

# LETTERS

Editor, C.J.O.

I am taking this opportunity to provide an opinion other than that expressed in the guest editorial concerning automated field screening (CJO 44(1): 4-5, 1982).

The advent of automated field screeners has introduced a variety of instrumentation which have been undergoing developmental difficulties during their formative years. These problems are inevitable in the attempt to develop instrumentation capable of testing something as intricate and subtle as the human visual field. Indeed, initial studies of some of these devices were less than salutary and indicated that the instruments were of dubious benefit to practitioners.<sup>1-5</sup>

However, further technological advances have added to the sophistication, reliability and practicality of these instruments. Several recent studies have shown extremely encouraging results.<sup>6-10</sup> Most notably, one type of automated perimeter detected 100% of a sample of individuals with a field defect due to some form of optic nerve disease.<sup>8,11</sup> This impressive result is given even greater stature with the fact that only 86% of these same field defects were detected by manual kinetic Goldmann perimetry. In an even more recent study, in a neuro-ophthalmology practice, 99.2% of a variety of abnormal visual fields were detected by automated perimetry.<sup>12</sup> In addition to this screening function the automated perimeter is even proving useful in monitoring glaucomatous visual field progression.<sup>13</sup> Thus, it would appear that automated perimetry cannot be dismissed lightly and "although it is not the most sensitive or sophisticated form of visual field testing, . . . it

provides an efficient, reliable alternative to manual perimetry for many practitioners."<sup>13</sup> (The most sensitive and sophisticated form of testing is by Tubingen static perimetry).

Above all, practitioners should be aware of the limitations (validity, reliability) of any test procedure they use, whether it be automated field screening, tonometry or ophthalmoscopy to name a few. It is certain that false negatives cause the greatest concern with any test procedure, but, the results of any one test are merely contributory to inductive and/or deductive logic and should not preclude further thought or consideration on the part of the professional.

The above discourse is not intended to urge all optometrists to purchase automated field screeners but to provide them with another perspective such that they may make a quantum 'inductive' leap themselves.

## References

1. Feldman, F.; Evaluation of the Friedmann Visual Field Analyser, *Can. J. Ophthalm.* 10: 351-355, 1975.
2. Heijl, A.; Automatic Perimetry in Glaucoma Visual Field Screening. A Clinical Study. *Albrecht v. Graefes Arch. Ophthalm.* 200: 21-37, 1976.
3. Samek, M.J.; In-office Assessment of the Auto-Field 1, *Can. J. Optom.* 39 (3): 61-64, 1977.
4. Dwyer, P.; A Review of the Role, Development and Value of Central Field Screeners, *Aust. J. Optom.* 61: 361-368, 1978.
5. Keltner, J.L., Johnson, C.A. and Bales-

tery, M.S.; Suprathreshold Static Perimetry. Initial Clinical Trials with the Fieldmaster Automated Perimeter. *Arch. Ophthalm.* 97: 260, 1979.

6. Kradau, C.E.T.; Aspects on the Design of an Automated Perimeter. *Acta Ophthalm.* 56(3): 389, 1978.
7. Bynke, H. and Heijl, A.; Automatic Computerized Perimetry in the Detection of Neurological Visual Field Defects. A Pilot Study, *A.V. Graefes Arch. Klin. Exp. Ophthalm.* 206(1): 11-15, 1978.
8. Johnson, C.A. and Keltner, J.L.; Comparison of Manual and Automated Perimetry in 1,000 Eyes. *Computers in Ophthalm.*, April: 178-181, 1979.
9. Keltner, J.L. and Johnson, C.A.; Mass Visual Field Screening in a Driving Population, *Ophthalmology* 87(8): 785-790, 1980.
10. Johnson, C.A. and Keltner, J.L.; Comparative Evaluation of the Autofield — 1, CFA — 120, and Fieldmaster Model 101 — PR Automater Perimeters, *Ophthalmology* 87(8): 777-783, 1980.
11. Johnson, C.A. and Keltner, J.L.; Automated Suprathreshold Static Perimetry, *Amer. J. Ophthalm.* 89(5): 731-741, 1980.
12. Schindler, S. and McCrary, J.A.; Automated Perimetry in a Neuro-ophthalmologic Practice, *Ann. Ophthalm.* 13(6): 691-697, 1981.
13. Keltner, J.L. and Johnson, C.A.; Effectiveness of Automated Perimetry in Following Glaucomatous Visual Field Progression, *Ophthalmology* 89(3): 247-254, 1982.

M.J. Samek

Editor, C.J.O.

Having read the Guest Editorial "Problems with Automated Field Testing" (CJO 44(1): 4-5), I am somewhat dismayed by the lack of documented clinical evidence justifying the opinions regarding automated field testers. If one is to accept the figures presented that approximately 2% of the general population have some field anomaly and that 30% of these present with no additional evidence, then it can be concluded that 30% of field defects (i.e. about one in three) would be missed because the examiner's suspicions were not sufficiently aroused. Since this group cannot be distinguished from the 98% with no field defect, it becomes a formidable task to make the differentiation.

It is apparent that the productivity of the optometrist conducting a field test on every patient, although ideal, is too low to be practical. Yet the problem remains. Possible solutions could be to have a skilled technician conduct a field test routinely on all patients, or to have access to some form of automated field tester.

Many of the recent studies<sup>1,2,3,4</sup> have been primarily concerned with the Friedmann Visual Field Analyser (FVFA) which was described by Friedmann in 1966.<sup>5</sup> All the authors referenced state that the FVFA is a

valuable tool in the detection of visual field problems. Also, the deficiencies of the instrument are predictable and can be compensated with relative ease. Apparently the new Mk II model FVFA has additional features which will eliminate some of the difficulties: clinical studies will answer that question. Unfortunately there is not extensive information on other automated screeners, but their design is somewhat similar. Since most of these devices make use of a static method, which is recognized as more sensitive than the usual kinetic technique, and some make use of multiple stimulus presentation which takes advantage of the extinction phenomenon, it is possible that a well designed field screener can be as sensitive in detecting relatively subtle defects as the traditional tangent screen.

The purpose of a field screener is to identify departures from normal for referral and definitive measurement, not to replace the practitioner in the performance of field testing. The prudent practitioner will not be satisfied with only a screening conducted on a patient with other clinical evidence suggesting a field problem, however should those without signs be left untested? What of the 30% of those with defects who would go undetected?

The editorial also states that two of the

premises behind the development of automated field testers are as follows:

- 1) "It is a waste of time for a practitioner to test fields". It is stated that practitioners are not finding field defects because they are not testing the right people, or are not using the right test. This statement is obviously true, however even when the "suspects" are tested, field defects are relatively rare. It may indeed be inappropriate for the busy practitioner to spend inordinate amounts of time with unproductive testing. If field screeners are as reliable as reported, possibly the practitioner's time would be better spent quantifying the fields of those identified by an automated device.
- 2) "A machine, especially an expensive machine, can do it better". I do not think that any clinician would agree to this statement simply because we are in a world inundated with technology. I agree that a thoughtful practitioner will do a better job than a machine in detecting field defects, however no practitioner can afford to bury his head in the sand and ignore the benefits that technology can provide to make him a better clinician. The bottom line becomes