

theory, namely, the direct effect of the sex hormone upon the nervous system.

LOH SENG TSAI

THE OTHO S. A. SPRAGUE MEMORIAL
INSTITUTE,
UNIVERSITY OF CHICAGO

TRANSMISSION AND DIFFRACTION OF LIGHT BY NORMAL SERUM AS A FUNCTION OF THE TEM- PERATURE

THE present paper is a résumé of the results obtained by a further step in the systematical study of the psychochemical changes undergone by normal blood serum as a function of temperature.

We have shown previously¹ that: first, an absolute minimum of the viscosity was observed around 56° C., and that the specific viscosity increased rapidly after 58°; second, that the levo-rotatory power, unaffected by temperature up to 55° (for ten minutes' heating) increased abruptly, and that the increase, up to a certain point, was proportional to the temperature. Measurement of the amounts of light absorbed, and scattered at right angle by the molecules and particles in the serum, brought new evidence of the deep physicochemical changes which take place around 55°. The table expresses the results of one series of experiments. (Figures express the readings.)

Heated for	0	5	10	20	40	60 min.
Temperature			52°			
Transmission	57,5	57,5	57,5	57,5	57,5	57,5
Diffusion	125	125	125	125	125	125
Temp.			55°			
Transmission	57,5	57,5	57,5	57,5	57,5	57,5
Diffusion	125	125	125	125	125	125
Temp.			57°			
Transmission	57,5	57,5	58,0	58,0	59,0	60,0
Diffusion	125	125	117	108	95	88
Temp.			58°			
Transmission	57,5	57,5	58,0	58,5	61,0	61,0
Diffusion	125	122	115	105	83	83
Temp.			60°			
Transmission	57,5	57,5	58,0	60,0	63,0	70,0
Diffusion	125	105	96	85	75	56
Temp.			62°			
Transmission	57,5	59,0	60,0	65,0	90,0	101,0
Diffusion	125	95	83	65	53	46 (coag)
Temp.			64°			
Transmission	57,5	60,0	63,0	96,0	140,0	
Diffusion	125	90	73	56	48 (coag)	

In both cases (transmission and diffusion) the figures are proportional to $\log \frac{I_0}{I}$, I_0 being the inci-

¹ P. L. du Noüy, *J. Gen. Physiol.*, 1929, xii, 363; *Ann. Inst. Pasteur*, 1928, xlii, 742 and 1929, xliii, 749; *SCIENCE*, 1929, lxi, 552.

dent light, and I the transmitted or the scattered light.

In the case of scattered light, the ratio $\frac{I_0}{I}$ for a reading of 125 is approximately equal to $\frac{1.000.000}{1}$.

This table shows plainly that, if the optical density of the solution, $\log \frac{I_0}{I}$, increases slowly after 55° is reached, the same ratio decreases very rapidly when it applies to the diffracted light. (Of course, *decreasing* figures express *increases* in the amount of scattered light.)

Ten minutes' heating at 55° determines no increase in the scattered light, but ten minutes at 60° increases it roughly threefold. By applying Lord Rayleigh's formula connecting the amount of scattered light to the volume of the scattering particle, it is possible to express the increase in scattered light in terms of increased volume of the particle.

When this is done, and the data for different temperatures plotted against the time of heating, curves are obtained which show a decided tendency towards flattening when forty minutes are reached. On the contrary, if the same data are plotted against temperature, the curves are parallel and the increase in volume of particles, when the serum is heated for five, ten, twenty and forty minutes, is very nearly proportional to the temperature; *i.e.*, an increase in temperature of one degree determines about the same increase in the volume of the particle, between 57° and 64° C., whether the heating has lasted ten, twenty, forty or sixty minutes. The proportionality is rigorous within the limits of experimental errors—for a heating of ten or twenty minutes. A discrepancy is observed when the heating is kept for forty and sixty minutes. These curves are parallel to those expressing the changes in rotatory power.

One of the practical conclusions to be drawn from these findings is that the study of diffracted light affords a much more sensitive method for the study of phenomena occurring in the serum than that of transmitted light.

P. LECOMTE DU NOÛY

INSTITUT PASTEUR,
PARIS

BOOKS RECEIVED

- CALVERT, ROBERT. *Diatomaceous Earth*. Pp. 251. 70 figs. 46 tables. Chemical Catalog. \$5.00.
CHAMOT, ÉMILE MONNIN, and CLYDE WALTER MASON. *Handbook of Chemical Microscopy*—Volume I. Principles and Uses of Microscopes and Accessories—Physical Methods for the Study of Chemical Problems. Pp. xiii + 474. 162 figs. Wiley. \$4.50.
MILLER, CASPER O. *The Ether in its Relation to the Structure of Matter*. Pp. 240. 35 figs. Henkel Press. \$3.50.
RIES, H. *Economic Geology*. Sixth edition, revised. Pp. 860. 291 figs. Wiley. \$6.00.

INFECTION

With a Virulent Culture

Suppressed by Vitamine-B Feeding

Very remarkable experiments were recently conducted at Yale University Med. School, by Drs. Rose & Cowgill. (Soc. for Exp. Biol. & Med. May.)

A series of healthy animals were injected with living cultures of *Bacillus Welchii*. When the animals received a regular diet, low in vitamine-B, bacteria developed, pus areas were established and *B. Welchii* were found in the blood stream.

But, when an adequate amount of Yeast Vitamine-B Concentrate (Harris) was added to the diet, negative blood cultures were obtained. The authors state: "—This procedure was repeated a number of times over a period of 15 months and the same results obtained."

This is the first instance in the chemistry of immunity, where a factor of the diet has shown such importance in establishing anti-bodies or in combating infectious disease.

Obviously—

YEAST VITAMINE-HARRIS (Tablets)

and

BREWERS' YEAST-HARRIS

(Medicinal Powder)

are indicated in such infections as—Hidden Foci (Suspected or known)

GRIPPE—INFLUENZA—PNEUMONIAS

and isolated pus areas, which often follow these.

Are Pellagra and Herpes Related?

Since Dr. Goldberger (U. S. P. H. Service) cured cases of pellagra with Brewers' Yeast-Harris and Dr. Gerstenberger (Lakeside Hosp. Cleveland) successfully treated Herpes with Yeast Vitamine Tablets (Harris), are these diseases similar in origin and were they cured by "immunity building" or by supplying Vitamine-B deficiency?

BREWERS' YEAST-HARRIS

AND

YEAST VITAMINE-HARRIS (TABLETS)

are indicated in both.

Brewers' Yeast-Harris is biologically assayed, by the white rat method, offering a yeast of known Vitamine-B content.

We also supply Casein and Lactalbumin, highest chemical purity, for researches of precision.

THE HARRIS LABORATORIES

Tuckahoe, New York

**DUKE UNIVERSITY
SCHOOL OF MEDICINE**

DURHAM, N. C.

On October 1, 1930, carefully selected first and third year students will be admitted. Applications may be sent at any time and will be considered in the order of receipt. Catalogues and application forms may be obtained from the Dean.

**BIOLOGICAL and NATURAL
HISTORY MATERIAL**



Zoological Groups
Embryological Slides
Botanical Life Histories
Drosophila cultures

Lamprey larvae (Ammocoetes)
Prices on demand

Catalogs on request: Address

Geo. M. Gray, Curator
Supply Department

MARINE BIOLOGICAL LABORATORY

Woods Hole, Mass., U. S. A.

**JOHNS HOPKINS UNIVERSITY
SCHOOL OF MEDICINE**

The School of Medicine is an Integral Part of the University and is in the Closest Affiliation with the Johns Hopkins Hospital.

ADMISSION

Candidates for admission must be graduates of approved colleges or scientific schools with two years' instruction, including laboratory work, in chemistry, and one year each in physics and biology, together with evidence of a reading knowledge of French and German.

Each class is limited to a maximum of 75 students, men and women being admitted on the same terms. Applications may be sent any time during the academic year but not later than June 15th.

If vacancies occur, students from other institutions desiring advanced standing may be admitted to the second or third year provided they fulfill the requirements and present exceptional qualifications.

INSTRUCTION

The academic year begins the Tuesday nearest October 1, and closes the second Tuesday in June. The course of instruction occupies four years and especial emphasis is laid upon practical work in the laboratories, in the wards of the Hospital and in the dispensary.

TUITION

The charge for tuition for 1930-31 will be \$600 per annum, payable in two installments. There are no extra fees except for certain expensive supplies, and laboratory breakage.

Inquiries should be addressed to the Assistant Dean of the School of Medicine, Johns Hopkins University, Washington and Monument Sts., Baltimore, Md.

Graduates in Medicine who satisfy the requirements of the heads of the departments in which they desire to work are accepted as students for a period not less than three quarters. Tuition charge is \$50 a quarter.

NATIONAL RESEARCH LABORATORIES OF CANADA

The National Research Council of Canada will, in the near future, make the following appointments to the staff of the Division of Pure and Applied Physics of the National Research Laboratories:

- (1) A Junior Physicist or Engineer whose aptitude and training qualify him to undertake research work on problems of heat conduction and insulation.
- (2) A Junior Physicist or Engineer whose aptitude and training qualify him to undertake research work in the field of aeronautics.
- (3) A Junior Physicist whose aptitude and training qualify him to undertake research work in the field of electrostatics.
- (4) A Junior Physicist whose aptitude and training qualify him to undertake research work in the field of X-rays.
- (5) A Junior Physicist whose aptitude and training qualify him to undertake research work in the field of photo-electricity and television.
- (6) A Junior Physicist whose aptitude and training qualify him to undertake research work in the field of ultrasonics.
- (7) A Junior Physicist or Physical Chemist whose aptitude and training qualify him to undertake research work in the field of radioactivity.
- (8) A Research Engineer whose aptitude and training are for work in the field of electrical engineering.
- (9) A Research Mathematician whose aptitude and training have been in the field of mathematics, and who is competent to assist and advise in problems of aerodynamics and hydrodynamics.
- (10) A Research Mathematician whose aptitude and training have been in the field of mathematical or theoretical physics, and who is competent to assist in connection with problems in the field of mathematical physics.

The salaries of the above positions vary upward from \$2,100 per annum, according to the qualifications and experience of the persons appointed. Interested applicants should apply immediately giving references and full particulars as to their scientific training, professional experience, and enclosing a recent photograph. Applications should be addressed to: S. P. Eagleson, Secretary, National Research Council, Ottawa, Canada.

An Introduction to Social Anthropology

By CLARK WISSLER

American Museum of Natural History

A long awaited text presenting the anthropological approach to the study of primitive society. While emphasis is naturally placed on the social aspects of primitive life, attention is paid to all phases of this many-sided subject. Chapters are devoted to the discussion of the community, the biological groups, the economic base, languages, the tribes, the relationship systems, marriage, totemism, animism, magic, mythology, rituals, and the various geographical and cultural techniques and processes.

Professor Wissler presents the latest achievements in anthropological research, and guides the student to an orientation in human society as a whole. \$3.50

Chamberlin and Salisbury's

College Text-book of Geology

Part II. Historical Geology

Rewritten and Revised by

ROLLIN T. CHAMBERLIN and PAUL McCLINTOCK

This part of the older book has been rewritten and brought up to date with the same skill and lucidity that characterizes the revision of the first volume. The revisers have taken special care to get the best maps and illustrations available, and their method of presentation is at once modern and sound. \$3.00

HENRY HOLT AND COMPANY
One Park Avenue New York

New Impression Now Ready

The Foundations of Science

By H. POINCARÉ

Pp. xi + 553.

Containing the authorized English translation by George Bruce Halsted of "Science and Hypothesis," "The Value of Science" and "Science and Method," with a special preface by Poincaré, and an introduction by Josiah Royce. *Price, postpaid, \$5.00.*

THE SCIENCE PRESS

Grand Central Terminal New York, N. Y.

LaMotte Blood Chemistry Handbook



THE greater part of the Book is devoted to specific information about various branches of Blood Chemistry, written by recognized authorities on the subject. Includes charts and tables, and descriptions of LaMotte Outfits now available for Blood Chemistry tests, with full explanations of their applications. A bound volume and a worthwhile reference book for any medical bookshelf. Distribution is naturally limited to the Medical Profession. Simply attach your letterhead or prescription blank to the coupon below and mail today. Your complimentary copy will be mailed at once.



LaMotte Chemical Products Co.
418 Light Street, Baltimore, Md.

Gentlemen:

Please send me a complimentary copy of the new LaMotte Blood Chemistry Handbook.