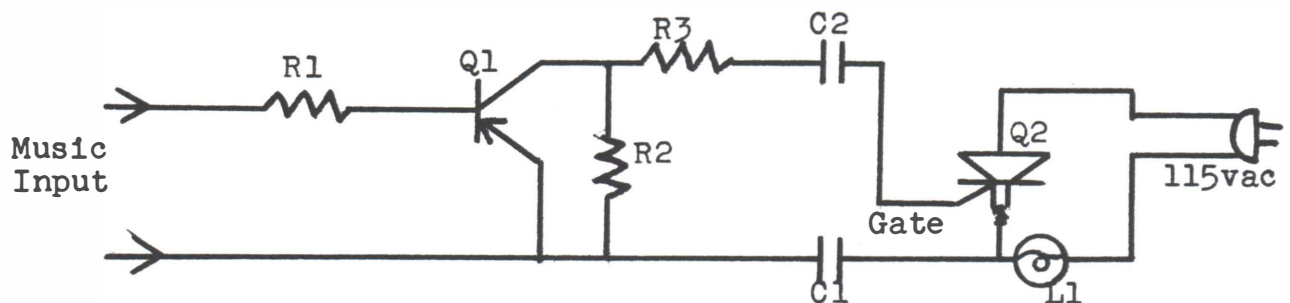
COLORAHMA with Colorsonic Sound Translator

Your Colorahma will furnish many hours of delight and relaxation, used by itself. Then you live in a silent world of Light. Ballads and light classics can be played as an accompaniment to the flow of light and color across the screen. Then you have added the dimension of sound. Any connection between the light and the music is furnished by your own imagination!

The Colorahma concert can be made more dynamic by activating the light directly with the music through appropriate electronic circuitry. If you do this you will find that the pulsing or flickering light has a more hypnotic effect. This requires a change in the wiring; for the 150-watt spot will have to have separate leads going to it. The light cord for the spot is plugged or patched into the electronic circuit, which acts as an intermittent switch, turned off and on by the music through a switching transistor and a silicone rectifier.

Perhaps you noticed that the Colorahma used in our photos has two electric cords going into it. This one was built, or altered, for sound translation with the spotlight cord plugged into an outside Colorsonic Sound Translator, designed and built by my friend, Ed Skilling. If you have a stereo music system, build a Colorahma projector for each channel. Color contrast between the two projectors can be obtained by having only primary colors on one color disc and only secondary colors on the other, or having cool colors on one and warm on the other. The second projector should have timing motors which run counter-clockwise for the Color and Mirror Discs.

The schematic below is from Mr. Skilling's sound translator circuit and can be made from standard electronic parts available at any radio-TV supply store. It's a very sensitive little circuit and may have to be tailored to your light because of variations in the component parts.



L1 - 150-watt spotlight

R1 - 270 ohm Resistor $\frac{1}{2}$ W 10%
R2 - 10,000 ohm " $\frac{1}{2}$ W 10%
R3 - 1,000 ohm " $\frac{1}{2}$ W 10%

C1 - .25 mfd Capacitor 200 wv
C2 - .047 mfd " 200 wv

Q1 - 2N404 Germanium Transistor
Q2 - Silicone Rectifier (SCR)
Motorola HEP 302 or TI 40A2

MISC. PARTS: Electric lamp cord and plug for power supply (if Coloronis Sound Translator is used as separate box outside Colorahma), terminal lugs, wire and solder, bakelite or plastic mounting board, 1/4 in. telephone plug receptacle or RCA phono pin plug receptacle for music patch cord from record player or tape amplifier.

If the parts for this circuit are not in good balance there will be annoying flicker from the light, instead of steady, unwinking brightness when the music is loud and sustained. "Tailoring" the resistors should correct this, also an adjustment in the value of Capacitor C1.

One circuit we made which worked well had the final value for R2 as 11,000 ohms, for R3 as 1100 ohms, and for C1 as .20 mfd.

There is plenty of room to mount this little electronic circuit inside the Colorahma on the Back Piece, under the light socket block. In this case the power supply can be taken off the terminal lugs to which the timing motors are connected. The music input jack receptacle can be mounted on the Back Piece.

A kit of tested and balanced parts can be purchased from WESCO, 1636 D. Ave., National City, California 92050 for only \$9.95.

If you have Monaural sound equipment and would still like to have the variety of two Colorahmas, a two-channel crossover circuit can be bought from Olson Electronics, 260 S. Forge St., Akron, Ohio 44308 for only \$2.69. This little solid state gadget will divide the music into high and low signals to feed into your sound translators. Three, four and five channel separation is also possible, with a separate Colorahma and sound translator needed for each channel.

BORDERLAND SCIENCES RESEARCH FOUNDATION

This is a non-profit organization of people who take an active interest in unusual happenings along the borderland between the visible and invisible worlds. In the words of the late Meade Layne, founder and director of BSRA from 1946 to 1959: "BSRA publications are scientific in approach but employ few technical expressions. They deal with significant phenomena which orthodox science cannot or will not investigate. For example: the Fortean falls of objects from the sky. Teleportation, Radiesthesia, PK Effects, Underground Races, Mysterious Disappearances, Occult and Psychic Phenomena, Photography of the Invisible, Nature of the Ethers and the problem of the Aeroforms (Flying Saucers). In the year 1946 BSRA obtained an interpretation of the phenomena which has since come to be known as the Etheric or 4-D Interpretation, and which has not been radically altered since that time. This continues to be the only explanation which makes good science, sound metaphysics and common sense."

The chief present concern of the BSRAssociates and the Foundation is to make this kind of unusual information available to members and the public at reasonable cost. Headquarters acts as a receiving, coordinating and distributing center. An important part of the Director's work is to give recognition, understanding and encouragement to people who are having unusual experiences of the borderland type and/or who are conducting research in one of the above fields.

The Director also edits and publishes the Journal of Borderland Research, a mimeographed brochure of 34 pages, issued seven times a year at present, from hdq to Associates for their membership/subscription fee of \$6 a year. Associate members contribute articles, letters and news clips on borderland subjects they believe will be of interest to other members. The Journal is also a means of getting in touch with others of like interests in this highly specialized field of research.

The 20-page list of BSRA publications was revised March 1968. It is available from hdq for 50¢ in coin or stamps. Listings and prices of Mr. Crabb's tape-recorded lectures on borderland subjects are also included. Address all correspondence to Borderland Sciences Research Foundation, Inc., PO Box 548, Vista, California 92083 USA.

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