EDITORIAL

ELECTRONICS — PASSWORD TO THE 80'S?

One would need to be very stubborn and uninformed not to recognize that automated and electronic equipment will have a major impact on the eye and vision care field in the 80's. It will not be a fly by night impact; its use and sophistication will increase over the decade to the point that it will affect all aspects of optometric practice, diagnostic and therapeutic services not to mention in-office management and administration of the small or large office.

Not all such instruments will find their way into all optometric offices. Some in their present size, form and purpose not to mention prohibitive cost may never be found outside of clinics or teaching or research institutions. Others because of their function, small size and relatively modest cost will become as common as the phoroptor and the lensometer.

Due to the emphasis on some more recent innovations such as electronic refractors, practitioners are apt to forget the invasion of electronic devices began many years ago with the introduction of the Bausch and Lomb ophthalmetron, the field analyzers and the McKay Marg tonometer. Even these have become obsolete or are giving way to newer and more sophisticated designs. Even the air puff tonometer threatens the existence of the electronic applanation tonometer.

Remote controlled projectors will likely become more common and new designs likely will eventually permit rotating astigmatic "T" charts.

Photokeratoscopes although primarily optical in concept rely on computers to rapidly determine contact lens designs. Even these are threatened with the arrival of thinner and more flexible contact lens series of restricted base curve choices. Similarly all automated refractors from the prototype ophthalmetron to the most recent models rely on mini-computers to analyze optical data upon which all are based.

Programmed mini or micro-computers are to be seen in many offices for recording and statistical classification of patient files, types of exams, pathology cases, age groups, types of lenses prescribed, stock control, recall programmes, billing and all other aspects of in-office administration. This is the area in which office efficiency can be most affected in a beneficial manner.

From a strictly clinical aspect computers can be programmed to design eikonic lenses, to compute resultant powers and axis location when over refracting contact lens and aphakic patients. In this same vein, curvature thicknesses and prism powers fall prey to the speed and accuracy of these phenomenal micro computers and calculators.

Lens analysers, providing printouts may eventually replace the lensometer if costs can be brought within reasonable limits. They are readily available at this time but at about five times the cost of the lensometer.

The objectives sought by the practitioner will guide his choice of both hardware and software. Some practitioners may qualify themselves to set their own programmes but the need for professional guidance in determining and tailoring programmes to individual needs and desires will be required by most practitioners. Continuing education courses in computer knowledge and theory, as well as practical applications for optometric practice will be in great demand. We cannot overlook the need to incorporate this into undergraduate training if it has not already been done.

Mathematics and optics, the basis of optometric education from the beginning will take on added importance as optometrists become more and more expert in the design and control of the prescriptions they write for their patients.

Perhaps the areas of practice being given the greatest emphasis are those areas and phases subject to delegation to para-optometric personnel, namely, refractors, tonometers and field analysers.

Informing the public in general and one's patients in particular may be enhanced by the use of closed circuit TV to demonstrate fundus or other pathological conditions not to omit its use to help in the cosmetic choice of frames. It is all well to recognize the high technological progress involved in the design and manufacture of such equipment but the profession should not let itself be overwhelmed and dictated to by the instruments themselves or their manufacturers.

We question some advertisements which claim automated refractors are responsible for practice growth amounting to 71% over a few weeks. Such refractors are in essence "sophisticated and costly" retinosocopes. Except in special cases of decreased transparency of the media or mentally retarded patients or people unable to communicate due to illness, particularly brain damage, they cannot be said to be time savers or any more accurate than a skilled retinoscopist or an astute and experienced practitioner able to guide and control a patient during a subjective test. Electrophysiological equipment such as the V.E.R. and the ultrasonograph al-

though offering advantages beyond the capability of present office equipment must await the design of more compact and less costly models before they come into more widespread use.

The purchase of these instruments should be based on an understanding of their uses and limitations and their possible clinical advantages but never on the basis that they will "automatically" bring about a formidable increase in one's patient load. The amount of time saved with each patient would need to be significant in order to realize a significant increase in one's ability to see more patients. But one should not forget that one can handle more patients only if the patients present themselves at the office. Such refractors are not necessarily "instant practice builders". They do indicate that the practitioner is keeping abreast of progress and such knowledge by the public can do no harm but one should not expect overnight doubling of one's practice as promoted by these advertisements.

Practitioners must not forget that optometry is a "personal profession" dealing with individuals. Computers tend to "depersonalize patient contact." Patients are not automobiles or refrigerators to be mass produced by mechanical or electronic devices in a health care practitioner's office.

One must not confuse automated objective refractometers with the Humphrey Vision Analyzer and the AOSR II, both of which are subjective testing instruments. Results depend on the patient's ability to discriminate targets presented to them in a controlled manner. The major component in the H.V.A. is the lens system where movements are regulated by a motor under the control of a computer and the practitioner or the patient controls the computer. The SR II is a much less sophisticated optical system with adjustments programmed by a computer under the control of patient and practitioner.

Although the many advantages of electronic devices are recognized, there is a very real danger that health care, because of too great a reliance on these devices, could become more impersonal and more costly. Ultimately one could foresee a definite reduction in the need for "health care practitioners". Health care could become a mathematical formula requiring no more intelligence or human reasoning than that required to push a button on a simple calculator. Why would there be any need to train health care people? Why would there be any need to continue to pay high fees for such impersonal and shortened services? As health care practitioners, we must ask what level of health care will result from all this gadgetry?

What motivation will exist to drive the health care practitioner to improve skills' levels?

And now we could perhaps give some thought to the economics of "computerized health care" and ask ourselves: "Is this what we really desire as responsible health care practitioners?" Fee for service based on time, knowledge and seriousness of the procedure has always been a fundamental criteria for the establishment of payment.

Will third parties, who pay the bills continue to pay the pratitioners the same fees for such impersonal and short services?

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