drilling in the Tertiary section of the southeast. The Geological Survey of Florida is cooperating in the undertaking.

PROFESSOR L. A. UNDERKOFLER, of the department of chemistry of Iowa State College, has been granted leave of absence to undertake research for the Farmers Cooperative Processing Corporation at Omaha on the production of mold-bran, a malt substitute needed by the Government.

THE Wilbur Wright Lecture of the Royal Aeronautical Society was delivered on May 26 by Sir Roy Fedden, the British aero-engine designer.

AT a meeting of the Division of Medicinal Chemistry of the American Chemical Society at the one hundred and eighth meeting of the society to be held in New York from September 11 to 15, a symposium has been arranged on sympathomimetic agents, compounds affecting the sympathetic nervous system. Those who will present papers include Dr. M. L. Tainter, the Winthrop Chemical Company; Dr. C. R. Scholz, Ciba Pharmaceutical Products, Inc.; Dr. Walter H. Hartung, University of Maryland, and Dr. Harry Gold, Cornell University Medical College. Dr. John H. Speer, of G. D. Searle and Company, chairman of the division, will preside at the sessions.

ANTICIPATING an unprecedented demand for postgraduate medical education upon the termination of war, particularly from physicians returning to civil life from service in the Armed Forces, and from civilian physicians from Central and South America, as well as from European countries released from Nazi control, the New York Academy of Medicine has established a Bureau of Medical Education. The function of this bureau will be to serve all physicians interested in furthering their medical education, but particularly the physicians returning from the war and the increasing numbers of foreign physicians who go to New York for postgraduate instruction and training. The bureau, organized by and operated under the supervision of the Committee on Medical Education of the New York Academy of Medicine, will render its services without charge. It plans to publish announcements of postgraduate medical courses, conducted by the universities and the hospitals of New York City. Thirty-three of the leading hospitals have been invited to collaborate in this work. A group of advisers representing the special fields of medical practice has been appointed to supervise its work.

THE Ministry of Agriculture of the Government of Cuba has authorized the establishment of a Marine Institute at the Castillo de la Punta in Havana. Its various sections will include an oceanographic museum, a library, an oceanographic station, instruction, industrial experimentation and publication.

ACCORDING to a report made by the United States Fish and Wildlife Service, more than 25,000,000 migratory waterfowl of various species used the Federal refuge areas during their southward journey in the fall of 1943. The figure is based upon their utilization of some ninety national wildlife refuges during the September–December migration period. Mallards ranked as the most numerous, with about 11,500,000, followed by pintails, with nearly 6,000,000, baldpates, 898,900, green-winged teals, 726,000, blue-winged teals, 600,000 and shovellers, 576,000.

THE recent formation of the British Shipbuilding Research Association has been followed by the formation of a research and development association to concentrate on particular forms of marine engineering—the application of steam and gas turbines to marine propulsion. The new association is to be called the Parsons and Marine Engineering Turbine Research and Development Association, and a representative council of eight directors has been appointed. *The Times*, London, reports that all shipbuilding and marine engineering firms who are manufacturers of marine turbines in the British shipbuilding centers are supporting this effort. The association intends to secure the maximum development of all types of propulsion by turbine for fast merchant ships, as well as for warships. It is to deal immediately with problems needing solution in the national interests, and bearing on the competitive position of the industry at home and in oversea trade. It will cooperate with the British Shipbuilding Research Association for the interchange of information and the prevention of overlapping. Nineteen British shipbuilding and marine engineering companies have joined the new body. Immediate steps are being taken to appoint a full-time research director for the association, together with an expert designing staff. The research director will be assisted by a consultative technical committee drawn from the principal technicians in the industry.

# DISCUSSION

## $F_2$ AND $N^1$-METHYLNICOTINAMIDE

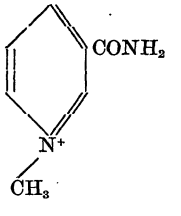
THE recent article by Najjar and White[1] in this journal calls for an elucidation of an obvious state of confusion concerning the nomenclature applied to the nicotinic acid metabolite occurring in the urine

[1] V. A. Najjar and V. White, SCIENCE, 99: 284, 1944.

which we had identified as N[1]-methylnicotinamide.[2,3] Najjar and collaborators,[4,5] who, in fact, had discovered the fluorescent derivative of this metabolite obtained upon extraction into butanol from an alkaline aqueous phase, designated the fluorescent derivative as $F_2$[5]. However, in the same article[5] Najjar and Holt speak of "the failure of the dog to excrete $F_2$" and the article itself and a subsequent one[6] contain in their titles the wording "the excretion of specific fluorescent substances in the urine," and in both of these articles the authors speak of "the excretion of $F_2$ in the urine." It is obvious, therefore, that Najjar and collaborators employed the terms "fluorescent substance" and "$F_2$" to designate both the fluorescent compound observed in the butanol extracts from alkaline solutions and its precursor present in the urine.

In our publications[2,3] we presented proof of the identity of N[1]-methylnicotinamide with the nicotinic acid metabolite and referred to it as $F_2$, following the precedent of the originators of this term. Neither of our articles dealt with the chemical structure of the compound produced from the metabolite (N[1]-methylnicotinamide) by the action of alkali and butanol. Therefore, we consider the recent statement of Najjar and White calling our findings "an obvious error" on these grounds as entirely unjustifiable.

Until conclusive proof is adduced to the contrary, we feel convinced that the metabolite of nicotinic acid found in the urine is the cation of N[1]-methylnicotinamide




which exists in the urine in equilibrium with the various anions according to the law of electroneutrality. There is no reason to suspect that the nature of the particular anion which may be associated with the cation is of any physiological significance. We utilized the well-established, classical[7] technic of isolating the base as a picrate, in the same manner in which it is used to isolate creatine and other bases from urine. There is little likelihood of any significant changes being produced in the structure of the metabolite in the formation of the picrate as implied by Najjar and White.

To avoid further confusion in this problem we wish to propose that only the fluorescent derivative in butanol obtained by extraction from strongly alkaline aqueous solutions be called $F_2$, and that its precursor, the physiological metabolite of nicotinic acid, be designated as the cation N[1]-methylnicotinamide.

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## RECENT RESEARCHES ON HEAVY WATER

THERE have been carried out some experiments on heavy water in Free China, since the war began in 1937. The temperature of the density maximum of heavy water[1] is measured with a 16 ml pycnometer made of quartz glass with a stem of 0.5 mm diameter. It is found to be 11.21 0.50°, in close agreement with the latest result of Stokland, Ronaess and Tronstad (1939). The measurement on the density of heavy water is further extended to the temperature range between its freezing point and 50°.[2] The differences between the densities of ordinary and heavy water show a maximum at 40°, which amounts to 0.10770 g/ml.

The molal freezing point lowering of $D_2O$ with acetone as solute is observed as 2.00°, agreeing well with the calculated value 2.004°.[3] These values are lower than that calculated by Bartholome and Clusius (1935).

The solubilities of sodium chloride in 8 different mixtures of $H_2O$ and $D_2O$ are measured at 25°.[4] With an accuracy of 0.1 per cent. the relation $s_n = 6.145 - 0.334\,n$ holds, where $s_n$ is the number of mols of NaCl dissolving in 55.51 mols of the aqueous mixture containing $n$ mol fraction of $D_2O$. The solubility of NaCl in $D_2O$ thus found is higher than that observed by Taylor, Caley and Eyring (1933). Furthermore, it is suggested that if such a linear relation holds for all soluble compounds, their solubilities can

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