A. B. Dick Co.

EARLY MIMEOGRAPH—An 80-year-old mimeograph machine was presented to Smithsonian curator, Jacob Kainen (right), and John Ewers, (center), director of the Museum of History and Technology, by C. M. Dick, Jr., vice president of the A. B. Dick Co., Chicago. Mr. Dick is the grandson of the inventor of the process of stencilization leading to the mimeograph.

PSYCHOLOGY

Animal Memory Varies

➤ CATS AND DOGS have three memory patterns that determine different behavior in searching for food, a Russian scientist reported.

The first type of memory lasts only a short time, stated Dr. I. S. Beritashvili of the Tiflis State University in the Georgian Republic of Russia. The second type has a longer duration and the third is a long-term memory, the physiologist reported in a paper presented at the Tenth Congress of the I. P. Pavlov All-Union Physiological Society issued in translation by the National Aeronautics and Space Administration.

In experiments and research on the feeding behavior of cats and dogs, Dr. Beritashvili found that the length of time during which these animals retain an image of remembered food depends on certain activities in the prefrontal and posterior cores of their brains.

Experiments were reported in which a dog was shown his food in a new location but was prevented from eating it immediately by being put into a cage. After predetermined lengths of time, the animal was released and observed to see what would happen. If only a few minutes had passed, the dog would go directly to the food, but if more time passed before he was released, he forgot where it was and had to hunt and search for it. Agitated dogs can remember only for one or two minutes, whereas a calm dog can remember much longer—for 10 to 15 minutes.

This short-term delayed reaction, as the short span of memory is called, is explained by a closed nerve circuit in the animals' brains, Dr. Beritashvili said. The stimulus from the sight of food travels around this closed circuit for one or two minutes and then ceases to flow because of fatigue of some section. The image of food disappears and the dogs forget.

The ability for a longer duration of memory is based on the molecular or submolecular changes in nerve cell materials in the brain, and cell endings where nervous impulses pass from one cell to another.

A certain stable reorganization of the ribonucleic acid and formation of a new specific protein is retained for some time and keeps the stimulus spreading in the nerve circuits.

The other long-term type of memory is associated with conditioned reflexes which are established in the animal by periods of training, as for example, the reflexes of a dog in coming for food at a given signal. This type memory is caused by the structural development of the nerve cell endings, in particular the narrowing of the spaces between which nervous impulses are transmitted from one cell to another.

When certain regions of the brain were removed, Dr. Beritashvili found that the prefrontal region is necessary for retaining and reproducing the food images, but not for forming and preserving conditioned reflexes.

When the posterior core of the animal was removed, his memory and reactions were impaired. In both operations, the conditioned reflex activity of the dog was only temporarily disrupted.

• Science News Letter, 87:134 February 27, 1965

MEDICINE

Doctor's Office Tests Urged for Glaucoma

➤ PHYSICAL EXAMINATIONS in the doctor's office should include tests for glaucoma, the eye disease responsible for 40,000 cases of blindness in the United States, the American Medical Association urged editorially in its official journal, JAMA, 191: 592, 1965.

Every patient should be questioned about a family history of glaucoma in view of an article in the same issue indicating that this disease tends to run in families, the editorial said.

Dr. John A. Cowan of the division of adult health, Michigan Department of Health, reported a study of glaucoma victims, blind in one or both eyes, who had 136 relatives also participating in the investigation. Nine of these relatives, or 6.6%, had either glaucoma or borderline glaucoma, which was three times the expected number among the general population.

It is especially important to examine persons more than 40 years of age, since the disease is expected to occur in two percent of the population over that age. If detected early, glaucoma usually responds well to treatment.

The glaucoma test, usually done with a tonometer, is a routine part of eye examinations, but because so many more persons come to the general practitioner or internist than go to an ophthalmologist, it is suggested that tests be done in the course of routine examinations. The patient can then be referred to the eye specialist.

Glaucoma is caused by a build-up of fluid pressure within the eye. In simple glaucoma, the most familiar type studied by Dr. Cowan, the increased pressure leads to a narrowing of the field of vision and eventually to blindness.

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MEDICINE

Asthma Treatment Affects Two Glands

➤ BRONCHIAL ASTHMA treatment by steroid, or hormone, drugs can affect the production of the patient's own steroid hormones.

The problem centers on the interrelationship between the pituitary and adrenal glands, which work together in the body to make these hormones.

Every-other-day doses of such drugs as prednisone and prednisolone, supplemented by once-a-month injections of the hormone ACTH, can overcome suppression of the glands, which tend to shrink when high dosages of the drugs are given.

Dr. John G. Harter of the Harvard Medical School and Peter Bent Brigham and Robert Breck Brigham Hospitals, Boston, told the annual meeting of the American Academy of Allergy in Baltimore, Md., that glands of patients treated according to these methods were not adversely affected.

Dr. Harter was assisted by Dr. A. Mark Novitch, also of Harvard Medical School.

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