are compatible with the view that some of the central effects of reserpine are mediated through the release of serotonin. It is conceivable that the beneficial effects of reserpine in mental disturbances result from the liberation of serotonin. The possibility that reserpine also affects the level of serotonin in brain is now under investigation.

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Burger Triangle as a Method for Correcting Inaccuracies of Einthoven Triangle

The triangle of Burger and van Milaan (*1*) was constructed on the basis of the lead vector concept. Burger and van Milaan demonstrated that, in contrast with the triangle of Einthoven, their triangle is accurate for calculating cardiac vectorial directions in the frontal plane of a human phantom, regardless of thorax form, tissue nonhomogeneity, and eccentricity of the assumed resultant heart vector. The shape of the Burger triangle is determined by these factors; the three sides are usually unequal (though the influence of the dispersion of the electromotive forces of the heart is not considered in their concept). To use such a triangle it is necessary, before beginning the usual procedure, to divide the deflections written in the classic limb leads by the length of the corresponding sides. Subsequent studies (*2–8*) suggest that the Burger triangle may prove to be more valuable in clinical electrocardiography than the Einthoven triangle.

The present communication demonstrates the relationship between the shape of the Burger triangle and the inaccuracy of the Einthoven triangle in the calculation of the vectorial directions in the frontal plane. A Burger triangle from a given subject (human or animal, living or dead, or electrolytic model) could have one of three shapes: equilateral, isosceles, or scalene. If it is equilateral, which is exceptional, the Einthoven triangle is obviously accurate. If it is not equilateral, the Einthoven triangle is inaccurate. But isosceles or scalene triangles can have various accentuations and departures from the equilateral triangle.

Figure 1 shows four hypothetical Burger triangles from four subjects; *a* and *b* are isosceles, whereas *c* and *d* are scalene. But *b* and *d* depart more from the equilateral than do *a* and *c*. For convenience, a Burger triangle may be transformed to a triaxial reference system (just as the Einthoven triangle has been transformed to the triaxial reference system of Bayley) with parallel transposition of the three sides of the Burger triangle toward its geometric center until they coincide. In the same figure four triaxial reference systems—transformed from Burger triangles *a, b, c,* and *d,* respectively—are shown.

We may designate *l, m,* and *n* as the lengths of the lead vectors *RL, RF,* and *LF* of a Burger triangle; and p_1, p_2, and p_3 as projections of the heart vector upon *l, m,* and *n*. On the basis of the concept that the deflection of an electrocardiographic lead equals the scalar product of heart vector and the lead vector, one gets

$$L_I = lp_1,\ L_{II} = mp_2;\ L_{III} = np_3$$

In order to demonstrate the relationship between the Burger triangular shapes in Fig. 1 and the inaccuracy of the Einthoven triangle, it is necessary to assume the heart vector to be of equal length in the same arbitrary direction, V (+45°), in each case. From the terminus of V in each triaxial reference system, perpendicular lines to three sides were drawn; p_1, p_2, and p_3 were measured. From the equations, the deflections in L_I, L_{II}, and L_{III} were calculated. The values were used to plot the vectorial direction for each subject in the triaxial reference system of Bayley (Fig. 2). The directions *a, b, c,* and *d* correspond to subjects with Burger triangles *a, b, c,* and *d,* respectively. It may be observed that they deviate from V (the arbitrary "true" direction); that $\angle boV$ is larger than $\angle aoV$, and that $\angle doV$ is larger than $\angle coV$.

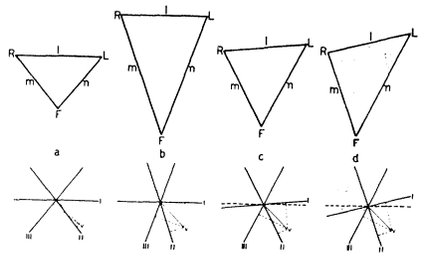

Fig. 1. Four hypothetical Burger triangles and corresponding triaxial reference systems. V is the arbitrarily true heart vector, which is assumed to be the same in each case.

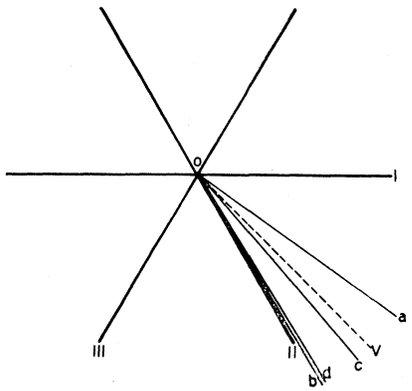

Fig. 2. The triaxial reference system of Bayley showing the directions of V and the calculated vectors.

The Einthoven triangle is inaccurate for subjects possessing Burger triangles either of isosceles or scalene shape. The more the triangle departs from the equilateral, the more the vectorial direction, calculated in the Einthoven triangle, deviates from the true one. Use of the Burger triangle permits correction of these potential errors.

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Photochemical Activity of Chloroplasts Isolated from Sugar Beet Infected with Virus Yellows

Sugar beet virus yellows is a serious disease in Europe, where even the mild forms can reduce sugar yields by more than 20 percent (*1*). The disease now appears to be widespread in the western United States. Watson and Watson (*2*)