

Research on Psi with Devices for Photon Detection

(Pesquisa Psi com Equipamentos de Detecção de Fótons)

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Summary

The author reviewed Japanese and Chinese researches for anomalous phenomena with devices for photon detection. The research can be divided into four types depending on the aim or task: 1) the experimental task is to make light appear, 2) to detect light near the targets during clairvoyance or psychokinesis; 3) to measure bio-photons as an indicator of anomalous effects on a living body; 4) to use a property of the device. Results suggested that anomalous light (or similar events) had common properties; the environment around subjects could be considered to affect the properties of anomalous phenomena which occurred near the targets; devices could detect anomalies near the subject's body during psi task.

Resumo

O autor revisou os pesquisas Japoneses e Chinesas para fenômenos anômalos com detectors de fóton. As pesquisas podem ser divididas em quatro tipos que dependem da pontaria ou tarefa:

- 1) a tarefa experimental é fazer aparição da luz,
- 2) descobrir luz perto dos objetivos durante clarividência ou psychokinesis,
- 3) medir bio-fótons como um indicador de efeitos anômalos,
- 4) usar uma propriedade do equipamento.

Resultados sugeriram que luz anômala (ou eventos semelhantes) teve propriedades comuns;

- 1) o ambiente ao redor de assuntos poderia afetar as propriedades de fenômenos anômalos que aconteceram perto dos objetivos.
- 2) detectores poderiam descobrir anomalias perto do corpo do assunto durante psi atarefa.

1. Introduction

It is said that anomalous lights appeared with clairvoyance or psychokinesis. The author reviewed Japanese and Chinese researches for anomalous phenomena with photon detectors such as photo plates, photo films, instant photographs, video cameras, photo diodes and photon multipliers.

There is a tendency in Japan that articles or reports on anomalous phenomena are published in un-famous

journals or published as private reprints or minor reports. Therefore, it is difficult to search such literature by typical databases. The author tries to collect all articles, but there is a possibility that he has overlooked important studies. And, the present paper is focused on studies only relating visual light although we can deal with more studies relating radio waves or electromagnetic fields. The reason is to simplify the discussion. The author never assume that there are essential differences between characteristic properties of anomalous phenomena in the range of visual light and ones in the range of other frequencies.

Generally, it is considered that psi phenomena are influenced by various factors such as physical or mental conditions of subjects and experimenters, environmental factors, cultural background and social situations. In present paper, the author considers chiefly physical mechanism of psi, but its mechanism may be able to be affected by mental or environmental factors. For example, if there are plural mechanisms of psi, different mechanisms are activated possibly depending on tasks or mental conditions of subjects. If so, the results are different in every experiment, therefore we should be confused. The reason to focus on only visual light is to avoid confusion as possible.

2. Photon Detectors

We can classify parapsychological studies with photon detectors as **Table 1**. Photon detectors which were used are photo-chemical devices (plates, films and papers), inner photoelectron (semiconductors) and outer photoelectron (photon multipliers).

Table 1 Examples of Parapsychological Study with Photon Detector

Photon detector	Experimenter/Group	
Photo plate	Fukurai (Japan)	Black and White
Photo film	Many (Japan), Shen (China)	Black and White, Color
Instant photograph	Many (Japan, USA)	Black and White, Color
Photo printing paper	Fudan University (China)	Color
Semiconductor	Miyauchi & Sasaki (Japan)	Si solar cell
	Fudan University (China)	Si solar cell
	Motoyama (Japan)	
	Yunnan University (China)	Si photo diode
Video camera	Sasaki (Japan)	Visicon (Video camera tube)
	Motoyama (Japan)	
	Chinese Academy of Somatic Science (China)	
Photon multiplier	Inaba & Usa (Japan)	Bio-photon
	Yamamoto (Japan)	Bio-photon, Delayed luminescence
	Mokichi Okada Association (Japan)	Bio-photon
	Seto (Japan)	Dark current

The research can be divided into four types depending on the aim or task: 1) the experimental task is to make apparition of light or to make a phenomenon which can cause same effects of light, 2) to detect light near the targets during clairvoyance or psychokinesis; 3) to measure bio-photons or delayed luminescence as an indicator of anomalous effects on a living body; 4) to use a property of the device to monitor anomalous

phenomena (for example, dark current of the photon multiplier decreased by psi). Almost all studies are categorized into 1)-3), but category 4) is less.

3. Task and Photon Detection

3.1 Earliest Study with Photon Detector

In Japan, the earliest parapsychological study with photon detector was done by Tomokichi Fukurai [1869-1952], an associate professor of Imperial University of Tokyo (now renamed to University of Tokyo). He studied on hypnosis and clairvoyance at the first. In 1910, Fukurai used undeveloped letters on an undeveloped photographic plate as clairvoyant targets. He made a copy of the plate as control, and kept it in his laboratory. The plate was shielded strictly and sent to a subject via mail. After clairvoyance, the subject sent Fukurai her answer with the plate which was kept in the original state. The target letters were 哉, 天, 兆 which had been selected at random, and her answer was correct completely. Moreover, Fukurai exposed plates and found anomalous slight exposed signs around letters on the target plate. He considered that those signs had been generated by concentrated consciousness during clairvoyant activity and then named such phenomena as thoughtography. He started experiments of thoughtography; to draw a picture of figures on the undeveloped photo plate only by consciousness^{1,2)}. It is noteworthy that the anomalous light phenomenon was found in an experiment of clairvoyance, not psychokinesis.



Fig. 1 Tomokichi Fukurai

3.2 Light Apparition Task

Thoughtography is a representative of which task is to generate light or to cause a phenomenon which can cause same effects of light (for example, chemical reaction can cause similar effects of light). It is considered that almost all studies of thoughtography have been done in Japan, except studies by [Ted Serious](#) and by Song CL (a Chinese psychic).

In experiments by photo plates and films, the results are static pictures. Clearance of figures depends chiefly on the grade of ability of the subject. In Fukurai's study, clearance of figures increased gradually as subjects developed their abilities (or skills). However, in research of thoughtography, subjects are often suspected to use tricks because their results are too excellent. For example, Mr. Mita, who was a subject of Fukurai, made many remarkable pictures, but researchers doubt his ability at present.

After the finding of Fukurai, various private groups tried to train and experiment thoughtography. However, those groups were not based on universities or institutes. Therefore their interesting results were not well known. In 1972 and 1973, the Association of Nengraphy in Japan (ANJ) published photographic books of thoughtography. The books published results by five different amateur groups; one of them had continued to experiment on thoughtography for more than ten years. Each book shows more than 300 pictures of thoughtography. Tsutomu Miyauchi [1910-1996] was a representative of ANJ. He published books and studied thoughtography eagerly. It is not easy to summarize results of Miyauchi and his groups because their activities consist of enormous various experiments and theoretical considerations. In present paper, the author picks up only several points among their results.

- 1) Color of thoughtography was similar to color of room lighting.
- 2) Thoughtography was successful even without room lighting (dark condition).

- 3) In solar cell experiments, anomalous output of a solar cell was observed only when the subject was aware of existence of the solar cell.
- 4) When the solar cell was shielded against light, there was no output even if thoughtography was successful (**Fig. 2**). Therefore, light appeared actually inside the target case.

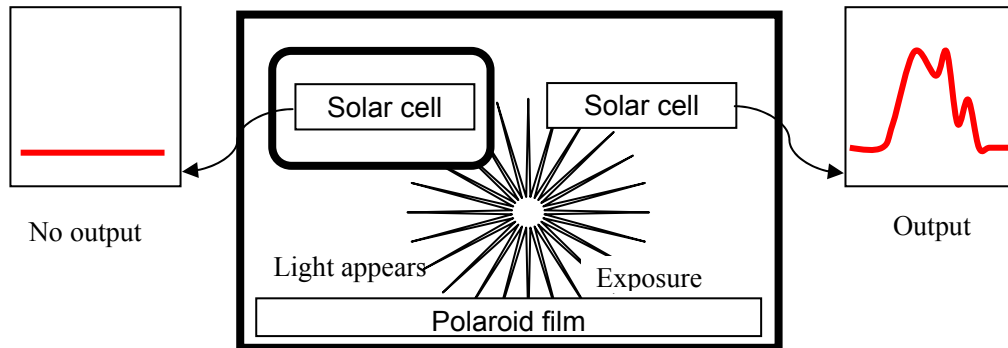


Fig. 2 Schema of Miyauchi & Fukuda Experiment of Thoughtography

- 5) Electrical characteristic of solar cells was changed when anomalous light appeared inside the cells.
- 6) A subject tried to draw a thoughtography of a target figure which was printed on a paper. The experiment was done by an amateur group. They didn't care the backside of the paper at that time. However, a pattern was printed on the backside of the paper. The results, both the target figure and pattern were drawn on a photo film as double exposure. If the subject didn't know the pattern on the backside of the paper, it is suggested that his clairvoyant ability was active for searching around himself during thoughtographic task.

Miyauchi claimed that 1) and 2) were reflections of subject's mind. Indeed, the author agrees with him partially. However, the author considers that they were also reflections of characteristic properties of physical mechanism of psi because of later Chinese studies which will be described at Section 3.4.

High clearance of thoughtography suggests that human being have much potential of psi. It may give us a value to promote parapsychological study. However, complete thoughtography is rather useless to investigate the process of thoughtography. Although it is paradoxical, incomplete thoughtography, which grade of clearance is low, is more helpful than complete one because we can find various stages of making pictures relatively easily.

Photo plates and films are often piled in experiments of thoughtography. Kasahara (1994) reported that plural films in a package of instant photograph were exposed variously by one trial. The author was impressed that some of those pictures were made by moving rays from gaps between film sheets.

Sasaki, Ogawa *et al.* (1978, 1979, 1979), University of Electro-Communications in Japan, attempted to investigate the process of making pictures of thoughtography by a video camera. They asked a subject (Masuaki Kiyota) to do thoughtography on a vidicon (photon receiving tube) of a video camera directly. The results, they succeeded to record movies in which the spots of light appeared and moved while changing their brightness (**Fig. 3**). Diameter of the spot was 0.5-2.0 mm, velocity was 0-8 mm/s. It supports a hypothesis that thoughtography is drawn gradually by the moving spot of light. In fact, many pictures in low grade of clearance give us an impression that they were drawn by moving lights.

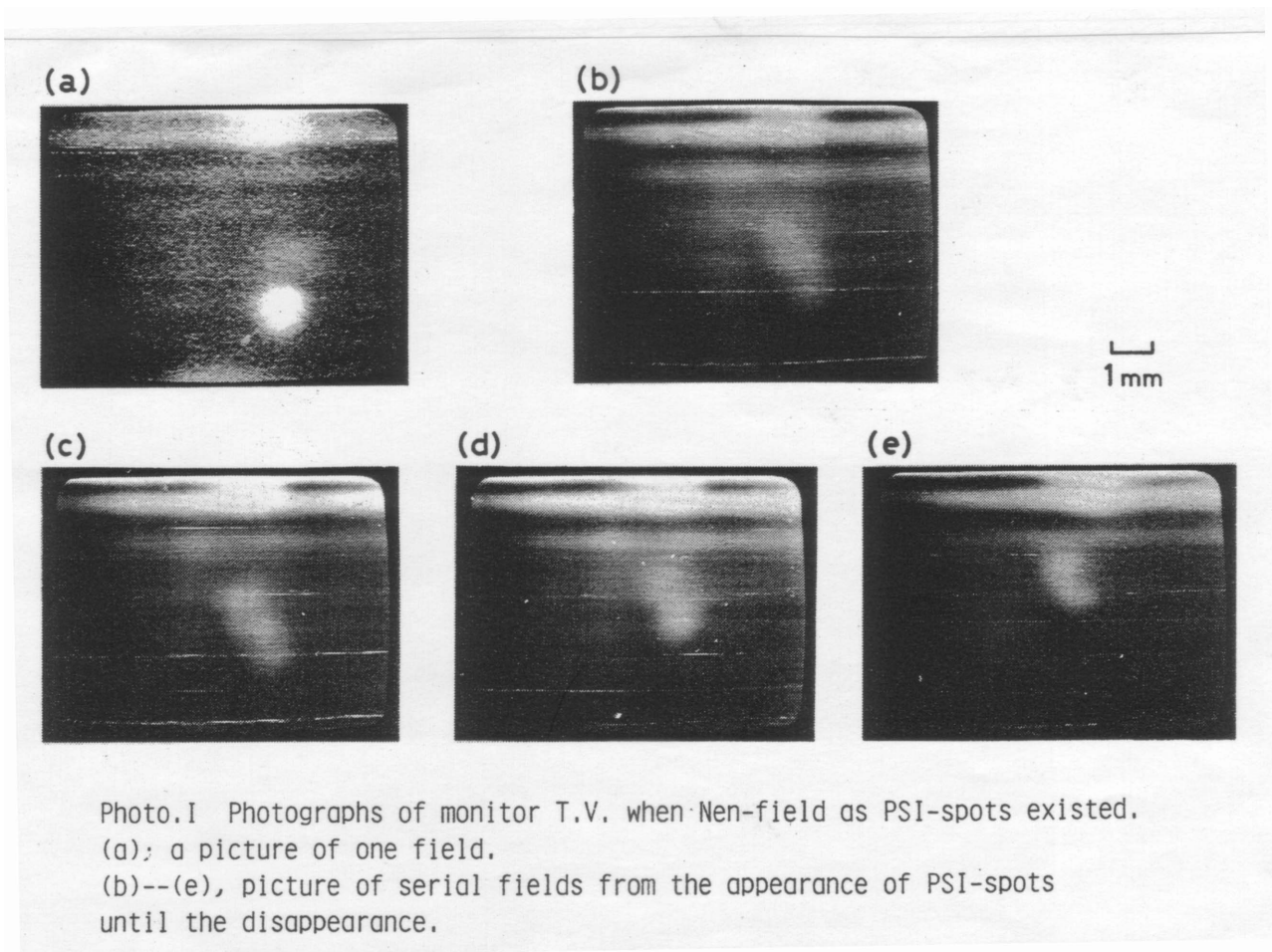


Fig. 3 Moving Spot of Anomalous Light during Direct Thoughtography for Video Camera

Sasaki & Ogawa (1978, 1979) Examinations of Paranormal Phenomena with Psi-spots during Nen-graphy (Thoughtography) Process by Means of TV-Vidicon-Tube, *Journal of Psi Science Institute of Japan*

Sasaki, Ogawa et al. (1977, 1979, 1980, 1981) also experimented by solar cells. They set a silicon solar battery in a small metal case, and then the case was enveloped into a photo dark bag. They observed anomalous signals with overlap waves of 2-28Hz during thoughtographic tasks. Overlap waves of 100Hz were often observed when the experimental environment was not a favorite with the subject. They considered that the overlap waves of 100Hz were caused by room lighting because frequency of power supply was 50Hz. In other words, the lightning environment affected anomalous light. However, they observed anomalous output from the solar cell even on dark condition if the subject tried to let the sensor react.

3.3 Light Emission Task

There are some experiments of which tasks are to increase very weak photon from human body. For example, subjects imagine that their hands emit light; subjects concentrate their consciousness on specific meridian points or charka points on their bodies during meditation. The research methods were the single photon counting and delayed luminescence (DL). However, the successful protocol for this task has not been established yet.

3.4 Detection of Light Accompanying Task

Thoughtography was found as a phenomenon accompanying clairvoyance. Since 1970s, Chinese researchers also detected anomalous lights accompanying clairvoyance and psychokinesis (not thoughtographic task).

A private research group of Fudan University in Shanghai of China (1995) used subjects who were selected after training, and experimented as following that;

Experiment-1: Targets of clairvoyance were color letters on a transparency sheet. The transparency sheet was piled on a color photo printing paper and under a set of fragments of color filters, and then shielded against light. Room lightings were the normal lamp, mercury lamp and sodium lamp. When clairvoyance was successful, the negative images of the target letters were printed on the color photo printing paper. The colors of the images were the same as ones which were exposed by lamps directly. Moreover, when the experiments were done in a dark room on condition that a security lamp lighted on, there was no image on the color photo printing paper even if clairvoyance was successful.

Experiment-2: Targets of clairvoyance or psychokinesis were set near a Si solar cell in a metal can. Under room lightning, anomalous outputs from the solar cell were caused at time when subjects said they felt their conditions were adjusted for the trial or they were sure to succeed the trial. However, there was no anomalous output from the solar cell if experiments were done in a dark room.

Those results are important in consideration of the physical mechanism of psi. At the first, there was a common property with Sasaki's and Miyauchi's studies as the room lightning affected the color of anomalous light. Secondary, each lamp has own component of lights. For example, we feel that the color of the mercury lamp is nearly equal to the color of the normal lamp, but their frequency spectrums were different each other. Therefore, if we expose a color photo printing paper under color filters by lamps, we obtain different results depending on the lamp. The results of Fudan group showed that anomalous lights which appeared on the targets kept own component of lights. Therefore, it is considered that subjects' cognition for colors of lamps did not affect anomalous lights, and the light in the room appeared near the target directly.

Another Chinese research group, Chinese Academy of Somatic Science, monitored the targets by video cameras during various experiments. They reported anomalous lights were observed (1997). For example, in an experiment, the task was a psychokinetic task to break a match which was mediated between two supporting boxes in a shielding case. Also, there were a mini lamp and an infrared video camera to record events. The match was never broken. However it was dropped from the top of supporting boxes. At that time, the target area, including the match and supporting boxes, shined anomalously several seconds and the video movie was disturbed. This anomalous shining phenomenon was very rare. The author was given a chance to view a video movie of it, and impressed that it had been anomalous remarkably.

In Japan, there is a similar result. Motoyama, in Japan, reported that anomalous lights were detected by a video camera and photo diode during meditation (1984, 1986). He measured a subject by various physiological and physical sensors simultaneously in a dark Farady cage. The author was also given a chance to view the video movie. A few anomalous lights appeared and moved around the subject although a light was considered as a reflection on surface of a metal pole.

3.5 Bio-photon as Results of Parapsychological Effects

Bio-photon is the very weak visual light emitted from living bodies, and it is considered to be generated chiefly by chemical reactions in cells. Although our bodies always emit bio-photon forwards outside the body, we can not recognize it by eyes because intensity of bio-photon is very low. To recognize light by eyes, intensity of photon is needed more than several thousands counts per second. While, the photon multiplier tube (PMT) can count numbers of photon one by one*.

** PMT is the most sensitive device for photon detection.*

Usa & Inaba (1995), Tohoku University in Japan, measured bio-photons by PMTs at the forehead and the tip of a finger of a subject during a qigong master emitted external qi quietly from behind the subject. About 10 minutes after starting of emission of external qi, bio-photons of the subject increased at the tip of the finger and oppositely decreased at the forehead.

Parkhomtchouk et al. (2000), Bio-Emission Laboratory in Japan, attempted similar experiments to measure bio-photon by a PMT at the tip of a finger. However, they did not succeed to obtain obvious results. In their experiments, time of task and control trials was 1 minute alternatively. The trial time was possibly too short to detect any effects.

Yanagawa et al. (2000), MOA in Japan, researched effects of non-contact hand therapy (Johrei) by that bio-photon from human skin increased after moxibustion. They used a video camera system which had an image intensifier. Healers did 30-minute therapy 1 hour after moxibustion on the belly of the subjects. The results, bio-photons were decreased and skin temperatures increased during therapy. However, it is difficult to duplicate their results, therefore it is considered as an artifact that skin was stained with ashes of moxa and the ashes emitted photon possibly.

Above results show a possibility that bio-photon is useful as an indicator of effects of non-contact hand therapies "tekazashi" such as external qigong therapy, Reiki and Johrei.

3.6 Using Properties of Detector

Photon detectors are often used as a detector of anomalous abilities.

For example, Seto & Hisamitsu (1993), Showa University in Japan reported that dark current of a PMT decreased from about 2.5 nA to 1 nA for 10 minutes when a psychic emitted external qi to the PMT. At that time, deviation of temperature was less than +/-0.1 degree, therefore the change of dark current was not caused by the change of temperature. Seto & Hisamitsu considered that the decrease of dark current was caused by a decrease of entropy as effects of external qi. However, the author wonders at present whether the decrease phenomenon of dark current occurs rarely or not because the other groups have not reported results of similar experiments yet.

Luo, Zhu et al., Yunnan University in China, have used a Si photo diode as a detector of anomalous abilities (1979). In their experiments, the subjects hold a clairvoyant target in their fist and hold a small can, in which a photo diode is set, in the other fist. They claimed that anomalous electric pulse signals of the photo diode were observed and increased accompanying progression of the task. They use frequency, amplitude and duration (> 1ms) of the pulse as an empirical indicator of the grade of psi abilities of subjects. Luo, Zhu et al. studied electric characteristic properties of photo diode during generating of pulses by a super psychic who could made a large pulse of which duration was about 1minute. The property of photo diode was changed during generating of anomalous pulses. And then, they concluded that the pulse was caused by the change of electric characteristic

property of photo diode, not by photon apparition. Also, when the author visited their laboratory in 1997, Luo and Zhu said that photo diodes were better than PMTs as an indicator of psi ability because PMTs showed saturation easily. It is an interesting and noteworthy comment.

Both Japanese and Chinese researchers concluded that the electric property of photo diode was changed during psychokinetic task. However, Miyauchi considered that light appeared while Luo & Zhu did not consider so. Possibly, the reason of this difference is the difference between their tasks; Miyauchi asked his subject to generate light (thoughtographic task), but Luo & Zhu asked their subjects to read targets by clairvoyance.

3.7 Spontaneous Paranormal Photograph

The author would deal with spontaneous paranormal photographs, but um pequeno. There are many photographs in which spots or belts of light appear. Some are photographs of religious rituals or specific persons who are called as psychics, mediums or shamans. Some are pictures of specific places. And the others are typical snap shots without any paranormal reasons. Also, movie films increase recently. In such films, spots of light appear and disappear and move irregularly. Such spots are often called as Orbs.

The author regards that almost all of such photos and movies are artifacts as follow that;

- 1) Leak. The body of the camera is often warped slightly because of shocks of falling or pressure. Therefore there is a slight gap between the body and the back cover, and leak of light occurs if the camera is exposed by bright sunshine. In this case, a photo film is exposed from backside, and then a red or orange mist appears in a picture.
- 2) Discharge. Similar pictures are obtained rarely if whether is very dry. Because, a discharge of frictional electricity occurs between a film and a back cover when the film is rolled up.
- 3) Optical Ghost.
- 4) Dust. There is much dust in air. Moreover the lens of cameras is dirty usually. Therefore, when we take a picture with a flash, especially if we use a small camera which lens has small diameter, white or semitransparent spots often appear in a picture.
- 5) Reflection of Near Infrared Ray. The imaging unit of video cameras is CCD recently. CCD has sensitivity for visual light and near infrared light. Therefore all CCD video cameras can be used as infrared cameras. (However, it is necessary for some cameras to remove a filter, which cuts infrared, from the cameras). Some video cameras have an infrared lamp of an infrared-emitting diode, and we can make a movie on dark condition. Intensity of infrared ray is in inverse proportion to square of distance. Dust or insects near the camera shine much brightly in near infrared range (we can not recognize them by eyes), and their figures are out of focus. The results, we have a strange movie in which white spots fly around brightly. Of course, digital photo cameras also have CCD units. Therefore, similar artifacts often appear in digital photographs.

There are a few spontaneous paranormal photographs to be discussed, for example, Keen, Ellison & Fontana, 1999. During the sitting, Keen et al. set films, as keeping in the case, in another room near the place of sitting. After the sitting, numerous paranormal figures were found on the films. Some of them were patterns, and some were messages. At present, the author considers it as results of strong group unconscious psychokinesis. If it is so, the author should take care of a possibility that some spots in spontaneous paranormal photographs are results of unconscious psi, not artifacts.

4. Tentative Conclusions

- 1) Light around subjects can appear anomalously near the target during clairvoyance and psychokinesis.
- 2) Subjects can generate light or cause phenomena which cause similar effects of light if they try to do so.
- 3) In focus space or space near subjects' bodies, electric characteristic properties of diode are changed.
- 4) Sensors are more sensitive if they are set near subjects' bodies.
- 5) Apparition of lights is a secondary result of actions of physical mechanism of psi.

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Arrependido. Alguns artigos são escritos em Japonês ou Chinês.

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