The Kirlian Technique: Controlling the Wild Cards

The Kirlian effect not only is explainable by natural processes; it also varies according to at least six physical parameters.

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IN A PREVIOUS article in this journal (Spring 1986), we investigated a number of claims put forth by Kirlian researchers. We were able to satisfactorily explain the aura and the variations in auras by natural physical laws. The aura was found to be highly dependent on two properties in the sample: conductivity and surface arrangement of conducting areas. We suggested that any serious study using Kirlian photography would have to control the physical parameters as a requisite to pursuing realistically any claims about the aura's containing information about the physiological, psychological, and psychic state of the individual, or about the life-force or life-energy of the living object.

The purpose of this study was to show how the aura is affected by variations of physical parameters, thereby reemphasizing the need for control of these parameters. The parameters considered in the study were: (1) photographic paper, (2) pressure with which sample is held on the plate, (3) voltage discharge, (4) exposure time, (5) moisture in sample, and (6) photographic development time.

In this study, the surrounding medium was air. All pictures were taken of the same finger of the same person. The high-voltage discharge pictures were taken within one hour on the same day, and the low-voltage discharge pictures were taken within one hour, one week later. Figure 1a shows the effect of overexposure in developing the film. Notice the wide, undifferentiated aura associated with long exposure time. Figure 1b shows the marked contrasts between dry and moist fingers. Notice the sharp, differentiated detail in the aura of the moist fingers as compared with the finer, less differentiated detail in the aura of the dry fingers.

We used Kodak single-weight photographic paper: Kodabromide F1, F3,

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and F5; Dektol Paper Developer; and Kodak Rapid Fix. Because we wanted a well-differentiated aura, we set the development time at 8 seconds for F1 and F3 photographic paper, and 2 seconds for F5 paper. To maintain better control, we decided to use only normal, dry fingers.

Photographs of auras made with the three photographic-paper types are shown in Figures 2 and 3. Each row represents a different set of parameters for discharge, exposure time, and pressure with photographic paper F1 in column 1, F3 in column 2, and F5 in column 3. Differences across rows should be due to the type of photographic paper used and chance variation.

In Figures 4 through 9, each row represents a set of parameters common across the row but different from row to row. One need only take a cursory look through Figures 4 through 9, row by row, to notice that differences exist among the auras even when the indicated parameters are kept constant. This is primarily due to random fluctuations in measurements and generally does not alter the import of the data. However, that such variations do exist should be kept in mind so that every aura with slightly different features is not given undue and mystical significance.

1. *Photographic Paper:* In each case, F5 photographic paper exhibits a rich aura with intricate detail, while F1 and F3 seem to produce detailed pictures only for the short exposure time of one second. Also, both F1 and F3 photographic papers favor a low-voltage discharge.

If one were interested in examining the broken veinlike image of the aura, one would choose a fast-developing film like F5. On the other hand, if one were interested in the width of auras, F1 and F3 could be used, especially with a high-energy discharge. It is well to note, however, that wider auras occur with longer exposure times for *any* type of film. Therefore, it would be possible to produce wide auras spuriously.

2. *Pressure:* The primary difference in the auras due to finger pressure seems to be in the size of the white contact area made by the finger pad. While some of the pictures seem to have a fuzzy circumference (Figures 7 and 8), and on some there is even a suggestion of the fingerprint, there doesn't seem to be a consistent pattern associated with only those auras made with light pressure. The fuzziness seems to be associated more with the 3-second exposure time on the F1 and F3 film.

3. *Voltage Discharge:* The higher-voltage discharge also tends to produce a darker and wider aura than the low-voltage discharge. Higher-voltage discharges produce more and brighter sparks per second. Therefore, we get blurring more quickly than for low-voltage discharges. Even with high-voltage discharge, the F5 photographic paper produces auras with quite distinct detail. However, the shorter exposure time produces the most vivid and intricate patterns.

4. *Exposure Time:* As was noted from Figures 3 and 4, the longer exposure time tends to produce a wider, darker aura due to the time-averaging of multiple sparks in the aura. The aura detail becomes blurred with increasing exposure time for the same reason an ordinary photograph becomes blurred

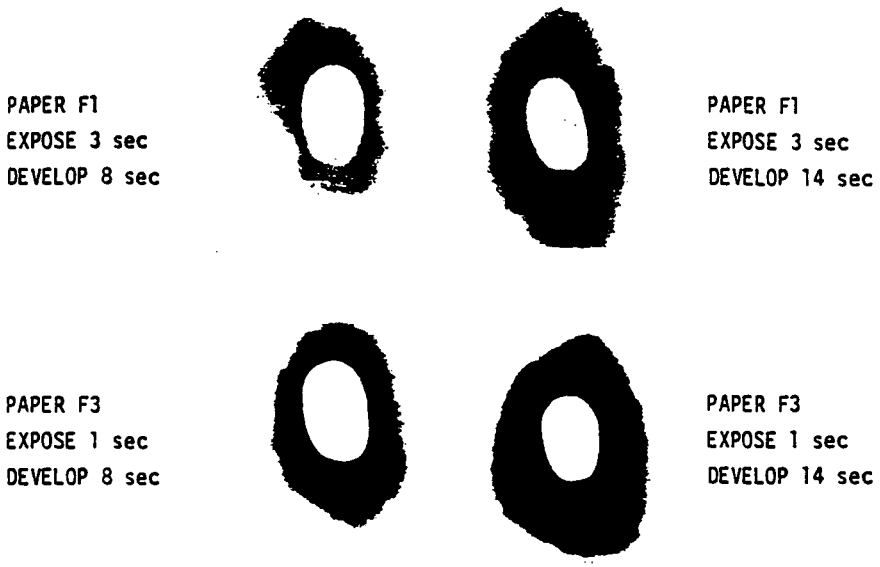


FIGURE 1a. The effect of change in length of photographic development time on the aura using light pressure and high-voltage discharge: (row 1) F1 photographic paper and 3-second exposure; (row 2) F3 photographic paper and 1-second exposure; (column 1) 8-second development time; (column 2) 14-second development time.

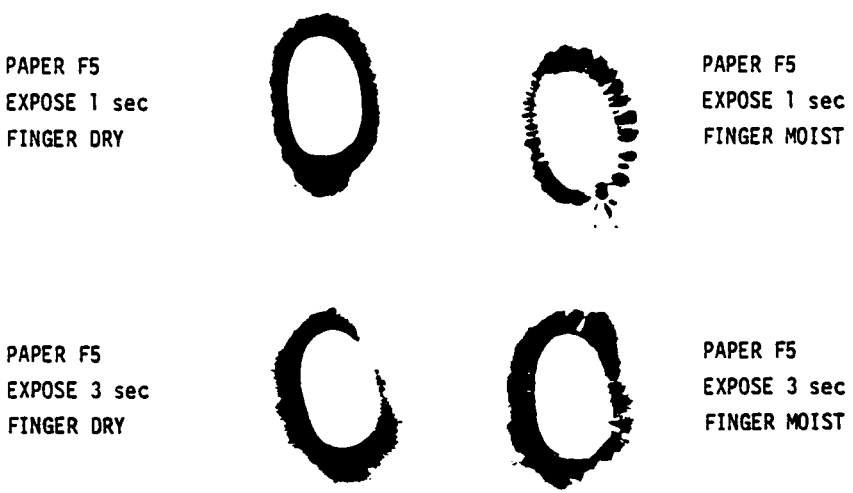


FIGURE 1b. The effect of change in moisture content on the aura using F5 photographic film, 1-second exposure time, high pressure and low-voltage discharge: (column 1) normal, dry fingers; (column 2) damp fingers.

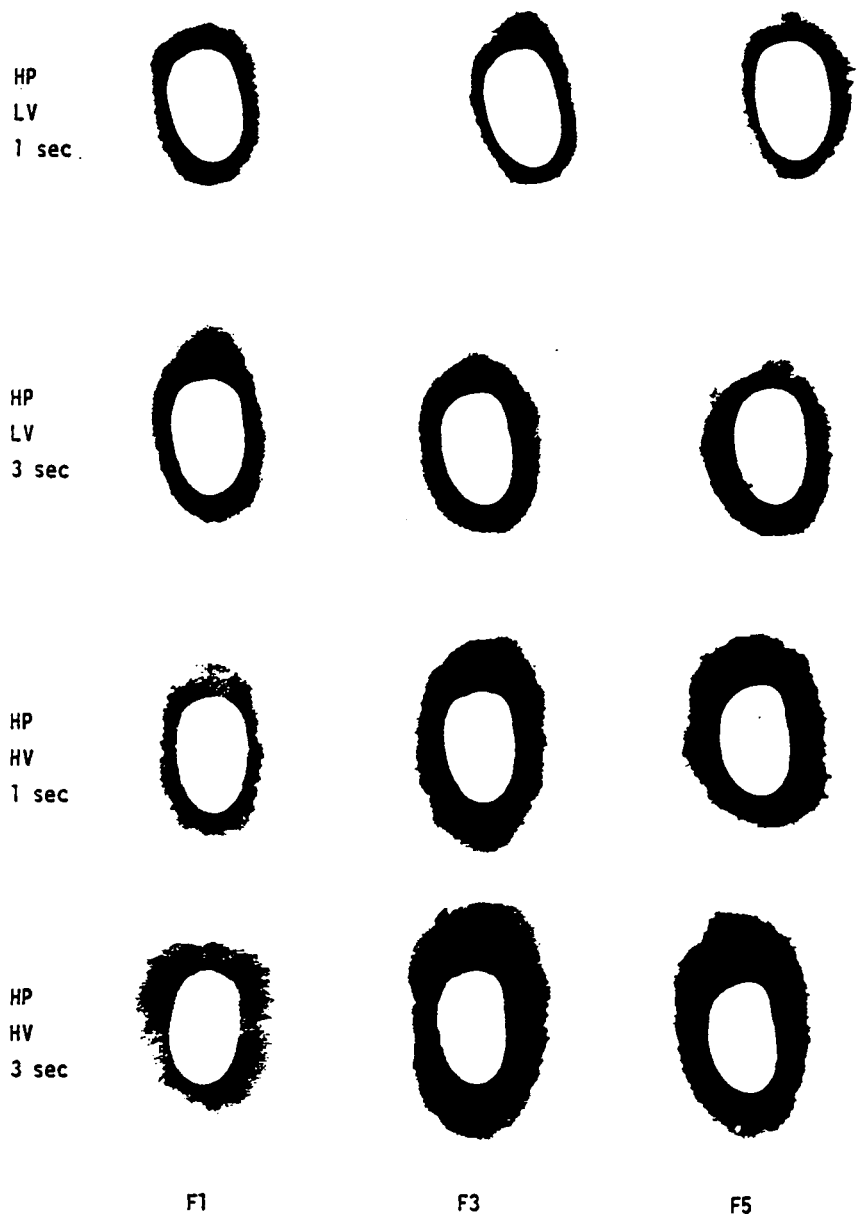


FIGURE 2. The effect of photographic paper type on the aura using heavy pressure: (row 1) low-voltage discharge and 1-second exposure; (row 2) low-voltage discharge and 3-second exposure; (row 3) high-voltage discharge and 1-second exposure; (row 4) high-voltage discharge and 3-second exposure; (column 1) F1 photographic paper; (column 2) F3 photographic paper; (column 3) F5 photographic paper.

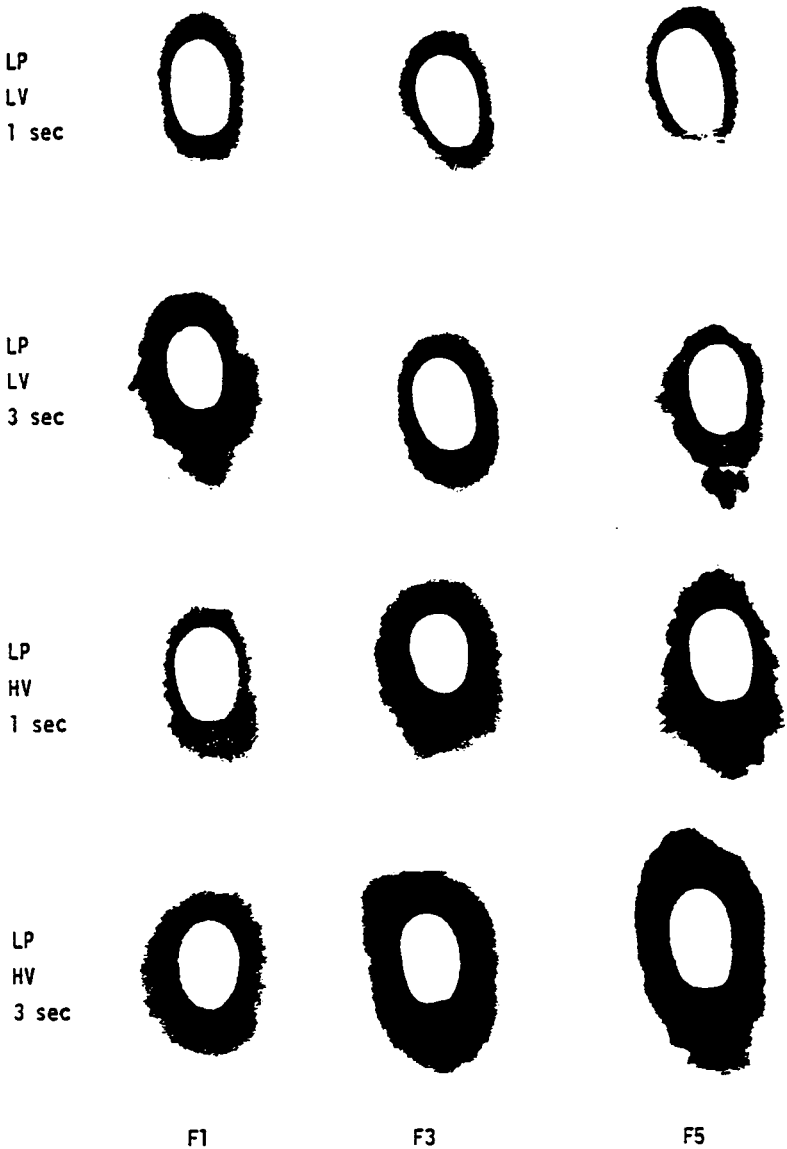


FIGURE 3. The effect of photographic paper type on the aura using light pressure: (row 1) low-voltage discharge and 1-second exposure; (row 2) low-voltage discharge and 3-second exposure; (row 3) high-voltage discharge and 1-second exposure; (row 4) high-voltage discharge and 3-second exposure; (column 1) F1 photographic paper; (column 2) F3 photographic paper; (column 3) F5 photographic paper.

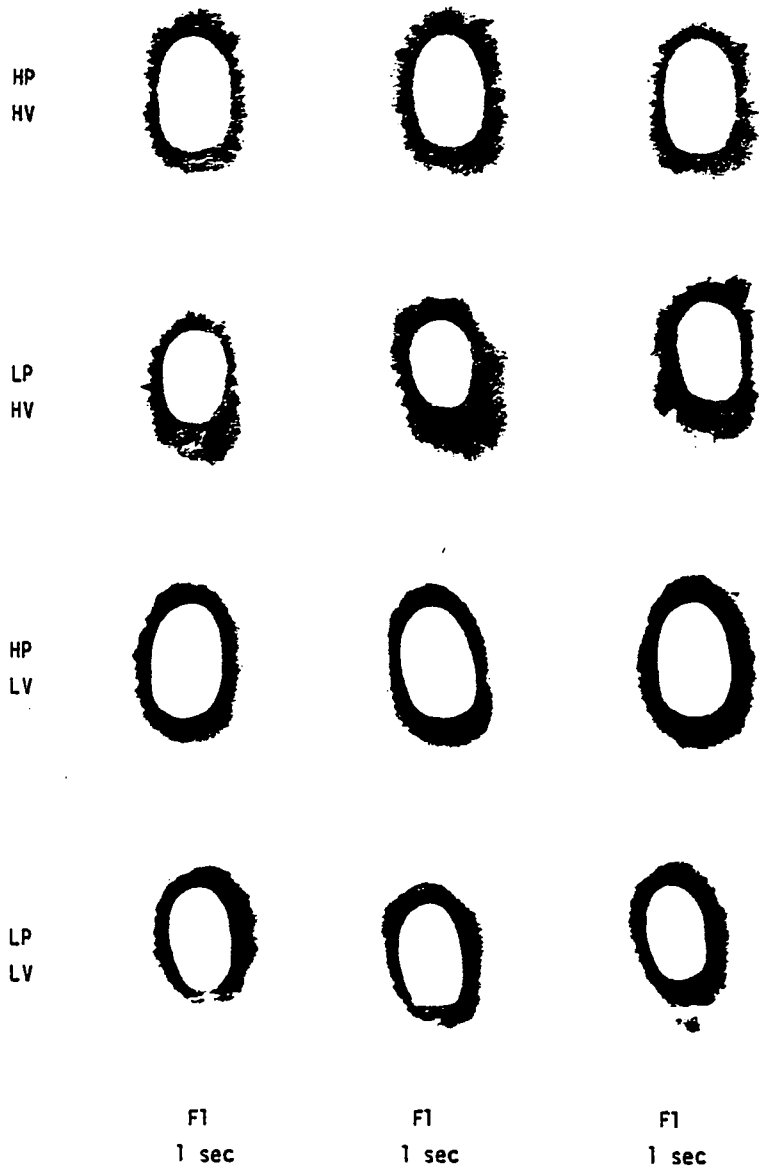


FIGURE 4. The effect of changes in the amount of voltage discharge and changes in pressure on the aura using F1 photographic paper and 1-second exposure: (row 1) high-voltage discharge and heavy pressure; (row 2) high-voltage discharge and light pressure; (row 3) low-voltage discharge and heavy pressure; (row 4) low-voltage discharge and light pressure.

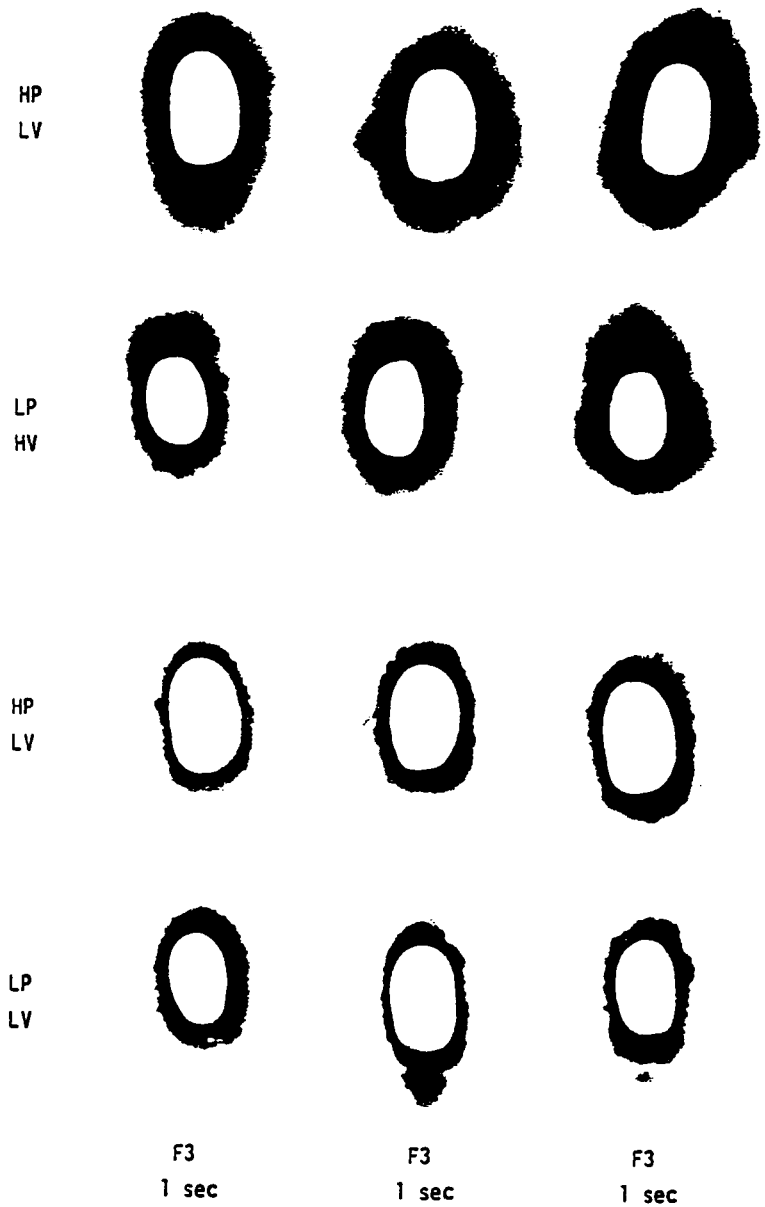


FIGURE 5. The effect of changes in the amount of voltage discharge and changes in pressure on the aura using F3 photographic paper and 1-second exposure: (row 1) high-voltage discharge and heavy pressure; (row 2) high-voltage discharge and light pressure; (row 3) low-voltage discharge and heavy pressure; (row 4) low-voltage discharge and light pressure.

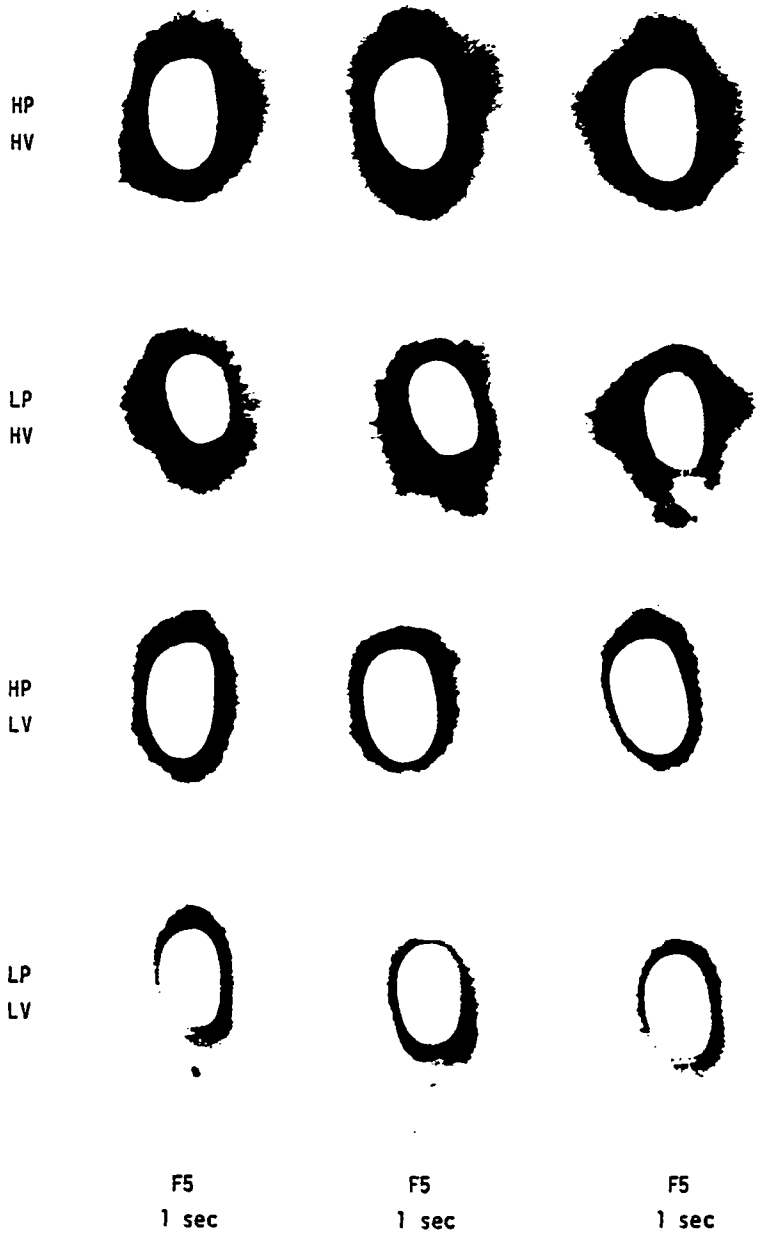


FIGURE 6. The effect of changes in the amount of voltage discharge and changes in pressure on the aura using F5 photographic paper and 1-second exposure: (row 1) high-voltage discharge and heavy pressure; (row 2) high-voltage discharge and light pressure; (row 3) low-voltage discharge and heavy pressure; (row 4) low-voltage discharge and light pressure.

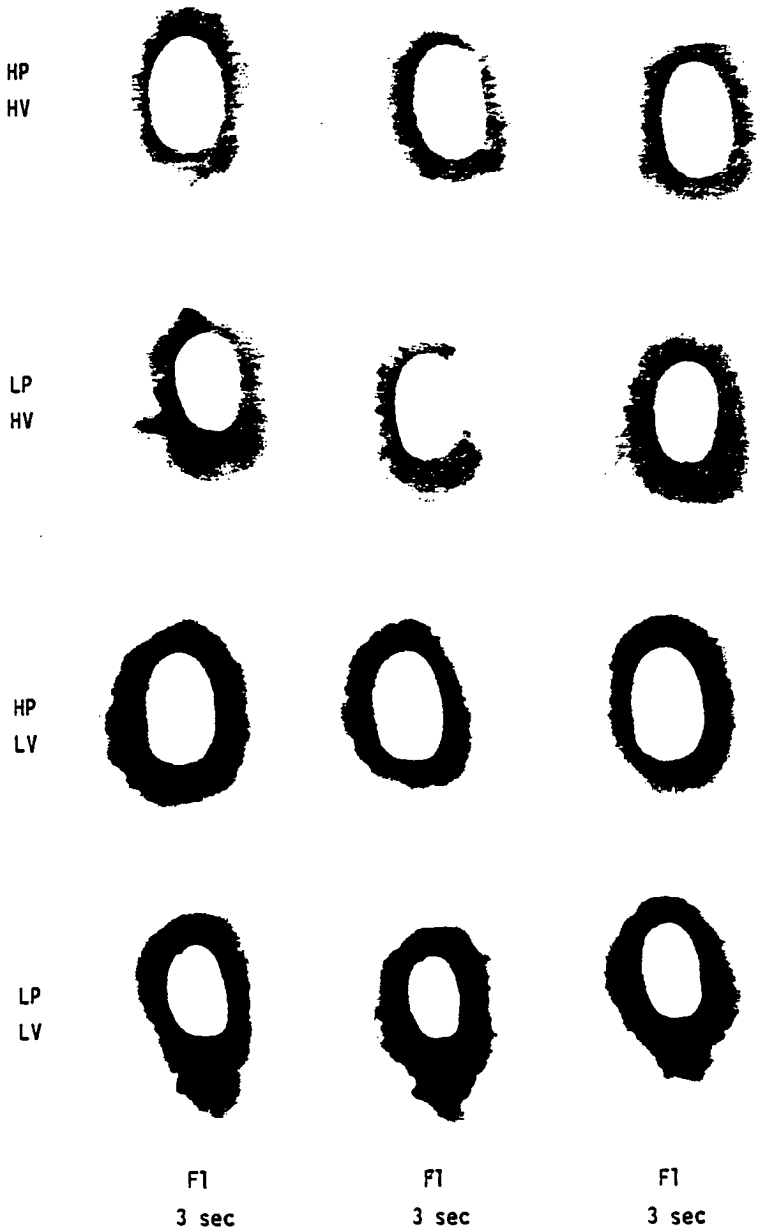


FIGURE 7. The effect of changes in the amount of voltage discharge and changes in pressure on the aura using F1 photographic paper and 3-second exposure: (row 1) high-voltage discharge and heavy pressure; (row 2) high-voltage discharge and light pressure; (row 3) low-voltage discharge and heavy pressure; (row 4) low-voltage discharge and light pressure.

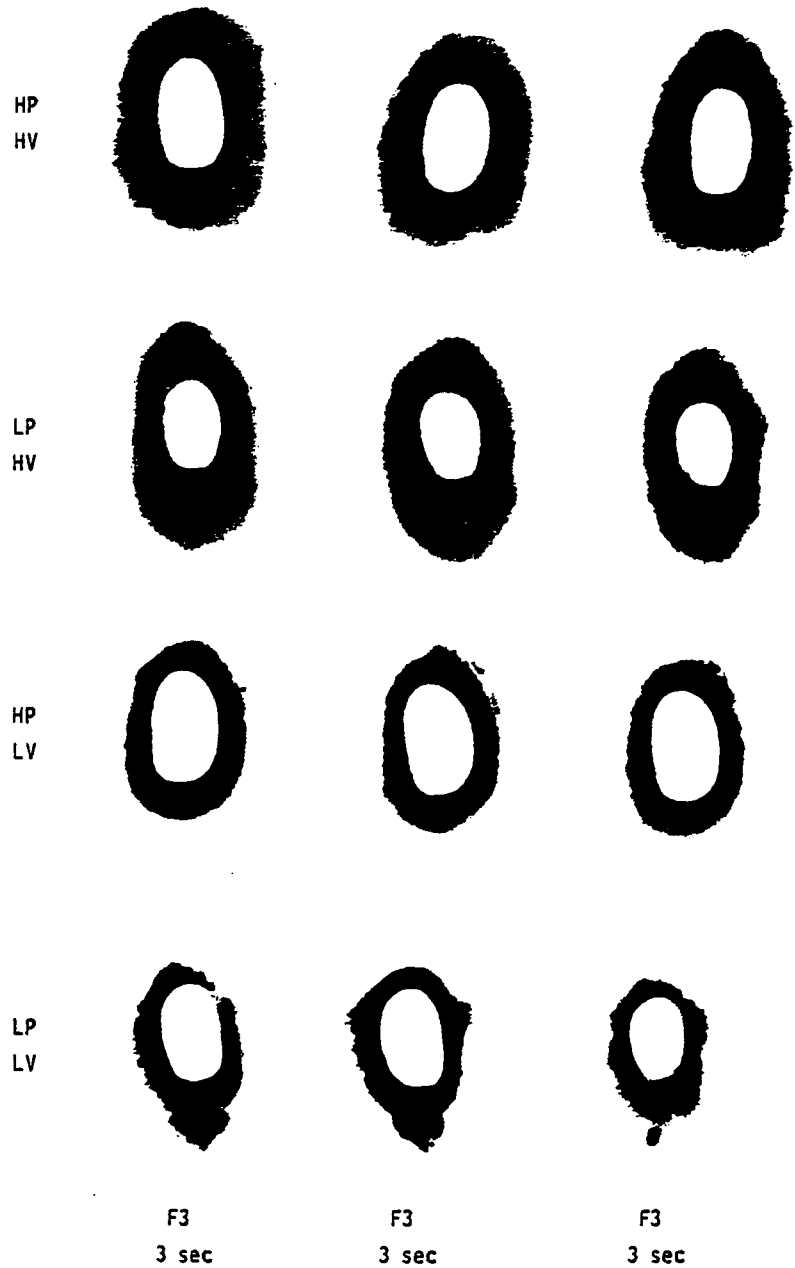


FIGURE 8. The effect of changes in the amount of voltage discharge and changes in pressure on the aura using F3 photographic paper and 3-second exposure: (row 1) high-voltage discharge and heavy pressure; (row 2) high-voltage discharge and light pressure; (row 3) low-voltage discharge and heavy pressure; (row 4) low-voltage discharge and light pressure.

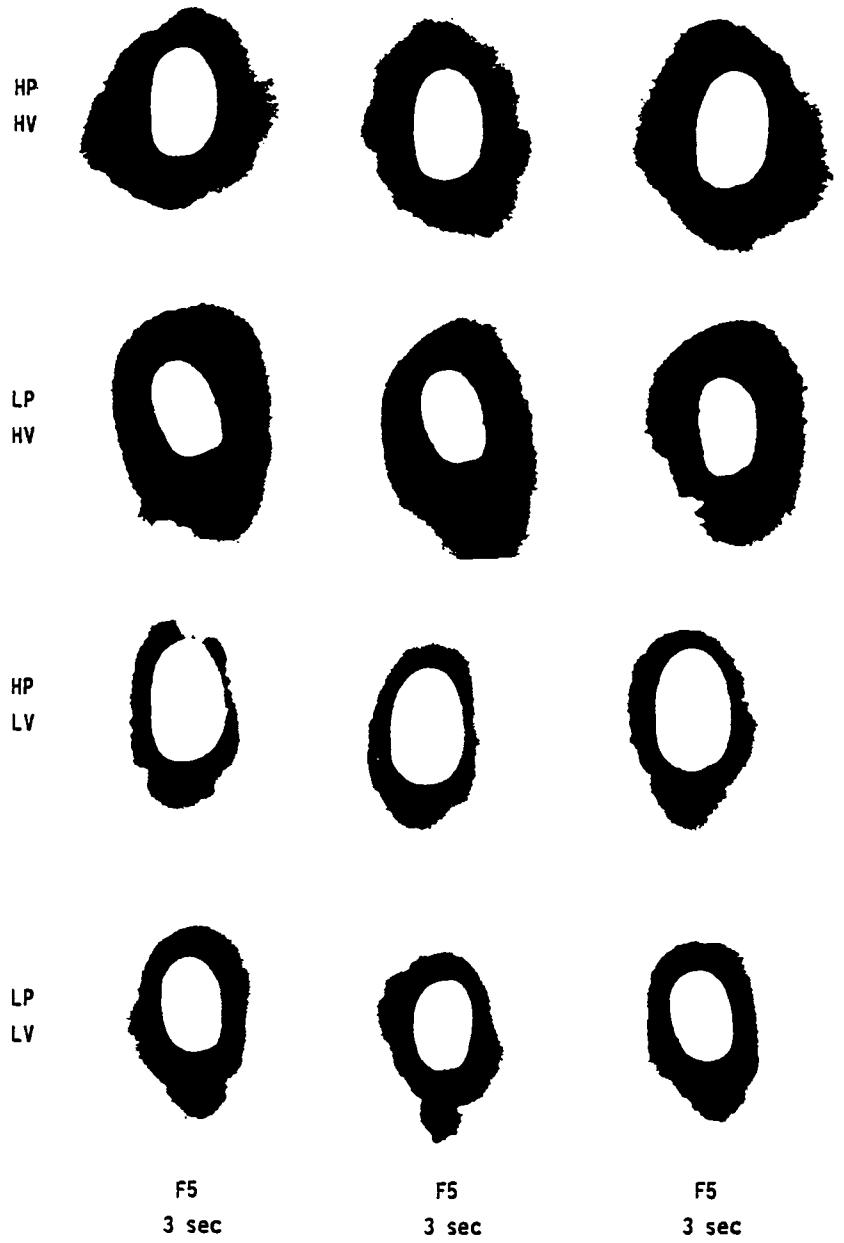


FIGURE 9. The effect of changes in the amount of voltage discharge and changes in pressure on the aura using F5 photographic paper and 3-second exposure: (row 1) high-voltage discharge and heavy pressure; (row 2) high-voltage discharge and light pressure; (row 3) low-voltage discharge and heavy pressure; (row 4) low-voltage discharge and light pressure.

by long exposure time. In addition, we found in Figures 7 and 8, as compared with Figures 4 and 5, that the longer discharge time tended to produce a less distinct boundary between the white pad of contact and the aura. This is also due to multiple exposures and possibly to slight finger motion during the longer discharge.

5. *Moisture in the Sample:* As can be seen in Figure 1b, moisture content causes sharp differentiations in the aura. The higher levels of moisture increase conductivity, producing a sharper aura. However, a quantitative measurement of moisture content of fingers is difficult and was not made here.

6. *Photographic Developing Time:* Whenever the development time is longer for any type of photographic paper, the width of the aura seems to be larger and the sharp differentiations tend to diminish. This is due to the multiple exposures discussed above, which are enhanced by a long development time.

Conclusions

It is very evident that every aura is different, but not every difference in auras has import. It should also be evident that without proper attention to the physical laws that we know exist and that affect the research it will be impossible to establish the value of Kirlian photography, especially as related to the psychological, physiological, and psychic nature of the individual. The time for speculation about the nature and import of Kirlian photography and about the deep complexities of man's psycho-physio essence will come only after every physical phenomenon has been examined and accounted for. Only then can differences be properly hypothesized to such influences as personality, emotional and mental state, and so on, and investigated at that level. Psychic-phenomena investigators have been and will continue to be viewed as wishful thinkers with a vested interest in their prejudices until they give proper respect to known natural laws. This is not say that their beliefs about the premise that the psychic state of an individual affects the aura are wrong. It is only to say it is too soon to say. Despite their years of research, because physical laws and their contributions to the aura have been ignored and adequate controls have been neglected, the possible contribution of Kirlian photography to the understanding of *Homo sapiens* is still an open question. Indeed, whatever value and truth Kirlian investigators may have wandered through have been lost to the world.

All is not lost, however. We feel Kirlian photography can contribute to those areas of science that can use a quick analysis of the two most important parameters affecting the aura: conductivity and the surface arrangement of the conducting areas. One area that comes to mind is geology, or mineralogy. A smooth, polished rock surface having granules of conducting and nonconducting material would give an aura pattern that would show the size and location of the boundaries. Cracks and fissures under the surface also might show up.

Bibliography

Aaronson, Steve. 1974. Pictures of an unknown aura. *The Sciences.* New York Academy of Sciences.

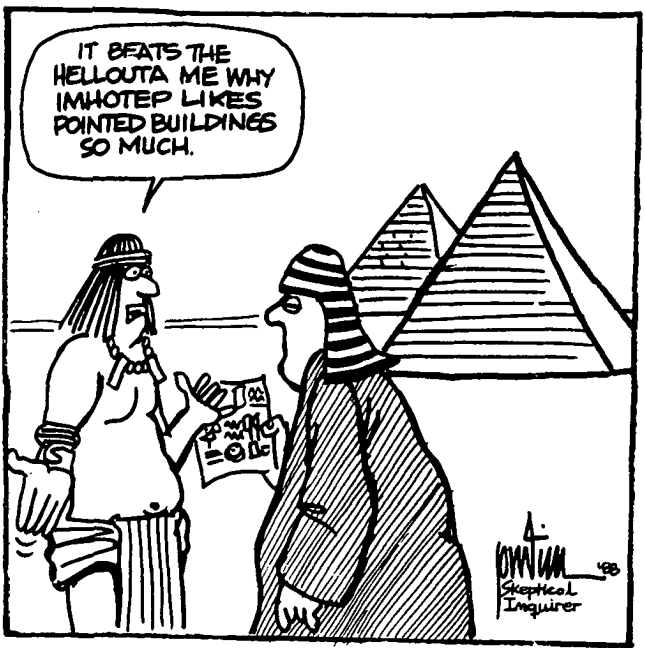
Krippner, Stanley, and Daniel Rubin. 1974. *The Kirlian Aura: Photographing the Galaxies of Life.* New York: Doubleday.

Gardner, Martin. 1957. *Fads and Fallacies in the Name of Science.* New York: Dover.

Moss, Thelma. 1975. *The Probability of the Impossible.* New York: New American Library.

Ostrander, Sheila, and Lynn Schroeder. 1970. *Psychic Discoveries Behind the Iron Curtain.* Englewood Cliffs, N.J.: Prentice-Hall.

Watkins, Arleen J., and William S. Bickel. 1986. A study of the Kirlian effect. SKEPTICAL INQUIRER, 10:244-257, Spring. •



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