

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.

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SEEDS OR TUBERS OF AQUATIC PLANTS

DR. HUGO GLÜCK, 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.

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THE STIMULATION OF GASTRIC SECRETION BY HISTAMINE

IN 1920, Keeton, Koch and Luckhardt¹ 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 Ammon² 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 ap-

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

² Matheson and Ammon: *Lancet*, 1923, i (civ), 482.

plied 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 Hanke³ 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.

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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

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