at the University of Prague, will deliver the first Harvey Society lecture at the New York Academy of Medicine on Saturday evening, October 13. His subject will be "Organotherapy."

CHARLES BURCKHALTER, astronomer and meteorologist, director of the Chabot Observatory, died in Oakland, California, on September 20, after thirty-eight years of service in connection with that institution.

PROFESSOR FREDERICK PUTNAM SPALDING, of the School of Engineering of the University of Missouri, died on September 4, aged sixty-six years.

DR. STEPHAN VON APATHY, professor of zoology at the University of Kolosvár, who was well known for investigations on neuro-histology, recently died at the age of sixty years.

THE International Horticultural Congress opened at Amsterdam on September 18. Papers were read on various subjects, including horticultural and plant diseases and the development of the dahlia.

UNIVERSITY AND EDUCATIONAL NOTES

THE new building of the Department of Chemistry of the University of Missouri is nearing completion. This building is the third building on the campus to be devoted entirely to chemistry. There will be an auditorium seating 175 students, and laboratory space for 600 students. There are five small research laboratories for instructors, besides administration offices and storerooms. The attic has been finished off into four rooms and will probably be used as research laboratories for graduate students.

A SOCIETY of Bologna has founded an endowment representing a stipend of 6,000 francs a year for an Italian student of physics and chemistry who desires to do research work in the Curie Laboratory, Paris. The fellowship is endowed for ten years.

DR. GEORGE W. MARTIN, of Rutgers College, has accepted an appointment in the University of Iowa, where he will be in charge of the work in mycology.

OSCAR E. HARDER, Ph.D. (Ill.), who has been in charge of the department of metallography in the School of Mines of the University of Minnesota, since 1919, has been given a full professorship. Mr. L. J. Weber, B.S., Ch.E. (Minn.), has been appointed instructor to take the place of Mr. C. M. Reasoner who resigned to become combustion engineer for the Pillsbury Flour Mills.

DR. WILLIAM LLOYD AYCOCK, Burlington, connected with the research department of the Vermont State Board of Health, has been appointed associate professor of preventive medicine and hygiene in the Harvard Medical School.

DISCUSSION AND CORRESPONDENCE

THE STRUCTURE AND ORIGIN OF COKING COALS

OBVIOUSLY, the logical method of discovering the structural features of coals which, on heating, become coke, is the investigation of thin sections. The best coking coals are, however, very difficult of manipulation, even by the improved methods devised by the present writer. After repeated efforts, success has been reached in the case of the well-known coking coals of the highest grade from the Pocahontas basin and the Connelsville field. In thin sections of these it is possible to determine the presence of quantities of charred wood and of structureless materials derived beyond any reasonable doubt from wood which has lost its organization in the process of transformation into coal. The spores which are so commonly present in bituminous coals from all parts of the world are conspicuous by their absence in coking coals of high rank. It is accordingly highly probable that coking coals as such are of purely woody origin, since they show no evidence of the presence of spores or any considerable amount of the dark matrix characteristic of cannels and oil shales. The hypothesis of the presence of "gelosic" or "algal" material is thus definitely negatived.

The investigation of more recent coals than those of Connelsville or Pocahontas is of interest in this connection. It has been found in certain instances that pure lignite, that is, coal-like substance which is entirely woody, is capable of giving rise to quite typical coke. This has been observed to be the case with lignites, both from the Mesozoic and Modern periods. Obviously, such lignites, representing as they do the modified wood of single trees, leave no chance for misinterpretation. Obviously, the various hypothetical substances which have been supposed to make coals capable of coking are by the very origin of the material excluded. It is interesting to note that coke, which has so completely replaced charcoal in the technique of modern metallurgy, is like charcoal derived from wood. Not all lignitic woods, however, are capable of being coked, and in fact, quite generally in brown coals, they do not possess that capacity. This condition arises out of the fact that the wood in brown coals has in general not undergone the right degree of chemical modification for the product to be a coking coal.

It is important in this connection to emphasize that cannels and oil shales, as such, are incapable of coking, and this conduct in the oven is explained by the fact that they are characteristically composed of a dark matrix and of spores, with a greater or less, but always proportionately small, amount of wood. Since the view has been put forward in many quarters that oil shales are composed of Algae, their conduct, when

subjected to dry distillation, definitely negatives the hypothesis of the presence of so-called "gelosic" substances in coking coals.

It will be clear to the reader from the statements made above that the best coking coals are purely woody in their origin. Coking coals of less value for metallurgical purposes may contain a greater or less amount of spore material, and their grade depends on the proportion of such material. From the large amount of charred wood scattered throughout the structure of Pocahontas and Connelsville coals, it may be reasonably inferred that they represent transport material laid down in open water, and in this respect are similar to other bituminous coals in their mode of origin.

E. C. JEFFREY

HARVARD UNIVERSITY

SEEDS OR TUBERS OF AQUATIC PLANTS

DR. HUGO GLUCK, of Heidelberg, Germany, the authority on aquatic plants, appealed to the writer last year for help in securing seeds or tubers of certain native American aquatics in order that he might pursue his studies and complete the monumental work on which he is now engaged.

The writer was able last fall to secure for Dr. Glück only a few seeds and tubers, and hopes through this announcement to reach a wider circle of collectors and others who may have an opportunity to collect seeds and tubers of aquatics, and who may be willing to assist Dr. Glück in this way. The writer will be glad to send to any one interested a copy of the list of species which Dr. Glück desires and to forward any material that may be sent in for him.

A. J. PIETERS

BUREAU OF PLANT INDUSTRY,
UNITED STATES DEPARTMENT OF AGRICULTURE

THE STIMULATION OF GASTRIC SECRETION BY HISTAMINE

IN 1920, Keeton, Koch and Luckhardt[1] demonstrated that gastric secretion of Pavlov pouch animals was stimulated by the subcutaneous injection of from 0.5 to 1.0 mg of histamine. Matheson and Ammon[2] have recently confirmed the above findings for man.

In the course of our studies on the genesis of the chemical secretion of gastric juice, we have made observations on the effect of histamine administered via the gastro-intestinal tract.

Our first observations were made on dogs having a Pavlov pouch and a Thiery fistula of the duodenum and jejunum; so that various substances could be applied to the mucosa of the intestine and their effect on the secretion of gastric juice be ascertained. When 100 cubic centimeters of 1 to 1,000 solution of histamine was applied continuously for 20 or 30 minutes to the mucosa of the Thiery fistula, as much secretion of the Pavlov pouch occurred during the hour following the application as was observed to occur in our animals during the second or third hours after the ingestion of a test meal of meat. We next administered to Pavlov pouch dogs by means of stomach tube doses of histamine varying from 50 to 150 mg dissolved in twenty cubic centimeters of water. We observed that 50 mg was just sufficient to provoke a secretion of gastric juice from the Pavlov pouch, while 150 mg provoked a secretion quantitatively and qualitatively equivalent to that excited by a meal of meat.

Such doses of histamine when administered by the gastro-intestinal tract, although comparatively very large, produce no toxic symptoms, as judged from the behavior of the animal.

When 200 mg of histamine are administered by stomach tube to man (only one man has been experimented on up to date), a definite stimulation of gastric secretion results and no symptoms are experienced.

We believe that these observations very probably have a direct bearing on the problem of the chemical secretion of gastric juice, since Koessler and Hanke[3] have recently reported that histidine is decarboxylated almost consistently in the intestinal tract to histamine, which is normally present in the intestinal tract of man.

A. C. IVY
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MEDICAL LICENSURE OF NON-MEDICAL DOCTORS

To the Editor of SCIENCE:

It is possible that my timely warning to non-medical doctors and other parties at interest (SCIENCE, August 3) may be deprived of some of its force by Dr. Woodward's subsequent objections to it (SCIENCE, September 14), if nothing further is written about the matter. He has made a mistake in calling the warning, "an attack on the medical profession." He would not have asserted, as he has, that certain papers appearing July 7 and July 14 were available to me, had he known that my manuscript was in your hands April 22. His fear that your readers were misled by my signature is not well founded; your readers know

[1] Keeton, Koch and Luckhardt: *Am. Journ. Physiol.*, 1920, li, 454.

[2] Matheson and Ammon: *Lancet*, 1923, i (cciv), 482.

[3] Koessler and Hanke: *Journ. A. M. A.*, 1923, lxxx, 1728.