

cept for an interval of four years has been associated with the department of mining and metallurgy since 1900.

### THE AMERICAN MEDICAL ASSOCIATION AND THE ANTI-TRUST LAW

ACCORDING to press reports a Federal jury on April 4 found the American Medical Association and the Medical Society of the District of Columbia guilty of Anti-Trust Law violation, but acquitted eighteen individual defendants in the case. The jury deliberated about eleven hours.

The government charged that the two organizations and the individual physicians entered into a conspiracy in restraint of trade and interfered with operations of the Group Health Association, a cooperative organization giving medical service to government employees for a monthly advance fee.

Defense attorneys contended that the practice of medicine was not a "trade," as defined in the Sherman

Anti-Trust Act. Defense witnesses testified that they did not act in conspiracy in declining to cooperate with Group Health.

The original defendants in the indictment, returned in December, 1938, included the Harris County Medical Society, Texas, and the Washington Academy of Surgery, but Justice Proctor ordered their acquittals on the ground of insufficient evidence.

On April 5 the counsel for the American Medical Association announced that it would contest the verdict.

Among those acquitted are the following officers of the American Medical Association: Dr. Olin West, secretary and general manager; Dr. Morris Fishbein, editor of the *Journal* of the association; Dr. William D. Cutter, secretary of the Council on Medical Education and Hospitals; Dr. Rosco G. Leland, director of the Bureau of Medical Economics, and Dr. William C. Woodward, formerly director of the Bureau of Legal Medicine and Legislation.

## SCIENTIFIC NOTES AND NEWS

THE American Academy of Arts and Sciences has awarded the Rumford gold and silver medals for 1941 to Dr. Vladimir Kosma Zworykin, director of the Research Laboratory of the Radio Corporation of America, in recognition of his work on photocells and their application, the development of television and of the electron microscope.

THE bronze medal for distinguished literature in the field of nature was presented to Louis J. Halle, who wrote "Birds Against Men," by the John Burroughs Association at the annual meeting of the association which was held at the American Museum of Natural History on March 29.

THE Wildlife Society has made its annual award for the outstanding paper of the year 1940 to Dr. Paul L. Errington, Mrs. Frances Hamerstrom and F. N. Hamerstrom, Jr., for their research bulletin on "The Great Horned Owl and Its Prey in North Central United States." The award is in the nature of an engrossed scroll and a citation in *The Journal of Wildlife Management*.

FOR his series of studies in the financing of European school systems, Dr. Fletcher Harper Swift, professor of education at the University of California at Berkeley, has been given an award of merit by the American Educational Research Association. This work was made possible through grants from the General Education Board and the Carnegie Foundation for the Advancement of Teaching.

AT the annual general meeting of the British Institute of Chemistry the Meldola Medal was awarded to

Dr. Ewart Ray Herbert Jones, assistant lecturer in organic chemistry in the Imperial College of Science and Technology.

THE British Institution of Mechanical Engineers has awarded the Hawksley Gold Medal to Dr. F. D. Smith and bronze replicas of the medal to his co-authors, E. H. Lakey, H. Morgan and C. A. Luxford, for the following papers: "The Admiralty Cathode Ray Oscillograph Engine Indicator" by F. D. Smith, E. H. Lakey and H. Morgan; "Basic Principles in the Design of Cathode Ray Oscillograph Engine Indicators" by F. D. Smith and "Stress Measurement by Magnetostriction" by F. D. Smith and C. A. Luxford.

DR. RICHARD LIGHTBURN SUTTON, JR., assistant professor of dermatology at the Medical School of the University of Kansas, has been elected a fellow of the Royal Society of Edinburgh. Dr. Sutton's father, professor of dermatology at the School of Medicine, is also a fellow of the society.

AT the annual meeting on March 31 of the members of the Philadelphia College of Pharmacy and Science, Dr. Ivor Griffith, dean of pharmacy at the college, was elected to the presidency of the institution. He succeeds Dr. Wilmer Krusen, formerly director of Public Health of the City of Philadelphia, who has served as president of the college since 1927 and has been elected president emeritus.

DR. I. SCHOUR, of the Dental College of the University of Illinois, was elected to the presidency of the International Association for Dental Research at the recent St. Louis meeting. Other officers for the cur-

rent year are Dr. C. F. Bödecker, president-elect, Dr. Philip Jay, vice-president, and Dr. E. H. Hatton, secretary-treasurer.

A WIRELESS dispatch to *The New York Times*, dated from Vichy, France, April 2, reads: "Professor Paul Langevin, French physicist, who holds a Nobel prize, and Professor Paul Rivet, naturalist, are retired by order as of February 19, according to an announcement to-day in the *Journal Officiel*. They are entitled to pensions. Both were suspended early in the new régime for communistic activities."

DR. CHARLES H. BEHRE, JR., professor of economic geology and chairman of the department at Northwestern University, has been appointed professor of economic geology at Columbia University.

DR. FOLKE SKOOG, research associate at Harvard University, has been appointed assistant professor of plant physiology in the newly organized department of biology at the Johns Hopkins University, the appointment to take effect on September 1.

THE Carnegie Corporation has made a grant of \$5,000 to the University of Minnesota for the continued support of investigations of viruses in relation to cell growth, conducted under the direction of Dr. Robert G. Green, professor of bacteriology at the university.

THE "Dental Science and Art" grant-in-aid of the International Association for Dental Research has been awarded to Dr. H. A. Zander to aid in the completion of his work on the penetration of silver nitrate into the tooth dentin.

OSKAR WINTERSTEINER, assistant professor of biochemistry at Columbia University, has been appointed head of the Division of Organic Chemistry at the Squibb Institute for Medical Research, New Brunswick, N. J., beginning on July 1. He takes the place of Dr. Erhard Fernholz, who had been missing since December 14 and whose body was found on March 15 in Lake Carnegie, near his home in Princeton, N. J.

GEORGE HARTNELL, for thirty-three years a magnetician in the U. S. Coast and Geodetic Survey, retired from active service on March 31. He was in charge of the magnetic observatory of the bureau at Vieques, Puerto Rico, from 1908 to 1911, and directed the work of the base magnetic observatory at Cheltenham, Md., from 1911 to 1934. For the past seven years he has devoted full time to research projects which had been planned but only partially developed during previous assignments. Some seventy-five friends of Mr. Hartnell, from the U. S. Coast and Geodetic Survey, the Department of Terrestrial Magnetism of the Carnegie Institution of Washington and the neighborhood about Cheltenham, assembled

at the observatory on his last day of service for retirement ceremonies, at which a typewriter was presented to him.

DR. LEONARD G. ROWNTREE, chief of the medical division of the Selective Service System, has announced the formation of a Medical Advisory Council the members of which will cooperate with national headquarters on problems connected with the examination of registrants. Members of the council are: Dr. Francis X. McGovern, chairman of the executive board of the Medical Society of the District of Columbia and chairman of the committee on medical preparedness of the American Medical Association; Dr. Henry C. MacAtee, past president of the Medical Society of the District of Columbia, a delegate to the American Medical Association; Dr. Thomas Stephen Cullen, professor emeritus of gynecology, the Johns Hopkins Medical School, trustee of the American Medical Association; Dr. Harvey Brinton Stone, associate professor of surgery, the Johns Hopkins University; member of the committee on medical preparedness of the American Medical Association; Dr. Robert A. Beir, secretary of the Medical Advisory Council and liaison officer between the council and national headquarters of the Selective Service System; Theodore Wiprud, executive secretary of the Medical Society of the District of Columbia and secretary to the committee on medical resources of the District Medical Society.

DR. HOWARD P. DOUB, of the Henry Ford Hospital at Detroit, has become editor of *Radiology*, succeeding Dr. Leon J. Menville, editor of the publication since 1931.

DR. GEORGE CRILE, emeritus professor of surgery at Western Reserve University, and Mrs. Crile, were passengers on the Eastern Airline plane that was wrecked in a Florida swamp shortly after leaving Miami on April 3. They suffered only minor injuries.

DR. OSCAR RIDDLE, of the research staff of the department of genetics of the Carnegie Institution, Cold Spring Harbor, N. Y., returned on March 24 from attendance at the Second Pan American Congress of Endocrinology held in Montevideo from March 5 to 8.

DR. ALFRED BLALOCK, who was recently appointed professor of surgery at the Johns Hopkins University, gave the Eastman Memorial Lecture at the School of Medicine and Dentistry of the University of Rochester on March 7. His subject was "Shock."

DR. MAX MASON, chairman of the Observatory Council of the California Institute of Technology, delivered the annual lecture before the Eta of California Chapter of Phi Beta Kappa, at the University of California at Los Angeles, on April 2. The subject

of Dr. Mason's address was "The Telescope and Our World To-day."

DR. A. C. IVY, professor of physiology and pharmacology at the Medical School of Northwestern University, will be the speaker at the annual meeting of the Chicago Academy of Sciences on April 14. His address will be entitled "The Gastro-intestinal Hormones and Their Uses."

PROFESSOR DOUGLAS JOHNSON, of Columbia University, addressed the Royal Canadian Institute, Toronto, on the evening of March 29, giving an illustrated lecture on "Topography in Relation to Military Strategy." On the same day he discussed informally with graduate students in geography at the University of Toronto, some problems of graduate instruction and on March 30 he discussed with graduate students in geology certain relations of the peace settlement of 1919 to the present conflict and future world peace.

At the meeting of the American Association of Physical Anthropologists, held in conjunction with the fiftieth anniversary of the University of Chicago, the annual public address made after the dinner on April 7 was given by Dr. Aleš Hrdlička, of the U. S. National Museum. His subject was "Physical Characteristics of the Alaskan and Siberian Peoples."

AN Astronomical Conference on "The Fundamental Properties of the Galactic System" will be held at the New York Academy of Sciences at the American Museum of Natural History on May 2 and 3. Dr. Harlow Shapley, director of the Harvard Observatory, will preside.

A CELEBRATION of the semi-centennial of the founding of carbohydrate chemistry by the discoveries of the late Emil Fischer, German organic chemist, Nobel laureate in 1902, was held on April 10 at the St. Louis meeting of the American Chemical Society. Emil Fischer's son, Dr. Hermann O. L. Fischer, research professor of organic chemistry at the Banting Institute of the University of Toronto, was the honorary chairman of a commemoration symposium on that day. Dr. Claude S. Hudson, of the National Institute of Health, Washington, D. C., who at the opening general session of the society on April 7 received the Borden Company award of \$1,000 for his work on milk sugar, was the first speaker in the symposium. He reviewed Emil Fischer's work on the configuration of glucose. The speakers included Drs. Carl F. Cori and Gerty T. Cori, of the department of pharmacology of the School of Medicine of Washington University, St. Louis, who spoke on "The Enzymatic Synthesis of Polysaccharides"; Dr. H. A. Spoehr, chairman of the division of plant biology of the Carnegie Institution of Washington at Stanford University, who spoke on "The Origin and Transfor-

mation of Carbohydrates in Plants," and Dr. Karl P. Link, of the Wisconsin Agricultural Experiment Station, whose subject was on "The Chemistry of the Hexuronic Acids."

At the annual general meeting of the American Philosophical Society there will be on April 25 a symposium on "Recent Advances in Psychology." The subjects and speakers are as follows: "The Nature of Association," Dr. Wolfgang Köhler, professor of psychology, Swarthmore College; "Correlated Developments in Neurology and Psychology," Dr. Karl Spencer Lashley, research professor of neuropsychology, Harvard University; "The Genesis of Behavior Form in Fetus and Infant," Dr. Arnold Gesell, professor of child hygiene, Yale Graduate School, and director of the Clinic of Child Development of the Yale School of Medicine; "Mental Abilities," Dr. E. L. Thorndike, professor of educational psychology, Teachers College, Columbia University; "Psychoanalysis and the Scientific Method," Dr. Carney Landis, associate professor of psychology, Columbia University, and principal research psychologist of the New York State Psychiatric Institute and Hospital, and "Psychology and Defense," Dr. Robert M. Yerkes, professor of psychobiology, Yale School of Medicine. The Penrose Lecture will be delivered in the evening by Dr. Edward C. Tolman, professor of psychology at the University of California, who will speak on "Motivation, Learning and Adjustment."

IN the footnote to the article entitled "Dr. Dayton C. Miller and the Popularization of Science" printed in the issue of SCIENCE for April 4, page 319, the institution in which Dr. H. W. Mountcastle is professor should have been given as Western Reserve University.

DR. CHARLES L. PARSONS, secretary of the American Chemical Society writes: "In making up the account of the American Chemical Society awards which you did for printing on page 299 of the March 28 issue of SCIENCE, an error occurred which perhaps is not strange unless you have a definite understanding of our procedure. Our Nominating Committee, so-called, for the Eli Lilly and Borden Awards, indeed all of our awards, do not in any way choose the recipients of the prizes. This is done by a definite Award Committee, which in the case of the Borden Award consisted of Drs. F. A. Gortner, J. H. Northrop, R. J. Anderson, E. V. McCollum, F. C. Blanck and Edwin Sutermeister; and for the Eli Lilly Award, Drs. Vincent du Vigneaud, Paul E. Howe, William C. Rose, M. B. Visser, Wm. Mansfield Clark and Edwin J. Cohn. They were the ones who chose the recipients of the awards. The duty of the Nominating Committee is simply to ask for nominations or suggestions from individuals who make these nominations as individuals and send

them to this office with the necessary accompanying data. These are turned over by me directly to the Award Committees who make the choice. The Nomi-

nating Committees themselves have no power of choice, and indeed never in the remotest way indicate preference for one individual over another."

## DISCUSSION

### THE DECREASE IN VASCULARITY OF HUMAN HEARTS AND KIDNEYS BETWEEN THE THIRD AND SIXTH DECADES

For comparison with diseased organs the vascular beds of apparently normal hearts and kidneys were studied by perfusion. A striking finding was a decrease in flow per gram per minute in the organs of people aged 45 to 60 as compared with those 18 to 32. This amounted to 22 per cent. in the hearts, 32 per cent. in the kidneys, although there was no decrease in the average weights of the organs. Minimal changes were apparent in the arteries histologically, and the roentgenograms of the injected arterial beds appeared to be normal in the older group. Reports in the literature indicate a decline of 8 per cent. or less in basal metabolic rate, basal cardiac output and in the total number of renal glomeruli between the ages of 25 and 55. Individuals usually gain weight over this part of the life span, and the average weight of the kidneys actually was 5 per cent. greater in the older group, so that the real decrease in either cardiac work or basal metabolism probably was negligible.

Special precautions were used to remove and break up rigor of the vessels, and kerosene was used for the perfusions in order to avoid the edema of the vessel walls which sets in rapidly with saline perfusions. This method yields rates of flow, at 100 mm Hg, seven to nine times higher than those previously reported for the kidney, perfused with saline, although kerosene has twice the viscosity of saline. By correcting for the effects of differences in viscosity, in perfusion of organs, and for the observed mean blood pressures of the patients, one can derive a value for "possible blood flow" from the rate of perfusion. This averages 350 ccm per minute for the hearts of young adults, 2,080 ccm for their kidneys and 1,580 ccm for the kidneys and 280 for the hearts of the older group. A report on the blood flows through kidneys of living men, calculated from diotrast clearance, contains data on 13 men aged 45 to 56 and 14, aged 18 to 32. While the authors<sup>1</sup> make no reference to the effect of age, the average flow for the older group is 1,100 ccm per minute, 26 per cent. less than that of the younger men (1,400 ccm).

The biologist thinks of the vascular bed as almost as plastic and adaptable as the blood volume itself.

<sup>1</sup> W. Golding, H. Chasis, H. A. Ranges and H. W. Smith, *Jour. Clin. Invest.*, 19: 739, 1940.

New capillaries constantly form, and even in old age vessels grow or atrophy as the need for blood varies. The development of collateral about arteries blocked by injury, and the opening up of abundant vascular channels to supply tumors are familiar phenomena, even in the aged. It is therefore surprising to find a decrease in vascularity without a corresponding decrease in bulk of tissue or in basal metabolic need of the tissue. While the significance of these observations is not clear, they suggest the possibility that vascularity depends on the maximum stress to which the tissue is occasionally subjected rather than the basal or average metabolic needs, and that in most people advancing years bring fewer and less lofty peaks in metabolic activity. However, it is possible that the observed decrease in the vascular bed is due to loss of elasticity and to narrowing of vessels for which no compensation has been made. This would mean that by fifty-five the average man in good health has been robbed by age of over one fifth the original vascular bed in two of the vital organs.

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### VOLATILITY OF N<sup>1</sup>-ACYLSULFANILAMIDES WITH STEAM

DURING an investigation of the pharmacology of N<sup>1</sup>-dodecanoylsulfanilamide, difficulty was encountered in recovering the compound from the feces of dogs, by extraction with various solvents followed by evaporation. It was found that the compound was volatile with steam. Enough could be steam-distilled to permit identification by a determination of the melting point.

A number of compounds of this series were dissolved or suspended in water (0.5–1.0 g in 100–200 cc) and distilled in an all-glass apparatus, the vapors being passed through an Ace filter of porosity D (average pore diameter of 10–35 microns) to prevent entrainment. The compounds were then determined quantitatively in the distillates by the diazotization method of Bratton and Marshall.<sup>1</sup>

Sulfanilamide and its N<sup>1</sup>-acetyl, butyryl (butanoyl), heptanoyl and octanoyl derivatives were not measurably volatile with steam. The approximate concentrations of other N<sup>1</sup>-sulfanilamides (in mgm per 100 cc), obtained by slow and rapid distillations, respectively, were: decanoyl (0.0)(0.13), hendecanoyl (1.6)(7.7), dodecanoyl (0.55)(0.39). The distillates of the latter

<sup>1</sup> *Jour. Biol. Chem.*, 128: 537, 1939.