G-31

The University of Chicago

Department of Physiological Chemistry
and Pharmacology

November 26, 1928

Mr. Frederic Woodward
Office of the President
Faculty Exchange

My dear Mr. Woodward:

It was a very great pleasure to me to be given the opportunity to report our work at the Institute of Chemistry last summer. I wish to thank you both for my husband and myself for your expression of interest in our activities.

Cordially yours,

Elizabeth M. Koch

EK:EM

Elizabeth Koch

C31

November 17, 1928

My dear Mr. Whitmore:

Thank you very much for your letter of November 19 expressing appreciation of the service of Dr. A. L. Tatum and Dr. Elizabeth M. Koch at the Institute of Chemistry held last summer.

Yours cordially

FREDERIC WOODWARD

Acting President

Mr. Frank C. Whitmore
National Research Council
21st Street and G, NW
Washington D.C.

November 17, 1928

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Yours cordially

FREDERIC WOODWARD

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National Research Council
21st Street and B, NW
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November 17, 1928

My dear Mrs. Koch:

I am glad to tell you that I am in receipt of a letter from Mr. Frank C. Whitmore, expressing the deep appreciation of the American Chemical Society in its good fortune in having you as one of the speakers at the Institute of Chemistry last summer.

Yours cordially

FREDERIC WOODWARD

Acting President

Mrs. Elizabeth M. Koch
1534 East 59th Street
Chicago, Illinois

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Acting President

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1524 East 59th Street
Chicago, Illinois

THE INSTITUTE OF CHEMISTRY
OF
THE AMERICAN CHEMICAL SOCIETY

SECOND SESSION
JULY 23-AUGUST 18, 1928
EVANSTON, ILLINOIS

G-31

November 19, 1928

President Fred Woodworth,
University of Chicago
Chicago, Illinois.

Dear President Woodworth:

The second session of the Institute of Chemistry of the American Chemical Society which met last summer in Evanston is now a matter of history. It appears that it served a very useful function in arousing interest in American chemical research and related fields of activity.

The one thing which was more influential than anything else in making this Institute a success was the addresses given by the special lecturers who came to Evanston entirely without expense to the Institute. In other words, a very definite and most important contribution was made by each speaker and by the organization which he represented.

I want to take this occasion as Director of the Institute of Chemistry to express to you our appreciation of our good fortune in having had Drs. A. L. Tatum and Elizabeth M. Koch as speakers at the Institute.

Very truly yours,

Frank C. Whitmore

Frank C. Whitmore

THE INSTITUTE OF CHEMISTRY
OF
THE AMERICAN CHEMICAL SOCIETY

SECOND SESSION
JULY 25-AUGUST 16, 1924
EVANSTON, ILLINOIS

November 19, 1924

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University of Chicago
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Very truly yours,

Frank C. Whitmore

Board - May 12 (Miscellaneous) G 38 patent

COPY

F. C. Koch L. C. McGee

WHEREAS ~~Doctors~~ ~~George Minot~~ and ~~Edwin Cohn~~ appear to have discovered a ~~treatment of pernicious anaemia by the use of~~ physiologically active constituent in testicular tissue, ~~liver,~~ and ~~the~~ a method of extracting the ~~effective substance from~~ same ~~the liver for the purpose.~~

VOTED that with their consent the University apply for a patent, with the proviso that the University shall make no profit therefrom; that the commercial manufacturers shall at such time as may be later determined, be permitted to manufacture and sell the product freely under such supervision as will guarantee its purity, and that excessive profits shall not be charged to the public; it being understood also that the process may be used without restriction for all research and other scientific purposes.

The University hereby expresses the intention, if and as soon as this can be done, of depositing this patent and freely giving its privileges to some central national Governmental body, such as the United States Public Health Service, which will assume the administration of the rights and the protection of the public without profit to the holder of the patent.

COPY

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The University of Chicago

Department of Physiological Chemistry
and Pharmacology

April 28, 1927

The Extraction of a Physiologically Active Substance from Ox Testicles.

Nature of the Problem.

Numerous attempts have been made to obtain from the testes a substance which when introduced into castrated animals would cause the development of certain secondary sex characters. From time to time very extravagant claims have been made as to the potency of such preparations, but until very recently no definite scientific evidence had actually been presented in support of such claims.

It was the need of such evidence which induced Squibb and Sons to place funds for a fellowship for one year in this department in January 1926. Mr. L. C. McGee was appointed as the fellow. The problem agreed upon was to try to obtain from testicle tissue a substance possessing some or all of the physiological properties referred to above. Neither the method of extraction nor the method of measuring the physiological activity were known.

Results Obtained.

Numerous methods of extraction were attempted and various modes of attack were undertaken in the hope of discovering a biological method of detecting and measuring the activity if actually present. We obtained some indications of partial success using certain extracts upon castrated guinea pigs and upon capons, but the results were not sufficiently satisfactory to warrant final conclusions either for or against the theories involved. It was not until January 1927 that we began to obtain clear results upon brown leghorn capons. These have been confirmed repeatedly and have been carefully compared with certain control experiments. The effects of the extract are very striking as shown by the attached photographs.

Program Arranged For.

The results are so striking and the applications thereof in sex studies so obvious that Professor Frank Lillie suggested to us the undertaking of a coöperative program with his group of workers on the sex problems. Mr. McGee and the writer heartily welcomed such a plan and as a result Professor Lillie has this week succeeded in obtaining funds from the National Research Council to support these coöperative investigations.

The University of Chicago

Department of Physiological Chemistry
and Pharmacology

Naturally work of this character when once published will attract considerable attention not only in scientific academic circles but it will also invite possible misuse of the methods and material by certain manufacturers. If manufacturers were left free to do as they pleased with the information it would probably lead to many abuses involving the general public as well as the University. To avoid this Dr. Ludvig Hektoen and Professor W. B. Cannon, both members of the National Research Council Committee for Research in Problems of Sex, urged the advisability of having the University of Chicago patent the method of extraction we have used. If the later work warrants it, and the University sees fit to do so, certain manufacturers can later be licensed to produce the material under the patent.

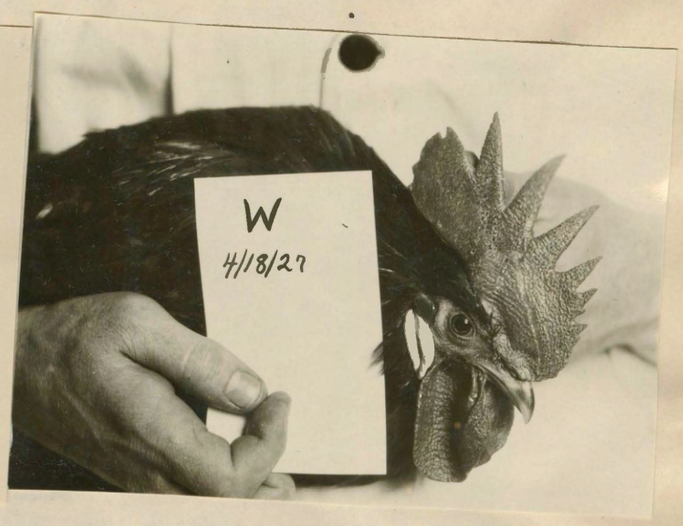
The same policy has been adopted in a number of cases involving similar dangers. Thus the University of Toronto patented the process for insulin extracted, Harvard University has patented the crude liver extract which is a good therapeutic agent in anemia and the Rockefeller Institute has done the same thing on several occasions.

H. C. Koch

The University of Chicago

Department of Physiological Chemistry
and Pharmacology

Showing the atrophy after ceasing the injections and the return to growth on again injecting.



This capon had been injected from 2/1/27 to 2/10/27 with good growth of comb, measurements being:

2/1/27 ---- 4.2 x 7.7 cm.
2/11/27 --- 5.7 x 9.7 cm.

From 2/11/27 to 3/18/27 the injections were discontinued with the results shown.

3/18/27 --- 3.4 x 6.7 cm.

The same capon received injections from 3/18/27 to 4/18/27. Comb measurements:

3/18/27 ---- 3.4 x 6.7 cm.
4/18/27 ---- 7.2 x 11.8 cm.

COPY

HARVARD UNIVERSITY
Medical School

April 27, 1927

Dear Professor Lillie:

Dr. Cannon has written me concerning his conversation with you regarding the discovery of the male sex hormone and the possibility of patenting it and asking me to send you the form of the patent application that we are putting in concerning the effective substance in the liver in the control of pernicious anemia. I do not have any copy of the patent application at hand, and I do not know whether the application has definitely been made or not. I do know, however, that it will follow the general form of the enclosed statement which is the resolution that the Corporation approved of and which President Lowell and I worked out together. You will note that the sole purpose of it is to protect the public against undue price and unsatisfactory production and it specifically makes the process and substance available without restrictions for all research and other scientific purposes. The University also expresses the intention of turning the patent over, if possible, to some central Governmental body. That seemed to me to cover adequately all the reasonable objections to a patent that I have ever heard of and, at the same time, to protect the public. I am temperamentally opposed to patenting for sentimental reasons, but have become quite convinced of the necessity of it through my work on the Council of Pharmacy, and other things, which showed me what constant outrages are perpetrated upon the public by using scientific discoveries of value in disease in a grasping and commercial manner; sometimes making for real hardship; sometimes impeeding the progress of public health; and sometimes grossly exploiting the credulity of the public.

Very sincerely yours,

David L. Edsall, M.D., Dean

Professor Frank R. Lillie,
Department of Zoölogy,
University of Chicago, ILL.

DLE:D

COPY

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Very truly yours,

David L. Edsall, M.D., Dean

Professor Frank R. Lillie,
Department of Zoölogy,
University of Chicago, Ill.

DLE:D

G-28

January 15, 1927

My dear Professor Koch:

I am glad to approve the suggestion, contained in your note of January 6, that the Federal Chemical Laboratories be given the privilege of using some of our special equipment in the determination of hydrogen ion concentration.

Yours sincerely,

Frederic C. Woodward

Professor F. C. Koch
Faculty Exchange

L

January 16, 1927

My dear Professor Koch:

I am glad to approve the suggestion, contained in your note of January 6, that the Federal Chemical Laboratories be given the privilege of using some of our special equipment in the determination of hydrogen ion concentration.

Yours sincerely,

Frederic C. Woodward

Professor F. C. Koch
Faculty Exchange

L

The University of Chicago

Department of Physiological Chemistry
and Pharmacology

January 8, 1927

Mr. F. C. Woodward
Office of the Vice-President

My dear Mr. Woodward:

We have a request from the Federal Chemical Laboratories located here in Chicago expressing a desire to learn the use of some of our special equipment in the determination of hydrogen ion concentration as well as for using the equipment in connection with certain of their studies. This request is made by one of our former students and I recommend that we extend this courtesy to them without requiring the usual registration formalities. not a Ph.D.

Very truly yours,

F. C. Koch

F. C. Koch

FCK:MH

OK H.V.

O.K.

9665

A copy of the list of researches in progress in Physiological Chemistry and Pharmacology as given to Dr. F. C. McLean to aid him in gaining the support of Mr. Flexner.

(c) Cocaine

(2) M. H. Seevers and A. L. Tatum

1926-7 G28

DEPARTMENT OF PHYSIOLOGICAL CHEMISTRY AND PHARMACOLOGY.

(A) Researches in progress under the direction of Dr. A. L. Tatum.

(1) AL L. Tatum and K. H. Collins.
A Study of the Mechanism of Drug Addiction.
(a) Morphine and codeine.
(b) Chloral
(c) Cocaine

(2) M. H. Seevers and A. L. Tatum
A Study of the Mechanism of Cocaine Poisoning.

(3) R. H. Whitehead
A Study of the Quantitative Variations of Active Principles in the Hypophysis Cerebri.

(B) Researches in progress under the direction of Martin E. Hanke.

I. The Chemistry of the Gastric Hydrochloric Acid Mechanism.

With Mr. G. F. Harsh.
The Purification and chemical nature of "Chlor-esterase", an acid-producing enzyme in Gastric Tissue. The distribution of this enzyme in different tissues, and in certain physiological conditions.

With Mr. C. B. Davis -
A comparative study of the amounts of acidity and chloride produced by the action of "chlor-esterase" of gastric and other tissues upon a variety of chloride esters.

With Mr. P. B. Donovan -
The fractional separation and chemical nature of the chlorides, especially organic chlorides, in gastric and other tissues.

II. The Application of the Electrometric Measurement of Oxidation-Reduction Potentials to Certain Biochemical Problems.

With Mr. J. A. Tuta -
(1) A study of oxidases by their effects on the oxidation-reduction potentials of various solutions.
1) The electrometric estimation of tyrosinase and laccase.
2) The mechanism of the action of tyrosinase and laccase.

III. With Mr. R. W. Bates -
The preparation and biochemical properties of various organic phosphates, especially glycerophosphates and hexose phosphates.

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(b) Studies on Protein-dye Combinations.
The Effect of the Chemical Composition of the Protein and of the pH of the Solutions upon the Dye Combinations.
The Application of these Studies to Histological Staining.
The Application of these Studies to the Estimation of Specific Groups and to the Structure of the Protein Molecule.

(2) O. M. Helmer -
(a) Methods of Estimating Trypsin.
(b) Studies on the Purification of Trypsin.

(3) G. V. Hallman -
(a) Chemical changes brought about by Bacterial Action upon Meat Juices.
(b) Factors Affecting this Bacterial Action.

(4) H. G. Holck -
(a) Improvements in the Benzidine Method for Sulphate
(b) The Effect of Various Physiological States upon the Urinary Excretion of Sulphates, total phenols and Uric Acid.

(5) L. C. McGee -
Studies upon Physiologically Active Constituents of the Testicle.

(6) Ruth K. Renter -
Blood Changes in Experimental Rickets in Puppies.

(7) Elizabeth M. Koch and Zella C. Sennewald -
(a) The Effect of Gelatin, other "protective colloids" and various Acids upon the Peptic and Tryptic Digestion of Cacos Milk.
(b) The Effect of such modified Milks upon Gastric Secretion in Pawlow Dogs.

(8) G. F. Cartland -
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(10) Dr. Harry Huber -
The Fractionation of Pollen Extracts as related to Hay Fever.

(11) W. R. Tweedy -
(a) Improvements in the Kramer-Tisdall Blood Calcium Method.
(b) Biochemical Studies on the Purification of the Parathyroid Principle as Measured by Blood Calcium Changes.

(12) Dr. Ida-Kraus-Ragins -
(a) The Tryptophane Estimation ~~of~~ in Proteins.
(b) The Loss of Tryptophane in the Trypsin Digestion of Proteins or Mixtures of Certain Amino Acids.
(c) The Electrolytic Separation of the Diamino Acids.

(13) Dr. G. J. Rich and Kathryn Knowlton -
The Relation of Saliva pH, Urinary Acidity and Inorganic Urinary Phosphates to Various Psychological Observations.

(14) Elizabeth M. Koch and M. Cahan - (In cooperation with the University of Illinois)
Biochemical Studies on the Antirachitic Vitamine.
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(b) Changes in Blood Phosphate Concentration in Experimental Rickets in Rats.

(15) N. L. Hoerr -
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(16) E. Larson -
Biochemical Studies on the Purification of the Oxytocic Principle of the Pituitary Gland.

(17) B. E. L. French -
Adsorption and Purification Studies upon Rennin.

(18) With A. B. Luckhardt and M. M. Weaver
The Separation of Pancreatic Secretin from the Vaso-dilatins

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