

VISUAL SKILLS
program

Instruction Manual

VAN ORDEN TECHNIQUE
of Visual Rehabilitation

KEYSTONE
VIEW COMPANY

VAN ORDEN REHABILITATION TECHNIQUE

Note. The Translucent Correct-eye-scope, with standard stereoscope set at 0-0 on shaft, is used in all procedures unless otherwise specified.

VISUAL CONCESSIONS

Visual concessions result from interference in the learned association of the accommodation and convergence reflexes. Concessions in convergence, which usually appear first, are shown in abnormal phorias, low positive and/or negative fusional reserves, low positive and/or negative accommodation findings, low stereopsis, and suppressions. Concessions in accommodation, which appear secondarily, are shown in ametropia,- especially in low cross and in many cases in anisometropia or antimetropia, in low cross cylinder nets, low base-out and/or base-in blur points, low monocular amplitude of accommodation.

In distance seeing, objects are perceived in their spatial relationships. On the printed page, instead, object and background-the print and the paper-are seen in a single plane. The change from spatial seeing in depth to near-point seeing in a single plane, with its resultant changes in the accommodation-convergence relationship, produce distortions in spatial projection as well as in single and clear vision.

REPRODUCTIONS OF ACTUAL VISUAL BEHAVIOR PATTERNS

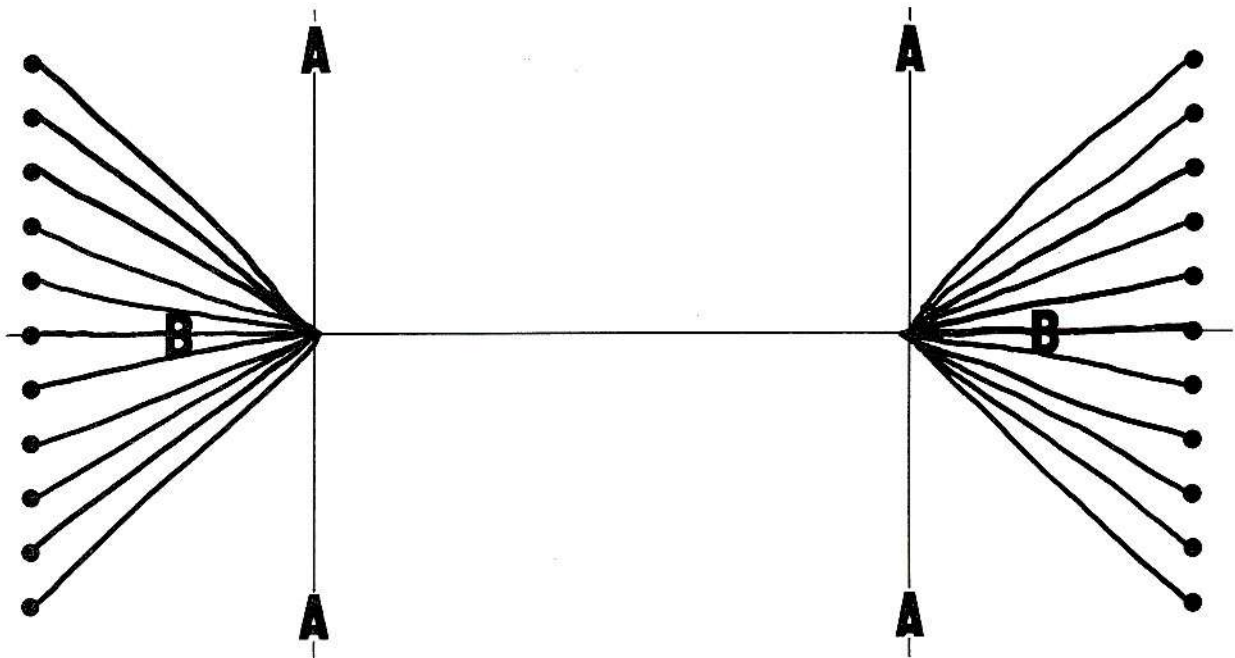


Chart 1 shows a normal pattern
AA lines mark the lateral orthophoria position
BB lines mark the horizontal plane

It will be seen that the lines of each tracing meet in a single point-and at orthophoria. This indicates a well-integrated binocular pattern.

V0-1 is supplied as a matrix for interpreting V0-2 pattern tracings. The slide is centered in the transparency slot in the place of V0-2 and the tracing is placed over it, in the same position as on V0-2.

The vertical rows of dots corresponding to the dots on V0-2. Lines AA are situated at lateral orthophoria; line BB on the median horizontal plane.

When the eyes are orthophoric, laterally and vertically, the right and left tracings, will terminate at the intersections of lines AA with line BB.

In esophoria, the apex of the tracings on the right or on the left, or both apiece, will lie inside the orthophoric position (lines AA); in exophoria, outside the orthophoric position; in hyperphoria, above or below line BB.

Concession shifts of the visual axes are shown when the lines of either the right or the left pattern meet in more than one apex. Such shifts occur in the early stages of interference. When the concessions have become fixed, the patterns assume greater uniformity.

Step I. Tracing the Visual Behavior Pattern

Directions for use of V0-2

V0-2 has a clear field with a vertical line of dots at the right and left margins. With holder set at 0-0 on shaft, ask patient to place the point of a pencil on the upper dot on one side and lower dot on the opposite side. He/she is now to watch the pencil points and move them simultaneously toward each other and to stop when they appear to meet. He/she repeats using the next dot down and next dot up as starting points, until all have been used. A thin paper is then placed over the target and the above procedure is repeated. The color of the background provides check on responses.

The resultant chart gives a binocular visual behavior pattern or chart showing that projection in space of corresponding visual areas. Phorias, scotomata, suppression areas, signs of discomfort, reading difficulties and skill deficiencies are shown.

V0-2 is used as training means in all visual rehabilitation and is especially effective in squint and amblyopia. It is one training target that the squinter or amblyope may manipulate within his/her range of accomplishment. The patient repeats the above procedure over and over. The reorganization may be clearly followed.

Aided by eye-hand coordination the reorganization is fast and productive of results even in the toughest cases.

Training

Let patient trace ten or more times on the same sheet, using two or more sheets during each training period.

Progress Check

Test tracings, done periodically, provides an excellent record of achievement. Below are sample drawings, typical of disorganized visual behavior patterns.

The following charts are actual copies of patient's tracings, taken from files. They are offered as illustration of typical departures from the normal.

CHART 2. PATTERN CHARACTERISTIC EXOPHORIA

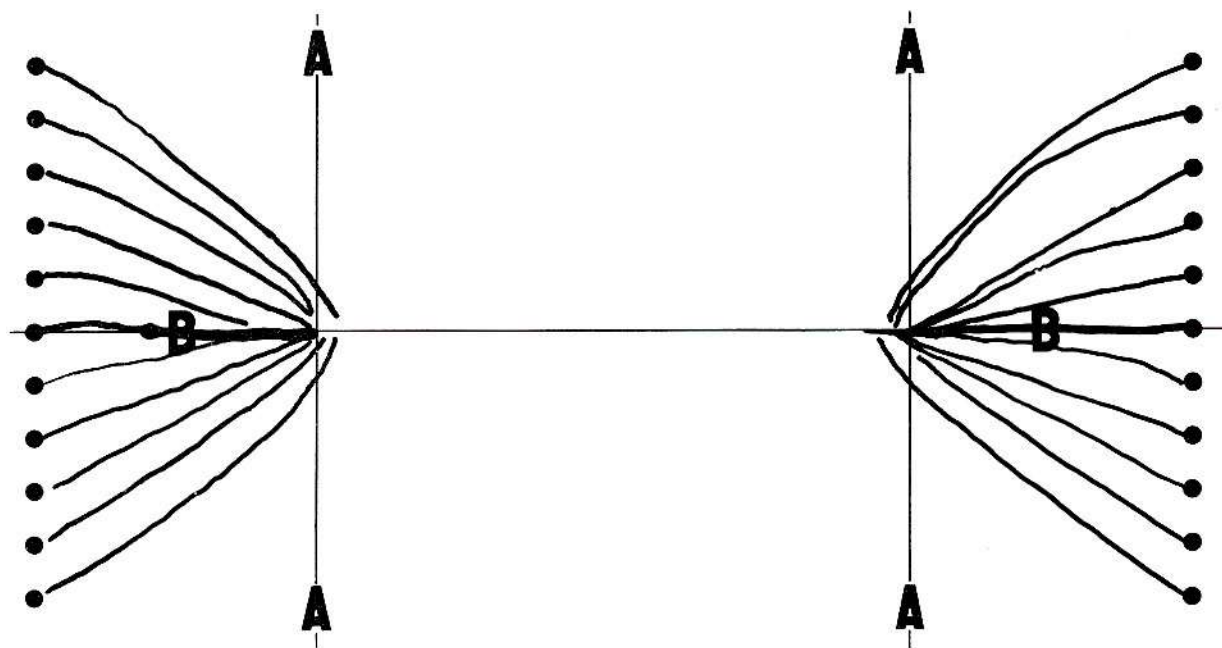


FIGURE V

The pattern lines approach but do not actually meet. This is reflected in the case history of exophorias. Generally discomfort, nervousness and difficulty in accomplishing at close. The esophoric pattern although showing clearer definition, denotes adaptations made to accomplish.

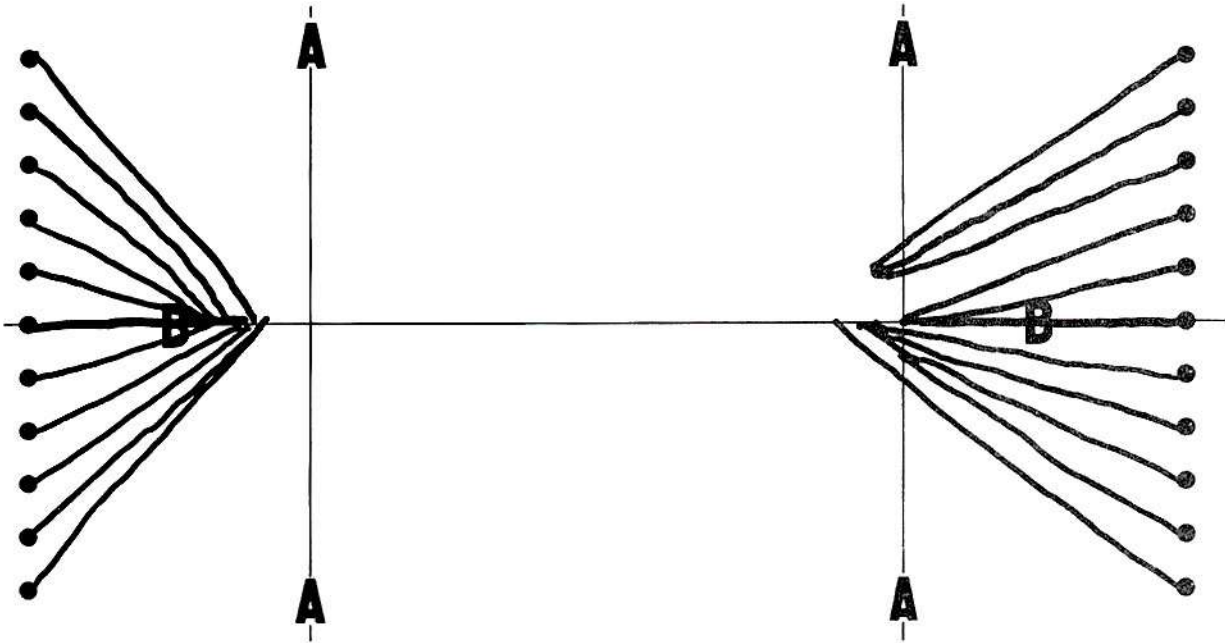
Case: Student, Engineering School Age 20.

Unable to use eyes for long periods. Studies 20 minute, rests 5 minutes, or suffers severe headaches. General ocular discomfort. Has difficulty maintaining necessary grades. Nervous. Wears +0.50 OU for distance.

Due to college schedule, tried to alleviate condition with +0.50 for distance and +1.25 for near. No results.

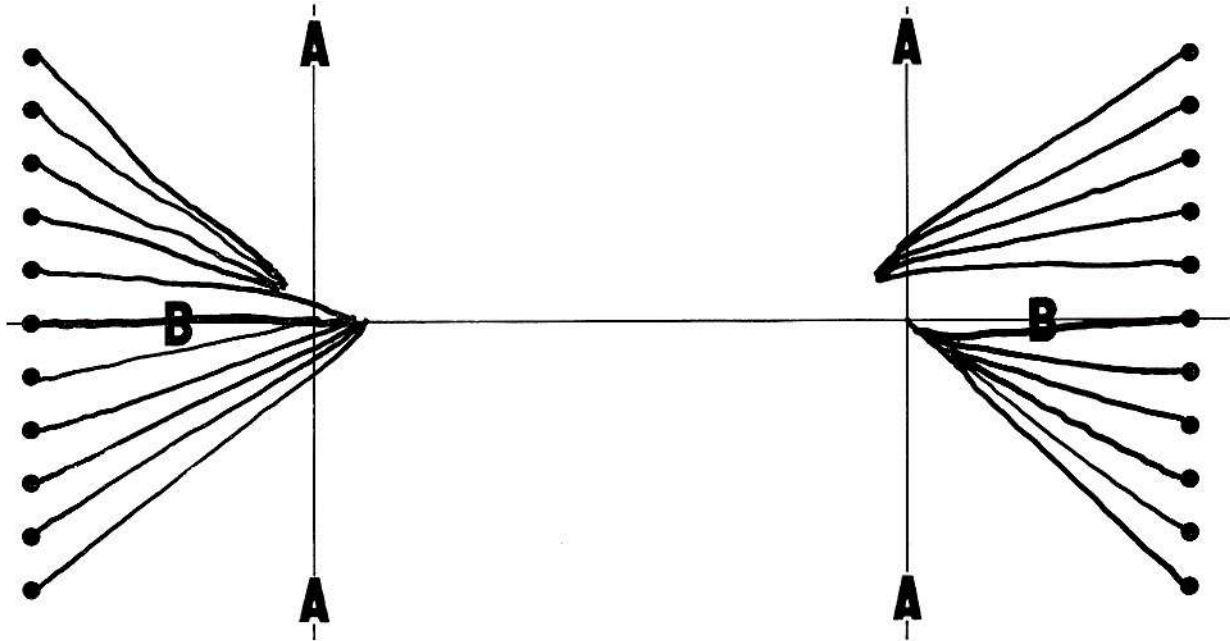
Training: 10 training periods. Established balance between central and peripheral areas, which pattern shows to be out of balance. Stressed peripheral training both near and at distance. Rx same as above. Continued Engineering for 2 years with no difficulty.

CHART 3. PATTERN FOUND IN ADAPTED MONOCULARITY



Case: Age 16. OD-1.25-50 x 180, OS +0.50 gives 20/20 OD, and OS and OU. No discomfort, but OD becomes very inflamed after close work. Get high grades, play baseball and basketball. 24 training session. Strabismus routine given first. Checked regularly at 6 months intervals. Visual Behavior pattern normal. Stereopsis 70% at end of training and last checks. Final Rx: OD-0.50 x 180, OS +0.50.

CHART 4. A PATTERN FREQUENTLY FOUND IN THE EARLY STAGES OF VISUAL INTERFERENCE.

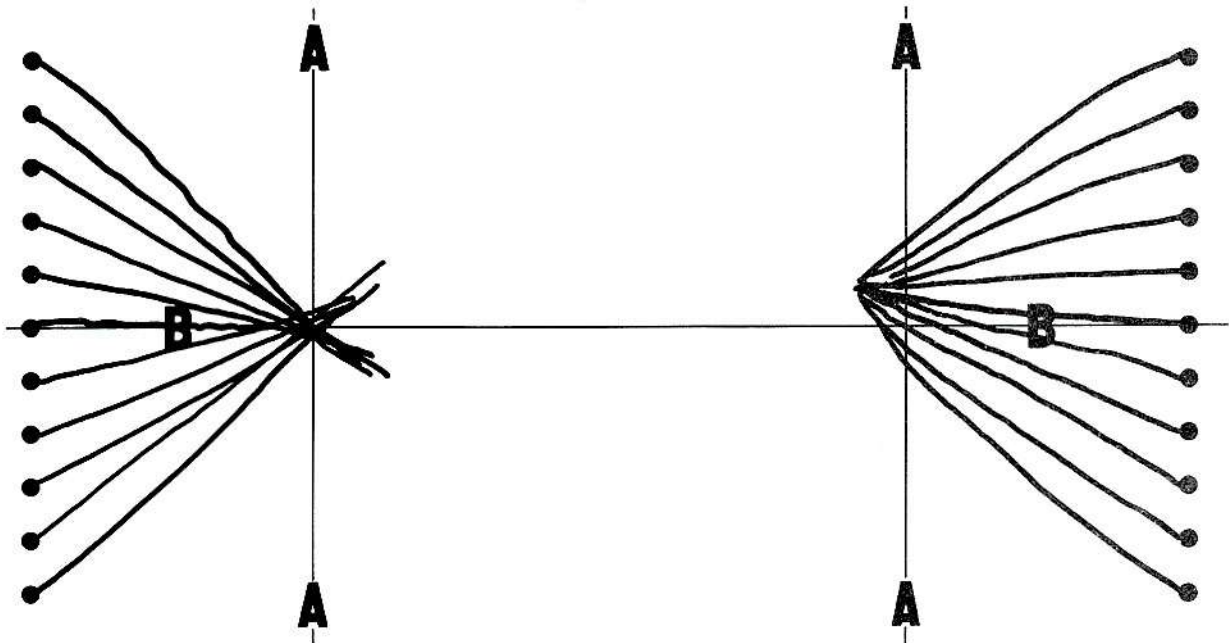


A patient 11 years old did the tracing. Refraction to obtain 20/20, OD-0.25, OS-0.75. The heterophoric tendencies shown in the disparate grouping of the lines indicate organizational fluctuations-exophoric, esophoric and hyperphoric.

+0.50 spheres were prescribed for near work. The training sessions resulted in 20/20 OD, OS and OU. No relapse after two years. At that time the pattern tracing corresponded to Chart 1.

This type of pattern is characteristic of low achievement in reading and in near-point occupational jobs.

CHART 5. A PATTERN FOUND IN BORERLINE SQUINT

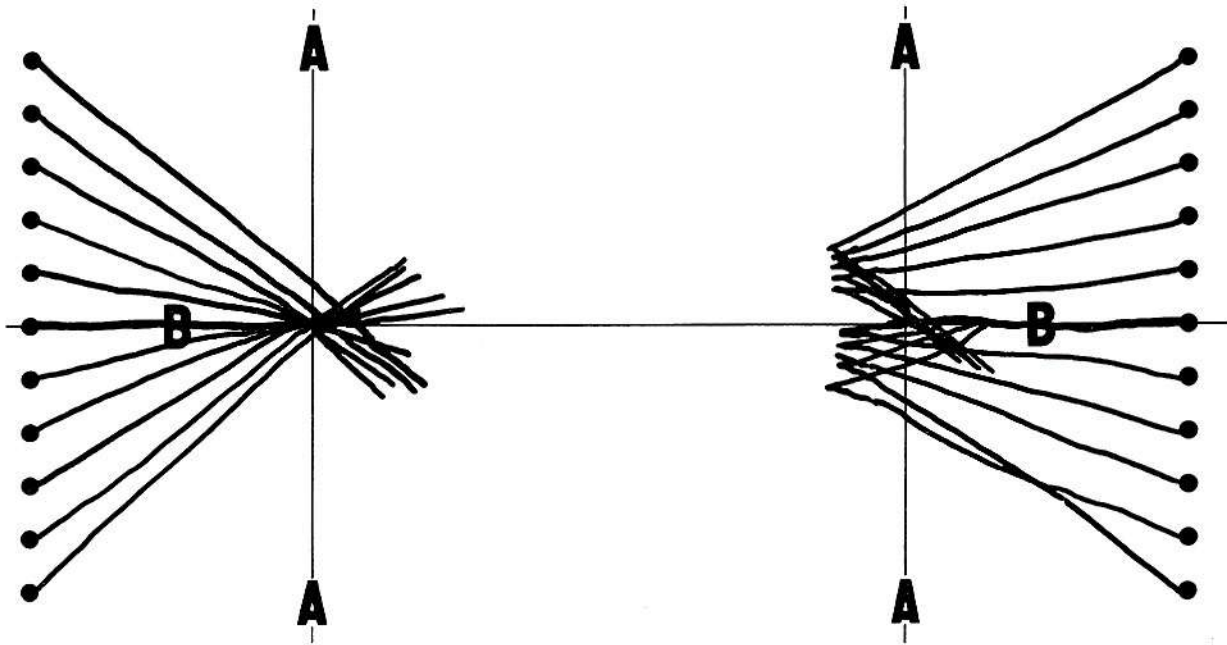


Case: Cornell student. Age 19. Ocular discomfort. Near work cause eyes to close. VA. OD 20/20, OS 20/20, OU 20/30. Esophoria, Rapid alternator.

The fan-like extension of the lines through A in OS indicates a swinging movement of that eye to cover that part of the field not covered by OD. The termination of the lines above the horizontal plane, indicates vertical imbalance.

Ten training sessions given. Ocular discomfort disappeared. VA 20/20, OD, OS, OU. Pattern tracing showed balanced response. No Rx worn during two years here.

CHART 6. PATTERN CHARACTERISTIC OF MONOCULAR SQUINT WITH AMBLYOPIA



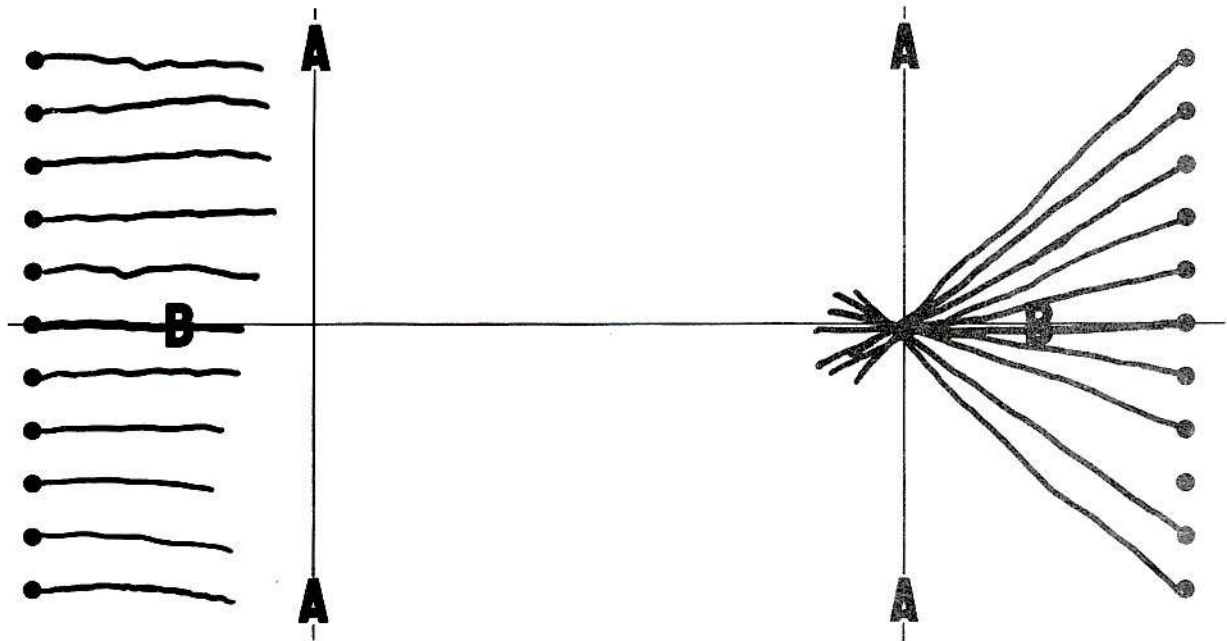
This pattern is found in cases where only a small central area is responding. However, as visual receptor end organs and nerve fibers do not disintegrate and disappear pathological conditions, even through not in use, proper stimulation through visual rehabilitation causes them to function again.

The case OD convergent with low visual acuity: OS rotates through wide arc to cover for OD. The movement of OS is shown by pattern as the lines on chart meet and cross at A. The OD lines converged first inside A; then, as the pencil point was perceived by the central area, they reversed their direction and converged toward A. During the reversal the eyes were observed to be parallel and stereopsis was present.

The V0 squint routine was followed with satisfactory results. It is to be observed that when the chart lines appear to reverse direction, the squint procedure is indicated. Stress peripheral stimulation. In abnormal posturing have the patient hold parallelism for longer and longer periods. Use retinal rivalry as outlined in squint.

Physiological diplopia is of value, when used in the following manner. Concentrate on pencil or near point object. When two images of the distant object are seen, continue to fix on near object as you move it toward and away from you. It will be observed that the two distant images change in size and also in apparent location in space. The patient will progress faster, however, if you teach him/her to experience physiological diplopia in natural surroundings.

CHART 7. PATTERN CHARACTERISTIC OF AMBLYOPIA, AND MONOLATERAL EXOTROPIA



Case: Age 17. VA OD 20/20, OS 20/200. Lenses did not improve. Had been told that he had a "prenatal" eye. Wanted to enter Navy.

Training First Week

24-inch spiral with fixation target at outer margin. Occlude OD. Follow target both clockwise and counterclockwise, each direction 10 minutes- binocularly 5 minutes with +2.00s OU., OD., OS. Deep wink and quick blink using near point target and high shock. Binocular: 5 minutes. Three half-hour periods.

Second Week

OS. Monocularly: Spiral with margin target, 7 minutes. Binocularly 3 minutes. V0-2 training, 10 minutes. Three half-hour period.

Home work during above two weeks.

OD occluded when schoolwork and safety did not require its use. Pursuit and Saccadic Fixations. See pp. 13,14. Deep wink and quick blink, see pp. 20-23.

Third Week

All previous procedures continued. Spiral training added. See Step A 2,3, p.26.

After third week

Continued training as outlined on pp. 26-28. Patient passed Navy examination OD 20/20, OS 17/20. Total number of training periods of 30min. each, 34, over a period of five months. +1.00 OU prescribed for close work. Four and one half years later, OD 20/20, OS 20/30. Will not wear glasses for distance, although 20/20 OS can be obtained.

GENERAL OBSERVATION

When a patient enters the training room for his/her first appointment, a number of questions may fill his/her mind, such as:

- "What shall I have to do?" " Will it be hard for me?"
- "Shall I be able to progress as well as my friends and the other patients?" "Will visual rehabilitation be possible in my case?"
- "Will gains made be permanent?"

Therefore, the first appointment, while no more important than succeeding appointments, has a special significance to both the patient and the doctor.

Greet the patient cordially and sincerely as you invite him/her to be seated before the Correcteyescope. Proper posture and a relaxed attitude are important. Make all necessary adjustments. Tell him/her that he/she may rest his/her elbows on the table or take hold of the instrument; that you want him/her to be comfortable. While you are making the requisite adjustments, it is well to have V0-2 in the instrument with the light turned on. As you proceed with the adjustments, explain what he/she is to do, telling him/her that he/she is going to chart his/her visual behavior pattern in order to record how well his/her eyes coordinates binocularly.

Explain the tracings to the patient. Demonstration is the best method of teaching. Interest, confidence and motivation are the results.

Step II Object and Background (Figure and Ground) Organization.

1. Center V0-3 in slot.
2. As the patient looks into the instrument, instruct him/her to think of the white background as being at far side of the room and of star pattern and the numbers as being where they are (within arm's reach).
3. Instruct him/her to read the numbers in sequence, 1-2-3, etc., the times keeping count on his/her fingers, and maintaining the object background relationship in 2.
4. Repeat routine monocularly.

Step III Peripheral and Central Organization.

1. Center V0-5 in slot.
2. In case of high myopia, some compensatory minus lens power may be necessary to enable patient to see the numbers. Add only the minimum amount necessary for recognition.
3. Proceed as in Step II, 4. Repeat ten times.
4. Occluder is removed and the instrument is adjusted so that the patient is barely able to see the control marks (cross lines).
5. Let him/her look first at the control marks and attempt to form a cross. If he/she fails, tell him/her to make a stronger effort.

Replies will vary, such as, "One part seems to slide off." "One line disappears." "One disappears, then the other." "The lines are wide apart."

Now cover the eyes alternately, to let him/her see the purpose of the lines- what happens when he/she tries to see binocularly. This tells you more about his/her case and also further convinces him/her of need for rehabilitation.

6. Whether or not he/she is able to maintain a cross at first, he/she should be aware of both lines at the same time, while he/she studies the detail of the background over as wide an area as possible.

Vertical or lateral movements of either line indicate a lack of balanced stimulus-response in the peripheral and central fields. Forcing awareness of the surrounding field, when either line tends to disappear aids in lifting suppression.

Development of peripheral awareness aids in stabilizing the macular field.
Continue practice until the control marks form a cross.

Note. The patient must come to appreciate on his/her own account the importance of peripheral awareness in stabilizing the lines.

7. When a fairly stable cross can be maintained, instruct patient to look at-
 - a. No.1 and at the same time observe the background around it over as wide an area as possible. (It is not important at first whether the numbers double) or not;
 - b. The cross and through it, at the background, as in a;
 - c. No.2 and then the cross, etc.

Twice as much time should be spent in observing the background around and back of the cross as in looking at each number and its surrounding field.

When the above procedure is followed all the numbers will eventually be fused and the control marks form a cross. Practice should be continued until all the numbers are seen to stand out from the background (stereoscopic awareness). If the patient does not notice and comment on the depth effect, ask him/her whether the numbers are located in the same relation to the background as they were at first.

Watch the patient closely when he/she first becomes aware of the stereoscopic effect. Some patients will exclaim; others perspire or become pale. The myope, for instance, now begins to experience space perception instead of the single-plane seeing which he/she had learned in order to achieve at near point. The impact is terrific and starts a response that is deep within the substructuring.

When the numbers and the cross continue to stand out, direct his/her attention to the trees in the middle foreground. In nearly every case the patient will say, "They seem to stand right out like real trees." Everything has changed. The patient is greatly impressed. He/she knows that although the same card is in the instrument and that no adjustments have been made, his interpretation has changed. He/she begins to realize the importance of normal binocular seeing. The realization that when he/she fixates an object and make himself/herself aware of spatially related objects is important. He/she finds by measuring his/her field of recognition that his/her interpretation is also greatly increased.

Homework

No.1.Pursuit and Saccadic Fixation

The following exercises are done with the eyes closed. When the eyes are closed, cortical areas are called upon for the innervation of the appropriate directional movements. If the eyes remained open, they would follow their acquired faulty pattern.

To reinforce effort, it may be effective with some patients to have them clench fists and tense jaw muscle.

- a. **Wide rotary pursuits, clockwise and counterclockwise-each ten times.** Eyes are able to be turned on as wide an arc as possible, moving slowly and evenly in order to develop a smooth flow of innervation to the muscles of the eyes.
- b. **Wide lateral and vertical fixations, alternately ten times.** The patient looks up as if he/she was looking at some object far in the sky, and then down as though looking from a great height. Mentally projected great distances-should implement all the motor responses.

Points out to him/she that when he/she does rotary pursuits and saccadic fixations with his/her eyes closed, he/she cannot use his/her old habit of seeing; that, since eye movements with the lids closed require conscious attention, he/she is practicing how to posture his/her eyes correctly by directing them (in his/her mind) toward given (mentally projected) distant objects.

Smooth muscle coordination may be illustrated to the patient by flexing your arm and calling attention (by pointing) to the reciprocal action of flexor and extensor (agonist and antagonist) muscles. Point out that in the eyes, as elsewhere, smooth coordinative muscle movements are prerequisite to high achievement.

These exercises are to be done four times a day,- morning-noon-dinner time and before retiring-every day for two weeks; then once a day, preferably morning.

The patient may become so enthusiastic about his/her home exercises that he/she will ask to be allowed to do them more than four times a day. Assure him/her that the schedule as outlined will obtain the fastest results; that it was used successfully in training hundreds of men and woman for the armed services, where time was a factor.

Instruct him/her not to work at any time to the point of fatigue. Tell him/her to continue beyond his/her fatigue level may cause him/her to lose some of the gains already made.

No.2, When he/she walks or rides, he/she is to hold his/her head up, keep his/her eyes wide open, fixate on any object ahead, wink as seldom as possible, and to note how many times he/she lets his/her eyes turn down. He/she is to be able particularly alert to recognize as many objects as possible without turning his/her head and not to be disturbed if some of the objects appear blurred. He/she is to note the increase in his/her ability to see indirectly viewed objects clearly between training periods. In this why he/she learns to “let his/her eyes sees for him/her.”

Step IV Eye-Hand Coordination

1. Center V0-3 in slot.
2. Let patient-
 - a. Place pointers simultaneously on the No.1 tip of the star and repeat on all-star tips in numerical order, continuing until pointers can be placed quickly and accurately on all targets.
 - b. Point alternately at No.1 with the left hand, at No.2 with the right hand, etc. One pointer should be removed from view before the other is introduced.
3. When facility has been attained on V0-3, repeat with V0-4. When he/she phenomenally projects No.1 to the left side, he/she does so by transference of the image of the right eye. The fact that he can place the left pointer on the “corresponding” area indicates normal retinal association. If fusion is not maintained on the star pattern, the left pointer will be placed at the phoria position.

The patient should observe, by looking outside the instrument, how he/she placed the pointers. This will help him/her understand something of how the eyes are mentally related.

In relation to his/her seeing the star pattern and numbers against and away from the lighted background, explain that in all seeing every object is spatially related to every other object in the field; that training himself/herself to let his/her eyes see this way results in good spatial organization-in seeing things in their proper relationships.

4. Fixates each number, when the pointer is in place, and at the same time be conscious of space beyond.
5. If No.1 and No.6 or No.2 and No.7 superimpose or are not seen in their correct position, instruct patient to look through the center of the star pattern toward the white background, as if it is situated across the room, then to No.1-back to the center, then to No.2, etc.

In a short time he/she will report that instead of one he/she sees many stars, superimposed on each other. This indicates the beginning of object and background (field and ground) organization. Point out that he/she has made an appreciable gain toward attaining an efficient pair of eyes; that binocular Vision is necessary in order to manipulate space and experience depth perception.

6. Let patient place left pointer on No.1 and the right pointer on No.2 and then look outside the instrument-the pointers being held in their respective positions-at the positions of the pointers.

Let the patient see how he/she has placed the left pointer where he/she perceived No.1 to be on the left side, although the number is actually seen only with the right eye. Explain to him/her that the association between the eyes is so close that what is seen by one is mentally projected as if it were seen by the other eye also. At this point demonstrate again the Binoculus Test (hole-in-hand), to show the impression from the two eyes are combined and projected as though seen by a cyclopean eye. (See explanation of binoculus test, p.25).

Explain that any disturbance in the blending of the impressions from the eyes causes confusion in binocular organization and results in less efficient seeing with resultant lowering of comprehension. Stress that through these training procedures he/she will be able to achieve perfect cooperation between the eyes, to learn to locate things where they are and to coordinate vision with the other senses.

Color Fusion

1. Review previous steps.
2. Use reflected light assembly where room light is insufficient
3. Insert complementary color slides of a pair of STEPPING-STONES TO BINOCULAR VISION split opaque cards.

The patient is asked to look straight ahead and to report when the cards appear to touch. (This happens before the cards reach the phoria position). You continue to move the cards until they meet at the center.

Some will report that one color seems to slide over the other; others, that between the two colors they see a blend of the complementary colors, and that the width of the mixed color band increases as the cards are moved in until only the mixed field is seen when the cards touch at the center.

Move the first pair of cards in and out slowly for about two minutes; reverse colors and repeat. Continue as above with the successive pairs of cards until an even color mixture result. When one more than one session is necessary, use each pair of cards only one minute.

It is instructive to the patient to have him/her look at the cards outside of the instrument and note that each sees only one of the colors, but that mentally both colors are interpreted as one color, different from either.

This insight into the integrative visual processes will stimulate the interest of the patient and spur him/her to do better work.

Color fusion has been found effective in overcoming suppression.

4. Proceed through the entire SS series.

Homework

Instruct patient to fixate each word of two pages of reading matter; **reading from right to left** and being, at the same time, conscious of surrounding objects.

Exercise No.2. Development of Physiological Diplopia.

Instruct the patient to hold a pencil at arm's length and to align it with a distant, vertical object. In doing this, he/she will probably place the pencil on the visual axis of the dominant eye. In that case, it should be moved to the midpoint between the visual axes. It is here that physiological diplopia will be most readily experienced. In finding the effective position, it may be necessary to move the pencil experimentally to the right or the left of the approximate position and/or to jiggle it. Head should not be turned. In extreme cases it may be expedient to use a small light source at first.

When he/she is able to see two pencils while looking at the farther object, fixation is shifted to the pencil.

When he/she has succeeded in obtaining diplopia at both far and near, he/she is instructed to maintain double vision on each target while he/she counts, "One-Two-Three", and the shift, repeating this seven times. He/she is to do this several times a day using near and distant attention objects at varying distances. Continue until he/she is able to accomplish easily.

Instruct him/her to concentrate on the pencil and, while maintaining diplopia of the distant object, to move the pencil nearer and farther away, observing how the doubled image appear to change in size and location.

This routine is an effective means of developing depth perception and other visual skills, and in correcting suppression and squint.

Retinal Rivalry

1. Set stereoscop at 0-0 on shaft.
2. Insert V0-15.
3. Instruct patient to watch the opposing sets of oblique lines displace each other.

In procedures for establishing Retinal Rivalry rate in telebinocular, the eyes are alternately occluded. It is well to start at about 15 alternations per minute and increase gradually as the patient shows improvement.

Exercise that increases rate of respiration will also increase Retinal Rivalry. When Retinal Rivalry is just being established as in squint, minor physical exertions may aid.

Step V. Development of Positive and Negative Fusional Reserves.

1. Slides: Base-out-V0-6, 7,8, 9, 10; Base-in-11, 12,13,14.
2. Let patient start with any slides, base out or base in, where he/she can fuse either pair of pictures.
 - a. **At first**
He/she should look beyond the scene toward the light source, instead of directly at some object in the scene; that is, he/she should attempt to fust the scene as a whole.

Both control marks should be seen but it is not absolutely necessary that they form a cross at once.

In some cases it may be necessary to move stereoscope temporarily closer to the target (i.e., stimulate accommodation) before fusion can be achieved.

No one can, of course, fuse the upper and lower pictures at the same time on any of the slides.

- b. Use alternately base out and base in slides, in order to develop balanced fusional reserves.
- c. At the first session the average patient should be able to fuse either the upper or lower pictures on one of the Base-Out or Base-In slides.
- d. Continue in succeeding periods until fusion is readily obtained on all the targets on the above slides.
- e. Review previous steps.

Always keep within the patient's ability to achieve. A sense of frustration has an adverse effect on effort. Minimize temporary failures and emphasize successes.

In regard to homework, stress the importance of simultaneous awareness of objects in the central and peripheral fields-of increasing his/her breadth of vision, and of being conscious of the spatial relationships of objects, in order to enhance his/her judgement of distance.

Continue previous home assignments. Review the requirements of each procedure, to be certain that the most effective work is being done. When home assignments are carried out earnestly and systematically, the number of office visits required is markedly reduced. Supplementary home training exercises, as outlined, reinforce the gain made in the office.

Homework

Increasing the Field of Awareness

Every day, for two weeks, the patient is to fixate each word on two pages of a novel, or other book.

He/she is to visualize the print as standing out from the page-as on an engraved card-and at the same time be conscious of the objects around him/her over as wide an area as possible, even though some may be blurred. He/she may fixate the words in any order his/her fancy dictates-from right to left, up and down.

It appears that expansion of the area of awareness has the effect of widening the visual span, i.e. increasing the reading speed, and of raising the percentage of comprehension. During this phase reinforcement means may have to be employed such as gritting the teeth. Comprehension of word meaning while so engaging may be temporarily lowered in effort to demand spatial awareness.

Step VI. Deep-Wink Technique

The patient is now ready for the second phase of training. This is the phase of teaching the individual how to let his/her eyes see for him/her again as they did when he/she was a child.

The first phase may be likened to the manipulatory stage of learning surrounds by use of the inquisitive senses. Various means are presented to stimulate responses, to reorganize his/her visual pattern and develop skills in the direction that they should go.

The second phase may be likened to teaching and learning. Here, as in workschool, reinforcement and instruction are used in reconditioning the visual function in order that it may achieve at both distance and near and maintain the gain satisfactory to the organism. The Doctor must understand this phase because his/her teaching and explanations aid in correlating the first and second phases so that the patient may accomplish in his/her work-a-day world.

1. Target: visual acuity chart in examination room
2. Removing his/her Rx, let patient read as far down as he/she possibly can. Urge him/her to try harder; to squint, if that helps. He/she is told to remember the line as you repeat it aloud, and record it. the Distance Chart is now turned off and instructions begins.
3. **Deep-Wink Procedure.**
Instruct patient to-
 - a. Exhale deeply.
 - b. Close eyes and clench fists as tightly as possible
 - c. Snap eyes and hands wide open.
Eyes should be held open as wide as possible and fingers held as tense as claws.
 - d. Maintain above posture throughout e and f.
 - e. Inhale deeply through nose.
 - f. Exhale deeply through mouth.
 - g. Relax arms, hands and body, except eyes and lids. Eyes must remain alert and must not wink. This procedure requires considerable coordination and you may have help with repeated instructions and demonstration. The operation is, however, much simpler in practice than it appears when reduced to writing.
4. Instruct patient, using Deep-Wink, to-
 - a. Look at each letter on examination room chart as though it stood out in front of the white or lighted background-to look past the letter toward the light.

Caution him/her again not to strain to see each letter, but simply be alert to the impression his/her eyes receive. Tell him/her that when he/she strains to see he/she is continuing in his/her old faulty habits and that he/she will progress only as fast as he/she is able to abandon them.

- b. Call letters rhythmically.
- c. Continue, when any letter cannot be seen, to the next, calling, "A, B, Blank, C, etc."
- d. Repeat several times.

Homework

Continue previous assignments.

Practice (VI-3) above outside the office on street or at calendar or chart at home.

When he/she returns for the next training period he/she may report that his/her eyes teared and that he/she could not do the exercise without winking-but that when he/she winked his/her acuity decreased. Now instruct him/her in the "Quick Blink" (Step VII). He/she is to do this when the letters begin to fade out or double, or when the urge to wink can no longer be resisted.

Step VII. Quick-Blink Technique

1. Review Step VI. Note that the patient is following instructions correctly.

2. Quick-Blink Technique (Taken after and during effect of Deep-Wink).

Instruct patient to-

a. Look through and beyond each letter toward the light with eyes wide open;

b. Start to inhale through the nose;

c. Block inhalation immediately;

Patient may use thumb and finger to experience effect. He/she should learn to inhibit without this aid.

d. Blink so quickly that he/she does not lose sight of letters.

3. Let patient hold Deep-Wink as long as he/she can before resorting to Quick-Blink.

It may require some time to learn the Quick-Blink without affecting the Deep-Wink. Coordination of the two procedures will prove difficulties in some cases.

Most patients feel that they may blink during the Deep-Wink. They must not press the eyes shut, as this destroys the effect of the Deep-Wink.

The Quick-Blink are of course only a device for making the Deep-Wink more effective, by enabling the patient to make a more extended effort. Being able to obtain clear flashes of vision after Deep-Wink means little. Maintaining clearness for longer periods aided by Quick-Blinks does for resolving power what organized physical training does for muscular response. Flexing the arms once is of little value.

4. The exercise is to be done at both far and near and the patient is to maintain awareness of surrounding objects simultaneously. When the patient has learned to coordinate the Deep-Wink and the Quick-Blink and has learned to cease straining to see, while maintaining precise triangulation and mental awareness, he/she is ready for Step VIII.

It is well to impress your patient with the fact that while interpretation takes places within, everything seen appears out in space. Tell him/her that even though one eye is covered, that eye is still engaged in the visual act.

This may be easily shown by holding a pencil several inches in front of him/her and pointed toward his/her nose. Now, have him/her occlude one eye, then the other, and observe that the pencil appears to point toward the occluded eye.

Also use Binoculus Test, see pg. 25.

Step VIII. Near-Point Deep-Wink Technique.

1. Replace standard stereoscope with VO Lens Holder, set at 16".
2. Center V0-16, or 17.
3. Add plus OU in lens wells until the fourth line down is quite blurred. Disregard unequal monocular acuity. (No Rx is worn). Plus is increased as acuity improves.
4. Let patient take Deep-Wink, as in Step VI-3.
5. When patient is able to read (aloud) two or more lines further down, let him/her read the lines up and down and across. He/she may now be able to call off the letters in next lower line.
6. When letters begin to fade out, tell him/her to take Quick-Blink as on distant chart, repeat Deep-Wink when Quick-Blink no longer maintain clearness.

During the entire procedures urge him/her to quit straining to see-to let seeing become automatic in the sense that he/she allow his/her mind to assimilate, without tension, the sensory impression from the eyes.

Note. It is important that the patient look through and beyond the letters the light source, as a means of organizing object and background relationships-to counteract the spatial distortion resulting from the single plane seeing incident to reading.

Step IX. Accommodation Convergence Shock Technique.

1. When in Step VIII the patient can read next to the last line on the chart, insert-8. -OU in flipper holders of VO Lens Holder. The plus in the lens wells remains in place.
2. When the maximum clearness, which the patient is able to attain in a few moments through- 8.00, has been reached, let him/her flip the lenses and then clear the letters through the plus.

Repeat until he/she is able to see clearly and singly through the minus and the plus, while maintaining the Deep-Wink.

If the letters double at first, tell patient to point between the two images. When fusion cannot be obtained in this manner, rotate your fingers between his/her eyes and the slide. Pointing at target with finger may also aid in fusing.

3. Reduce the plus gradually until he/she is able to maintain clear and single vision through plane and-8.00.

As he/she becomes able to see singly through alternate minus and plus he/she may report that although the minus stimulation causes the eyes to tear and seems to produce a strain, the letters are seen with increasing clearness when the plus is introduced.

4. It is important that the patient let his/her eyes respond to the change of stimulation effect when -8.00 spheres are positioned or removed. Patient must learn to keep his/her eyes in an alert condition but to think of his/her eyes as receptor end organs for light. The patient will soon learn that the mechanics and interpretation of seeing will be taken care of just as fast as he/she is able to let his/her eyes see for him/her while he/she is, as it were, only interested in letting light in from objects within wide areas while fixating letters or objects.

Steps X. Monocular Accommodation Shock Technique.

1. When Step IX has been completed the same procedure is carried out monocularly.
2. The patient is told to look as though both eyes were seeing the target.
Although only one eye sees the target, both eyes are engaged in the visual act.
The occluded eye will tear or feel more discomfort than the other eye.
3. 5 minutes for each eye.
4. Repeat Step IX (binocular) for 5 minutes.
5. Repeat Steps IX and X, once during the training period.
6. There should be no rest periods. However, avoid fatigue which results in retardation-in drop in the achievement curve.

Binoculus Test.

Use a tube 6 or more inches long. Have patient occlude one eye with his/her other hand while he/she looks at an object through the tube. Now have him/her move the occluding hand forward along the side of the tube. He/she will observe the object as if it is seen through his/her hand. You can now tell him/her never again to think of one eye as being out of the visual act, even though that eye is occluded.

This phenomenon helps to explain the nature of binocular transfer, binocular vision and Projection-how the separate impression of the right and left eye are seen, as if from a single, composite eye, the binoculus or cyclopean eye.

The test also indicates eye dominance. The subject will always be under the impression that he/she is looking through the tube with the dominant eye-that is, the composite eye will be situated in the position of the dominant eye.

VO SQUINT AND AMBLYOPIA PROCEDURE

Step A.

1. V0-2 is used as a training means. Proceed as when charting the behavior pattern but repeat, going over two or three targets, five to ten times during each training period.
2. The dominant eye is occluded in amblyopia. In alternating squint, the eyes are occluded alternately for five-minute periods.

The unoccluded eye fixates a small target fastened to the edge of a rotating spiral (preferably 24"). The speed should be regulated to allow as smooth and even rotations as the patient is capable of. The greatest arc through which a satisfactory response can be made determines the distance of the patient from the spiral. The distance should be lessened as performance improves. The spiral may be rotated in each direction. This increases the responses of the entire receptor area while the macula fixates the rotating target.

3. When both eyes are able to respond to the extent that two separate or overlapping spirals can be seen, the above procedure is used binocularly.

Homework

Physiological Diplopia

Wide rotary pursuits, wide lateral and vertical fixations with eyes closed.

Step B.

1. V0-2 as in Step A.
2. Deep-Wink and Quick-Blink with shock procedures as in step IX, done monocularly, each eye in turn.
3. Occlude and use spiral-fixating target as in Step A.

Homework

1. Alternate occlusion 10 minutes each eye for 40 minutes a day.
2. Practice Deep-Wink and Quick-Blink monocularly, using as targets; calendars, Snellen charts or objects outside.
3. Continue homework of Step A.

Step C.

1. Use V0-2 as in Step A.
2. Practice Retinal Rivalry. V0-15 in Correct-eye-scope. Occlude OD and OS alternately at the rate of 15 times per minute. This procedure should be used every training period. Test patient from time to time. As rivalry rate permits, increase occlusions to 30 alternations per minute.
3. **Simultaneous projection.** Hole in hand method: Hold hand before one eye and tube before the other. Look at object through tube. Move other hand forward. When simultaneous projection is present, appear in hand close to or away from tube or above or below line of tube when it is first seen. Practice will correct positioning. This procedure should be practiced outside the office. Hold tube before eyes alternately.

Homework.

1. Continue previous assignments.
2. Occlude amblyopic or squinting eye six hours every third day for two weeks, then once a week for two weeks.

Step D.

1. Repeat routines under previous steps.
2. Stress Physiological Diplopia procedures.
3. Introduces abnormal posturing. Have the patient look back over his shoulder at an object on the floor on the side of his/her deviating eye (convergent squinter). Note that as the nose becomes a septum, which prevents the dominant eye from seeing, the deviating eye will turn and fix object. Now ask patient to inhale deeply and fix attention on chart or object in room. The eyes may remain straight momentarily. Some patients soon become able to disregard the old return position for extended periods.

Homework continued.

Step E.

1. Review the previous steps that are troublesome.
2. Patient should now be able to see two spirals while fixating the target with either eye. Now introduce prisms that will cause the two targets to superimpose. This may be discouraging at first, as they appear to insist upon sliding off. They may however remain positioned at one point of the rotation and fuse. This will be the starting point of fusion.

Homework: continued as outlined.

Step F.

1. Review steps accomplished to increase motivation.
2. Work on steps that are still troublesome.
3. When the patient has successfully completed Steps A,B,C,D, and E, introduce Steps I to IV in the Rehabilitation Technique.

Cookbook Presentation of any method in Visual Training is impossible. There are too many variables with patients and Optometrists for it to result in successful training. Nevertheless, until a person works with a new technique long enough to make it his/her, usually an outline guide is helpful; especially is this true if it is emphasized that it is a guide, not sure-fire cook book method. The following is presented as an aid and guide during the indoctrination period.

Van Orden Rehabilitation Techniques
Tabulated in a Typical Order

1. OFFICE Procedures

V.O. Visual Behavior Pattern
(V.O. Star)
Testing
Interpretation
Training
Binoculus Testing
Spiral OD. OS. OU.
Fixation (V.O. 3, 5)
Fixation (V.O. 3, 4)
 Without pointers
 With pointers (Hand and Eye)
BO and BI training
Quick-Wink Instructions
High Rock

2. HOME Training Procedures

Eyes Closed
Pursuit movements
Saccadic movements
Peripheral awareness-reverse reading
H.A.S. Card
Physiological Diplopia
Binoculus training
Acuity Chart with Deep-Wink
and Marathon
Occlusion for amblyopia
Deep-Wink-near and far
Deep-Wink Instructions fixations

Specific Procedures for Case Types

1. MYOPE and HYPEROPE

Visual Analysis
V.O. Star-Test

OFFICE Visual Training Procedures

Spiral OD. OS. OU.
V.O. 3,4, 5, (Retinal rivalry)
BO and BI
Deep and Quick-Wink with High
rock within patient's Range
When indicated-Train on V.O. Star

HOME Visual Training Procedures

Peripheral Awareness-reverse reading
Eyes Closed-Rotations, Fixations
H.A.S. Card
Physiological Diplopia
Visual Acuity Chart with Deep-Wink

2. **STRABISMUS** (divergent and convergent)

Visual analysis

V.O. Star-Binoculus test

OFFICE Visual Training Procedures

Deep and Quick-Wink with High

Rock-monocular then

Binocular

Fusion training

Stepping Stones

Spiral OD. OS. OU.

Abnormal posturing

V.O. Star-training

HOME Visual Training Procedures

H.A.S. Card

Binoculus

Eyes closed-Rotations, Fixations

Physiological Diplopia

Occlude eye having lowest

V.A. as in Amblyopia-
(below)

In alternate squint prescribe lenses to give equal size image at distance.

When Fusion is Established

Proceed with Myope or Hyperope Training as Above

3. **AMBLYOPE**

Visual Analysis

V.O. Star-Test

OFFICE Training

Proceed with Strabismus
training above

HOME Visual Training Procedures

Occlude (Total) Amblyopic eye
6hrs. 3 days off 3 days
and repeat

Occlude good eye, deep-wink,
acuity chart

4. **Straight Eye Quinter**

Visual Analysis

Binoculus Test

V.O. Star-Test

Equalize size difference with prescribed lenses.

Proceed with Myope or Hyperope training as above.

5. **MONOCULAR ADAPTED PATIENT**

Same as Strabismus and Amblyopia

Order V.O. Visual Acuity Charts and V.O.H.A.S. Cards From
M.E. Van Orden, 1st. National Bank Bldg., Ithaca, N.Y.

