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A procedure for the initial use of a lens stereoscope

Anyone who has led laboratory sessions in an introductory physical geography course has encountered the problem of how to teach students to see anything meaningful through a lens stereoscope. The first step is usually the most difficult. My experience has been that fewer than half of the students in an average class seem able to conquer focusing through the instrument at an initial setting, if ever. This is unfortunate, because many students find the use of stereoscopes to be among the most enjoyable parts of the course. It is small consolation to a student when a laboratory assistant declares he has a "lazy eye" that prevents correct viewing.

I have found a simple method, however, that is about 99 percent effective in "preadjusting" one's eyes to facilitate three-dimensional image-viewing. The lab instructor first positions a stereogram—preferably one of an area exhibiting great relief (volcanic landforms work well)—on a desk or similar flat surface. Its bottom edge should be about nine inches from the edge of the desk and parallel to it. The stereoscope is then positioned over it and preadjusted by the instructor so that three-dimensional images can be observed when one looks through it. The student is then asked to stand over the instrument with his nose positioned fifteen inches directly above the midpoint and with his eyes facing directly down at it. The student may wish to brace himself by spreading his hands out on the desk (fig. 1).

The student is then told to look with both eyes (without squinting or tilting the head) through one eyepiece of the instrument and to focus his vision on whatever can be seen in the stereogram from this position. If this is done properly, everything else in the field of vision will be a blur or out of focus, including the stereoscope itself. Once the student has found a point on which to concentrate, he should slowly move his head straight down toward the instrument, all the time continuing to focus both eyes through one eyepiece on the point initially chosen. In carrying out this step, the student must keep his eyes aimed directly downward and his nose positioned squarely above the center of the instrument. Should he lose focus on the point of concentration or begin to squint or move off-center, he will need to start over.

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In most cases, when students reach the level of the instrument, they will be able to pick up the three-dimensional image. If not, have them repeat the sequence. For some, it will take several tries before success is obtained, but almost all can train their eyes to see a three-dimensional image in less than five minutes using this method. After it has been successfully carried through a few times, the process can be abandoned; muscles in the eye will have become experienced in the new manner of focus.

Neither glasses nor contact lens seem to interfere much with this approach. Some students with rather severe vision problems can be successfully aided. Remember, of course, to warn first-time users that extended initial viewing can cause great eye strain leading to severe headaches.

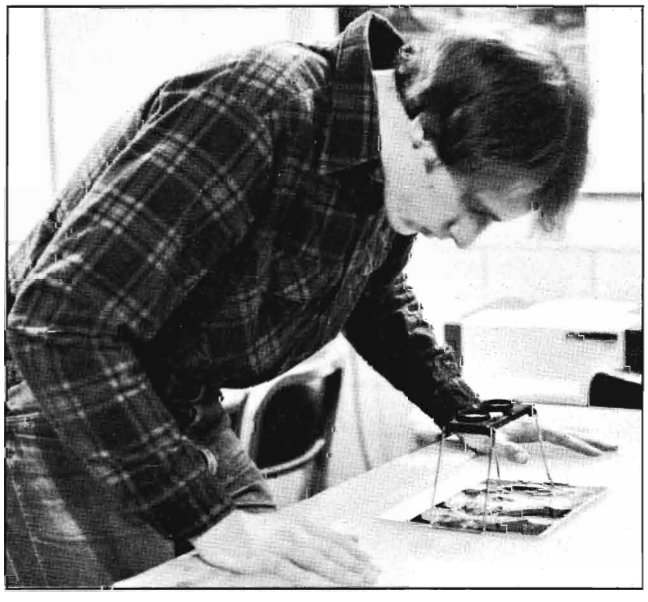

Figure 1