GREAT DISCOVERY IN BIOLOGY AND MEDICINE

-Substance of Kyungrak-

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— SUBSTANCE OF KYUNGRAK —

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EDITOR'S NOTE

Professor Kim Bong Han, Head of the Chair of Physiology at the Pyongyang Medical College and his Kyungrak research collective made a great discovery of a new tubular system, the substance of Kyungrak, existing in living bodies, in addition to the hitherto known nervous, blood-vessel, and lymphatic systems.

Premier Kim Il Sung sent a congratulatory message to Professor Kim Bong Han and his Kyungrak research collective praising their exploits which have put Donguihak (Oriental Medicine) enjoying a long history in our country on a firm scientific basis and made an outstanding contribution to the development of modern biology and medicine.

The State Professorship and Degree Conferment Committee awarded professorship and doctor's degree in biology to Kim Bong Han (then assistant professor). The People's Prize Conferment Committee of the Democratic People's Republic of Korea awarded a People's Prize to Professor Kim Bong Han.

This booklet is published to give an outline of the theory of the substance of Kyungrak.

February 1962

CONGRATULATORY MESSAGE
OF
PREMIER KIM IL SUNG

Dear Comrades,

I extend warm congratulations to you all upon your discovery of the substance of Kyungrak and your great scientific exploit in this field.

The success you have scored in the research has put the theory of Dongeuihak (Oriental Medicine) with a long history in our country on a firm scientific and material ground and made an outstanding contribution to the development of modern biology and medicine. This is also a demonstration of the creative talent of the Korean people who enjoy a long-standing cultural tradition. It is another great victory won by the Korean people in the era of Chullima.

The entire Korean people highly praise your exploit and are proud of it as a great success in the scientific development of our country.

With patriotic enthusiasm and indomitable fighting spirit you comrades have scored a brilliant success surmounting all the difficulties and obstacles arising in your research work to implement the task put forth by the Party, which called for inheriting and developing the valuable scientific and cultural heritage left by our forefathers and bringing the science of our country up to the world level at the earliest date.

Your loyalty and faithfulness to the Party and the people have exhibited the noble spirit of the Red scientists and the technicians brought up by the Party, setting an example to all scientists and technicians of the country.

Today, the scientists and technicians are entrusted with an important and honourable task in the struggle for socialist construction, prosperity and development of the fatherland, and the happiness of the people. Our scientists must solve promptly the scientific and technical problems arising in socialist construction and exert all efforts for the development of sciences of our country.

I am convinced that all our scientists and technicians will continue to display earnest patriotic devotion and creative zeal in the scientific research and fulfil with credit the task set by the Party before the domain of science.

I wish sincerely Professor Kim Bong Han and the entire staff of the research group greater success in the honourable scientific research.

Kim Il Sung

February 1, 1962

DECISION NO. 4-a OF THE PEOPLE'S PRIZE CONFERMENT COMMITTEE

February 2, 1962

On Conferment of the People's Prize of the Democratic People's Republic of Korea

The People's Prize Conferment Committee of the Democratic People's Republic of Korea decided to award the People's Prize of the Democratic People's Republic of Korea to Kim Bong Han who has made an outstanding achievement in the study of the substance of Kyungrak.

JUNG JOON TAIK

Chairman of the People's Prize Conferment Committee of the Democratic People's Republic of Korea

LI SE HOON

General Secretary of the People's Prize Conferment Committee of the Democratic People's Republic of Korea

STUDY OF THE SUBSTANCE OF KYUNGRAK
(An Outline)

This paper was read on August 18, 1961 at a scientific conference of the Pyongyang Medical College.

Submitted by
Assistant Professor KIM BONG HAN
Head of the Chair of Physiology, Pyongyang Medical College

FOREWORD

This research work began on the basis of the decision of the Third Congress of the Workers' Party of Korea on inheriting and developing **Dongeuihak** (Oriental medicine), a priceless heritage handed down by our ancestors.

Dongeuihak is a theory originated, examined, and tested by our ancestors in the course of long years' practice of prevention and treatment of diseases.

Dongeuihak which has been cherished from olden times by our people solves remarkably the questions of preventing and treating many diseases which, in fact, modern Western medicine is unable to solve. More, the basic theory of modern Western medicine is inadequately playing the leading role in clinical practice.

Therefore, it is possible to assume that such drawbacks can be made up for through the advance of the existing basic theory of Western medicine as well as the exploration of new spheres.

The modern scientific research in the theory of Dongeuihak, which is an accumulation of rich therapeutic and prophylactic ex-

periences, opens up the great possibilities of exploring a new sphere of medical sciences.

Modern scientific elucidation of the theory of Dongeuihak, therefore, is an indispensable way of inheriting and developing Dongeuihak and a way of bringing radical progress in the medical theory.

There are tendencies among certain scholars of regarding Dongeuihak as a simple experience in treatment or of dissolving it in the theoretical system of Western medicine. But we are opposed to this view. We deem it as the first and foremost task to clarify the material foundation of the basic theory of Dongeuihak more fully by turning to account achievements made by modern sciences.

We carried out our research from such viewpoint.

That the basic concepts of the theory of Dongeuihak have been scarcely grasped by the method of modern natural science creates immeasurable difficulties before the experimental research on the theory of Dongeuihak.

Owing to such situation, the research work by accepted tenets has been almost at a standstill.

In recent years as acupuncture which is amazingly effective has held the particular interest of the medical workers, the study on the bio-electrical nature of **Kyungrak** has been made by many medical workers. They tried to render a modern scientific elucidation to the theory on Kyungrak which is one of the basic theories of Dongeuihak and explains the mechanism of acupuncture. (Cheng Yung-liang, 1958; Lan You-shan, 1958; A. K. Podshibakin, 1956; G. D. Novinski, 1959; Nakaya, 1957.)

We set it our duty, above all, to establish the bio-electrical characteristics of Kyungrak and, on this basis, to discover its substance.

This research work has been conducted by the collective forces of the staff members of the Chair of Physiology, Pyongyang Medical College, and the members of Kyungrak research group of the college research institute. The summary of the research is as follows:

I. BIO-ELECTRICAL RESEARCH INTO KYUNGRAK

According to medical writings at home and abroad it was generally established that the electric resistance of skin in the regions of **Kyunghyul,** as is indicated by the classics of Dongeuihak, is lower than that in other regions than Kyunghyul, and, on this basis, the Kyunghyul detector has been introduced in clinical medicine.

It was also established by Cheng Yung-liang in 1958, by Hsu Feng-yen in 1959 and by A. K. Podshibakin in 1956 that electric potential at the regions of Kyunghyul is higher than that in other regions than Kyunghyul.

We examined such findings, made new findings and began experiments, exploring a new field in this domain.

We used mainly domestic rabbits for our experiments and sometimes dogs, Guinea pigs and frogs. We also made observations in the human bodies.

1. The Method of Electric Induction

We carried on the experiments, continuing the examination into the conditions of electric induction by attaching firmly depolarized zinc or zinc sulfate electrode to the skin. In the case of unipolar induction, depolarized electrode was used as indifferent electrode.

We applied mainly mirror galvanometers with an sensitivity of 10^{-9} A/mm/m and 10^{-12} A/mm/m for experiments.

2. Electric Characteristics of Kyunghyul

A. Direct current resistance in the regions of Kyunghyul

The direct current resistance of skin in the regions of Kyunghyul is about 20,000 to 80,000 ohms and less than that around

Kyunghyul when an electric current of less than 100/μA is used for measurement. The number of ohms varies not only in accordance with the measuring voltage and individual conditions, but the variation becomes greater as the measuring continues even under the more or less same conditions. For example, the variation ranges from 20/μA to as much as 100/μA. Consequently it was not infrequently observed that the electric resistance at the region of **Hyul** grew greater than that in other regions than Kyunghyul.

However, it became clear that this is attended by the active reaction of living body and is largely influenced by the way of measuring when the dynamics of electric resistance of skin are analysed systematically for a long period. What matters in this respect is mainly the time, interval and number of measurings. In case of short measuring with sufficient interval, a stronger electric current flows steadily at the regions of Kyunghyul than in other regions.

These punctures with such electric characteristics are stationary and do not vary.

The distribution of those punctures coincides as a whole with the Kyunghyul distribution outlined in materia medica the **Dongeui-bogam** written in 1610 by Huh Joon, great medical scientist of our country who consummated the theories of his predecessors and developed further their system. But there exist some punctures on **Kyungmaik** outside the regions of Kyunghyul as was shown in the classic writings. For instance, it has been established that there exists another puncture between **Sangyang** and **Igan** punctures on **Sooyangmyung Daijanggyung.**

B. Electric potential of the regions of Kyunghyul

It has been confirmed that the electric potential at the regions of Kyunghyul is higher than that in its surroundings and fluctuates to some extent.

The fluctuation of potential appears in a group of regular waves. One cycle of wave is 3-6 seconds and its altitude is about 0.1 mv. Such wave repeats 5 to 7 times to form a group of waves and there are periods almost without the fluctuation of electrical potential between wave groups. (See Fig. 1)