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SYNOPSIS

Newton's Inquiry of Nature and its contribution
to the Scientific Revolution*Taiyû NAKAGIRI*

This paper intends to consider the contribution of Newton's scientific inquiries to the scientific revolution in the 17th century. Generally men are too intensely charmed by the great, brilliant results of Newton's scientific inquiry to recognise the significant mode of his inquiry of nature. It must be noted that his contribution to the scientific revolution consists in establishing the new, scientific mode of inquiry of nature. He called his inquiry of nature *experimental*, or *natural philosophy*. Here 'philosophy' means the inquiry of true principles, i. d., laws of nature. It was Newton's firm conviction that the fanciful, empty knowledges of nature, which have been cultivated by the old-fashioned speculations and are as yet rampant, should be revolutionised through his new, experimental philosophy.

Some scholars taking delight in old-fashioned speculations have attributed to the several species of things specific and occult qualities, according to which the phenomena of particular bodies are supposed to proceed in some unknown manner. But whence it is that bodies derive those natures, i. d., occult qualities they don't tell us. Therefore, being entirely employed in giving names to things and not in searching into things themselves, they invented, we may say, a philosophical way of speaking, but they have not made known

to us true principles of things. Their speculative doctrine derived from Aristotle and the Peripatetics is founded on these imaginary, merely nominal principles.

Others have endeavored to apply their labors to great advantage by rejecting that useless medley of words. They assumed that things are composed of material particles. But when they take a liberty of imagining at pleasure unknown figures and magnitudes, and uncertain situations and motions of the particles, they run out into dreams and chimeras, and neglect the true constitution of things, which certainly is not to be derived from fanciful speculations.

Those who assume imaginary hypotheses as first principles of their speculations, although they afterward proceed with the greatest accuracy from those principles, may indeed form an ingenious romance, but a romance it will still be. Newton was convinced that new experimental, or natural philosophy should frame no hypotheses. It assumes nothing as a principle that is not proved by phenomena. He has always insisted that one must not seek from uncertain conjectures, but learn principles of natural phenomena from observations, experiments, and inductions. All sound and true philosophy is founded on principles proved by phenomena. Newton systematically described his inquiries of optical, and dynamical phenomena in his *Optics* and *Philosophiae Naturalis Principia Mathematica*. Every one of his experimental inquiries proceeding from the given phenomena was carried into practice through observation, experiment, and induction. The principles derived from phenomena through these experimental inquiries are nothing else than principles constituting the nature of phenomena. Newton believed that, to revolutionise speculative, empty knowledges of nature, the experimental mode of inquiry is necessary. In this paper I tried to throw light on the points in which his new mode of inquiry had contributed to the revolution of natural knowledges.

Completion of *Kitano Tenjin Konpon Engi*

Masaaki KASAI

Kitano Tenjin Konpon Engi, so called "Jōkyū-bon", is the first scroll-painting illustrating legends about the origin of Kitano Shrine. It has been thought that *Kitano Tenjin Engi* was made in about the first year of the Jōkyū era (1219) but it was left unfinished with the ninth scroll a study drawing.

Professor Shizuichi SHIMOMISE pointed out that the imcompletion of this scroll was due to the Jōkyū-no-hen (1221), and Professor Toyomune MINAMOTO expounded a theory which attributes the initiative for the making of this scroll to Jien and Michiie. Jien was an abbot of the Tendai sect and a brother of Kanezane who was the Kanpaku of Emperor Gotaba, and Michiie was a grandson of Kanezane. Professor Minamoto thinks that this *Engi* not only shows the divine authority of Kitano Shrine but also seems to have other elements. Those elements, he explains, are (1) emphasis on the power of doctrine of the Tendai sect, (2) intension of advocating Kujo-ke, a family of Kanezane and Michiie. He also finds similarities in the content of the *Engi* and *Gukansho*, which Jien wrote.

The purpose of my article is to discuss the creation of this scroll with reference to my study of the *Gukansho* from an intellectual history point of view, re-examining Professor Minamoto's position. Although this view was refuted by Professor Nagao Nishida and it requires further investigation in detail, I have come to the conclusion that Jien might be connected with the creation of *Kitano Tenjin Engi*.

The Effect of Anxiety and Induced Muscle Tension to the Generalization Gradient.

Yoshinori MATSUYAMA

Rosenbaum reported that the anxiety drive raises the level of generalization gradient. In this study, there are examined again the effect of anxiety to the generalization curve, and further the effect of induced muscle tension to it.

Nine polygons from square to circle were used as stimulus cards. the standard card of the fifth polygon was presented to each subject through a tachistoscope with 1/6 seconds, and then eight generalization cards were randomly presented every 60 seconds. Number of identification judgement of standard stimulus and reaction time were used as response measures.

Results were as follows :

- 1) The level of anxiety influenced differentially to the gradient of generalization only when the reaction time was used as measure.
- 2) The level of induced muscle tension influenced differentially to the gradient of generalization only when the number of identification of standard card was used as measure.
- 3) There was found interaction between anxiety and induced muscle tension.

Conflict Tolerance of Neurotics and Schizophrenics

Haruyo HAMA

According to the Worell's hypothesis, the construct of "conflict tolerance" is interpreted as a special case of the generalization of conflict, such that previous conflict experiences are viewed as exerting an effect on response to prevent conflicts. The principal concern here was to determine the roles of stimulus context of conflict training on performance in subsequent similar strong conflict situations. The present study is to aim at the "conflict tolerance" as related to a factor of behavior disorders.

Stroap Color-Word Test cards were used for inducing different degrees of conflict. Schizophrenics, neurotics and normal subjects were used in this experiment. The three subject groups were divided into three experimental groups. Each subject of Group 1 was given strong conflict trainings in succession that of Group 2 was given weak conflict training in succession; each subject of Group 3 was given strong and weak conflict training, alternatively.

As Table 1 shows, the neurotic subjects and the normal subjects showed similar degrees of conflict tolerance, but the schizophrenic subjects showed different tolerance from either of the groups.

Single-Digit Response to Two-Digits Stimulus

Kiyoshi AKITA

Expanding the previously published report (Akita; *Jap. J. Psychol.*, 1967) that counted the frequency of the associated number to each single-digit stimulus from 0 to 9, this reports the frequency of the single-digit response to the two-digits stimulus from 00 to 99 according to the procedure of Underwood & Schulz (1960). A total of 700 men and women undergraduate students enrolled in an introductory psychology course at Doshisha University served as subjects.

Table 1 shows the frequency of the associated digit responses to each two-digits stimulus. Table 2 shows the single-digit responses to each single-digit stimulus. In Table 3, the connective strength among each individual digit of the three-digits number is calculated from Table 1 and 2 according to the method of calculation of the generated trigram devised by Underwood & Schulz.

Significantly, we verified the reliability of Table 1 through the high coefficient of correlation between two response frequencies by the split-half method. The validity of our tabulation was tested by the learning experiment of the serial list which consisted of stimulus items extracted from Table 3. Our result shows that the difficulty of learning is estimated from the degree of connective inter-letter strength, excepting the case of more superior recall of the identical number repetitive items.

It seems from analyzing the contents of responses that the tendency of associated responses to digit stimuli is dependent on the first and second digits, but the second has stronger affinity to the response tendency than the first. It seems that the regular responses

(order of ordinal numbers, repetition of identical digits, reverse order of ordinal numbers, and "100" units) appear more frequent.