

A point is marked on the skin about half way between the cardiac and pyloric ends of the stomach. Whenever a wave is seen passing this point the simple key is closed, thus recording it on the drum. A single stroke represents a shallow wave, two strokes a medium and three strokes a deep wave. When the animal shifts its position so as to obscure the view the signal key is depressed until a readjustment of the posture is secured.

A fairly high correlation between muscular movements and gastric peristalsis as postulated by Richter<sup>2</sup> is evident. Frequently in the quiescent animal gastric contractions become shallow or apparently entirely cease. These suddenly become deeper, whereupon the animal at once arouses to activity and carries out sundry movements, such as washing or scratching. More frequently, however, it has been observed that muscular activity immediately precedes rather than follows augmented gastric motility.

A detailed account of the observation will be published later.

MYRON H. POWELSON

DEPARTMENT OF PHYSIOLOGY  
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## THE IOWA ACADEMY OF SCIENCE

THE thirty-ninth annual meeting of the Iowa Academy of Science was held at the Iowa State Teachers College, Cedar Falls, Iowa, on May 1 and 2, 1925.

Officers were elected as follows: *President*, R. I. Cratty, State College; *vice-president*, C. E. Seashore, State University; *secretary*, P. S. Helmick, Drake University; *treasurer*, A. O. Thomas, State University; *editor*, Willis DeRyke, State University; *representative to American Association for the Advancement of Science*, D. W. Morehouse, Drake University.

The following papers were presented:

### BACTERIOLOGY

(Iowa State College Branch, Society of American Bacteriologists.)

*Section Chairman*, Max Levine, State College, Ames.

*Some notes on trickling filters in the purification of creamery wastes*: MAX LEVINE.

*Bacterial decomposition of sugars and acids*: JOHN H. WATKINS.

*Yeasts in bottled carbonated beverages*: W. R. TURNER.

*Effect of reaction on the growth of yeasts*: J. C. WELDIN.

*The development of metallic flavor in buttermilk*: M. P. BAKER and B. W. HAMMER.

*The influence of carbon dioxide on the quality and keeping qualities of butter and ice cream*: F. F. SHERWOOD.

<sup>2</sup> Richter, Comp. Psychol. Monogr., 1922, 1, Serial No. 2, September.

*The production of hydrogen sulphide by bacteria*: F. W. MULSOW and FRED S. PAINE.

*Unsolved problems related to the inoculation of legumes*: LEWIS W. ERDMAN.

*Some bacteriological activities in manures*: A. J. ENGLEHORN.

*Bacteriological activities in an orchard soil*: R. H. WALKER.

*Do we have "niter spots" forming in Iowa?* PAUL EMERSON and DON S. GRAY.

*Teaching the elementary course in bacteriology*: R. E. BUCHANAN.

### BOTANY

*Section Chairman*, G. W. Martin, State University, Iowa City.

*Genetic correlation between fruit size and color in the tomato*: E. W. LINSTROM.

*Some *Aminitis* from eastern Iowa*: G. W. MARTIN.

*Notes on Iowa fungi—1924*: G. W. MARTIN.

*Some soil and moisture relationships of sweet gum and river birch in southern Maryland*: FRED B. TRENK.

*The occurrence of hickories in Iowa in relation to soil types*: FRED B. TRENK.

*The formation of root hairs in water*: CLIFFORD H. FARR.

*Ceratophyllum demersum in West Okoboji lake*: EDWARD N. JONES.

*Microsporogenesis in *Cucurbita maxima**: EDWARD F. CASTETTER.

*Chromosome studies of *Zea Mays* L.*: R. G. REEVES.

*An abortive lily anther*: CHARLES A. HOFFMAN.

*Some wound responses of citrus leaves*: ROBERT B. WYLIE.

*Culture studies on *Psilocybe coprophila**: KATHRYN GILMORE.

*A partial list of the parasitic Ascomycetes of Iowa*: JOSEPH C. GILMAN.

*A trip in the Iron Range Country*: L. H. PAMMEL.

*Some notes on the flora of Forest and Florence counties, Wisconsin, and Iron county, Michigan*: L. H. PAMMEL.

*Germination of some pines and other trees*: L. H. PAMMEL and C. M. KING.

*Our native plants (an article appearing in the Iowa Farmer and Horticulturist, Vol. 1, No. 7, Nov., 1853)*: L. H. PAMMEL.

*A provisional list of the species of *Septoria* in Iowa*: B. N. UPPAL.

*A tree census of Mount Pleasant, Iowa*: H. E. JAKUES.

*The physiographic ecology of a Wisconsin drift lake*: LOIS A. CATLIN and ADA HAYDEN.

*Iowa in the botanical manuals*: B. SHIMEK.

*Deforestation and stream pollution*: B. SHIMEK.

*Some noteworthy Iowa fungi of 1925*: GUY WEST WILSON.

### CHEMISTRY

(Iowa and Ames Sections, American Chemical Society.)

*Section Chairman*, George Coleman, State University, Iowa City.

*Nutritive value of powdered milk together with observations for a new vitamine for reproduction*: L. T. ANDEREGG and V. E. NELSON.

*Cod liver oil as a source of vitamine A*: GEORGIAN ADAMS, L. T. ANDEREGG and V. E. NELSON.

*Some dolomites*: N. KNIGHT.

*The need of computation rules in chemical calculations*: STEPHEN POPOFF.

*The action of certain oxidizing agents on sulfite and its determination*: W. S. HENDRIXSON.

*Microstructure of paint films*: H. L. MAXWELL.

*Condensations with alkylene bromides*: H. F. LEWIS and CHARLES FORDYCE.

*Bromination of methyl-4 acetylaminophenyl ketone*: L. CHARLES RAIFORD and H. L. DAVIS.

*Vanadium oxytrichloride as a solvent*: F. E. BROWN and J. E. SNYDER.

*Conductance in liquid hydrogen sulfide solutions*: G. N. QUAM and J. A. WILKINSON.

*The determination of the equilibrium constant for the reaction,  $2SO_2 = SO_3 + S$ , at the temperature of boiling sulfur*: W. R. SKIDMORE and JACOB CORNOG.

*The effect of temperature and solvent on nitrogen trichloride additions: acetylene hydrocarbons and nitrogen trichloride*: G. H. COLEMAN, C. N. OWENS and J. A. RODRIGUEZ.

*The reaction of nitrogen trichloride with various types of olefine hydrocarbons*: G. H. COLEMAN, A. W. CAMPBELL and G. M. MELLINS.

*Determination of total acidity in the presence of substances which make indicators or hydrogen electrodes useless*: STEPHEN POPOFF and M. J. MCHENRY.

*Decomposition of hydrogen bromide by the silent electric discharge*: ANSON HAYES and J. J. CANFIELD.

*Scale formations in water cooling systems of refrigerating machines*: EDWARD BARTOW.

*The preparation of pure octane*: H. F. LEWIS and G. ROBERT YOHE.

*The preparation of pure di-isobutyl*: H. F. LEWIS and J. WESLEY FLEMING.

*The mechanism of the reaction between nitro compounds and organo magnesium halides*: HENRY GILMAN and ROY MCCrackEN.

*A comparison of the food values of Iowa winter apples*: PAUL W. FRISK.

*Systems formed by certain inorganic compounds with liquid sulfur dioxide*: HOWARD T. BEACH with P. A. BOND.

*Vitamine A and longevity*: J. H. HANSBROUGH, V. E. NELSON and E. I. FULMER.

#### GEOLOGY

*Section Chairman*, Glenn Dillé, Coe College, Cedar Rapids.

*A Ceraurus pleurexanthemus Green, from McGregor*: A. O. THOMAS.

*Notes on some Paleozoic Echinoderms*: A. O. THOMAS.

*An unusual oolite near Hayfield, Frederick county, Virginia*: A. S. FURCRON.

*The Mississippian-Pennsylvanian and Pennsylvanian-Pleistocene unconformities in Lucas county, Iowa*: A. D. LUGN.

*Some large glacial boulders in Des Moines county, Iowa*: A. L. LUGN.

*A general description and history of the Macbride collection of fossil Cycads at the State University of Iowa*: GRACE ELIZABETH NEBRO.

*Glacial geology of Story county, Iowa*: JOHN E. SMITH.

*Deep well at Morning Sun*: J. M. LINDLEY.

*The Cambrian of the Mauston Quadrangle, Wisconsin*: WILLIAM F. V. LEIGHT.

*Stratigraphic value of volcanic ash*: CHARLES KEYES.  
*New method of precise geological correlation*: CHARLES KEYES.

*Stone axes from Adel*: JAMES H. LEES.

*The occurrence of caliche in Oklahoma*: JOHN T. LONSDALE.

*Physical features of the Hawaiian islands*: CHESTER K. WENTWORTH.

*The Indians of the Fort Apache region*: ALBERT B. REAGAN.

*Sedimentary processes on volcanic islands*: CHESTER K. WENTWORTH.

*Translocation of Iowa's Siouan mountains*: CHARLES KEYES.

*Moulding sand in eastern Iowa*: JOHN E. SMITH.

*Climaticnites fosteri from the Mauston Quadrangle, Wisconsin*: WILLIAM F. V. LEIGHT.

*The Deep Creek reservation and its Indians*: ALBERT REAGAN.

#### MATHEMATICS

(Iowa Section, Mathematical Association of America.)

*Section Chairman*, Ira S. Condit, State Teachers College, Cedar Falls.

*Experiments with small numbers of observations*: G. W. SNEDECOR.

*On the numerical effect of certain variations in the assumptions relating to the distribution of unknown probabilities in the inversion of the Bernoulli theorem*: H. L. RIETZ.

*Notes on algebraic deficiencies*: J. V. MCKELVEY.

*The locus of the centers of the conics through four real points*: H. K. HUGHES.

*The members of the system of conics passing through four real points*: H. K. HUGHES.

*An application of Rolle's theorem to functions of finite genus*: MARIAN E. DANIELLS.

*Address by the retiring chairman: The determination of mathematical ability*: E. R. SMITH.

*Sufficient conditions for the periodicity of the solutions of certain functional equations*: W. H. WILSON.

*The rule of double position*: J. S. TURNER.

*Some properties of prolate spheroids*: J. S. TURNER.

*On a line similar to Simpson's line*: ROSCOE WOODS.

*Two theorems on annuities*: JOHN F. REILLY.

## PHYSICS

Section Chairman, C. J. Lapp, State University, Iowa City.

*The optical properties of zinc crystals:* M. E. GRABER.

*Economical filtration in deep x-ray therapy:* SCOTT W. SMITH, JR.

*A new electrostatic friction machine:* JAY W. WOODROW.

*Studies on the effect of ultraviolet rays upon yeast metabolism. 1. The effect of ultraviolet upon the medium:* A. C. BAILEY, J. W. WOODROW and ELLIS I. FULMER.

*Hall effect and specific resistance in thin evaporated films of Fe, Co, Ni, Pd and Pt:* H. B. PEACOCK.

*Criticism of a theory of electrical resistance:* JOHN A. ELDRIDGE.

*Study of an objective achievement examination in physics:* C. J. LAPP.

*A study of examination methods:* C. J. LAPP.

*Quantitative measurements on the transmission in solid acoustic wave filters with varying physical dimensions:* H. F. OLSEN.

*The action of an orifice in an acoustic conduit and a means of determining the effect of viscosity:* G. W. STEWART.

*The position of the vibrating source in the Kundt's tube experiment:* G. W. STEWART.

*The action of cylindrical tubes in branch acoustic lines:* G. W. STEWART.

*Magnetic properties of iron films electrically deposited:* E. P. T. TYNDALL.

*Thermoelectric effect in single crystal zinc wires:* E. G. LINDER.

*Optical constants of molybdenite in the ultraviolet:* A. W. MEYER.

*Optical constants in single crystal bismuth:* L. H. ROWSE.

*An attempt to detect a predicted pressure effect in gases:* GEORGE E. DAVIS.

*The diffraction of x-rays by liquids—an experimental test of the theory of Raman and Ramanathan:* E. HOBART COLLINS.

*The growth of chickens as affected by the sunlight transmitted through glass substitutes:* L. V. CRUM and JAY W. WOODROW.

*A table of wavelengths of electromagnetic radiation from zero to infinity:* A. C. BAILEY.

*Iowa and the eclipse of 1869:* BEN H. WILSON.

## PSYCHOLOGY

Section Chairman, E. O. Finkenbinder (pro-tem.), State Teachers College, Cedar Falls.

*Objective study of the vocal art:* MILTON METFESSEL.

*Studies in motor rhythm:* ROBERT H. SEASHORE.

*Placement examinations:* GEORGE D. STODDARD.

*Refractory phase of the visual mechanism at low intensities:* ROLAND TRAVIS.

*The measurement of talent in graphic art:* NORMAN MEIER.

*Conditioning of sex behavior in white rats:* HAROLD R. FOSSLER.

*Causes of elimination of students in the engineering college:* OLIVER OHMANN.

*Sound localization: a critique of method:* C. A. RUCKMICK.

*Objective study of speed and accuracy in typing:* A. ACKERSON.

*Muscular fixation in the stutterers under emotion:* LEE TRAVIS.

*Involuntary tongue movements under varying stimuli:* M. GEORGE SCHECK.

## ZOOLOGY

Section Chairman, F. A. Stromsten, State University, Iowa City.

*Certain body temperature changes in the snapping and painted turtles:* F. M. BALDWIN.

*Flesh fly larvae as an indicator of hypophyseal effects:* T. L. PATTERSON.

*Temperature studies made on Lake Okoboji during the summer of 1924:* F. A. STROMSTEN.

*The nutritional effects of feeding potassium salts to pregnant ewes:* JOHN M. EVVARD, C. C. CULBERTSON, A. R. LAMB and W. E. HAMMOND.

*The protein requirements of practically mature fattening cattle:* C. C. CULBERTSON and JOHN M. EVVARD.

*Protein requirements of lactating sows with litters:* Q. W. WALLACE and JOHN M. EVVARD.

*The robber crab (*Birgus latro*) with special reference to its respiratory system:* C. C. NUTTING.

*The 1924 outbreak of brood A of white grubs in Iowa:* H. E. JAQUES.

*An ecological survey as a means of obtaining a background for certain morphological problems:* DAVID T. JONES.

*Model showing the protractile apparatus of the mouth of the pumpkinseed sunfish, *Eupomotis gibbosus* L.:* DAVID T. JONES.

*The swim-bladder of a 65 mm garpike (*Lepidosteus platystomus*) embryo:* GEORGE E. POTTER.

*Winter bird records of Chickasaw and adjacent counties:* CHAS. J. SPIKER.

*Trapping birds at Iowa City during 1924:* DAYTON STONER.

*Some observations on the habits of leeches:* CATHARINE MULLIN.

*Some additional observations on *Sphenodon punctatum* in captivity:* WARREN N. KECK.

*Certain correlations between physical vigor and mental aptitude:* AVA L. JOHNSON.

*Results of life history studies of the striped cucumber beetle, *Diabrotica vittata* Fabr.:* HARVEY L. SWEETMAN.

*The trapezius muscle of the ganoid fishes:* H. W. NORRIS.

*A list of the birds of Iowa based on thirty years' collecting in the state:* GEO. H. BERRY.

*The coral reefs of Fiji:* C. C. NUTTING.

P. S. HELMICK,

Secretary