as the state of senility is approached in the life of such organisms, some mechanism other than that of the kidney, which in part maintains a normal acid-base equilibrium for the blood and tissue juices, becomes less able to function when subjected to the strain induced by certain intoxications. Studies of a similar character have been carried on by McArthur[5] on planarians. He observed a decrease in the tolerance to acid and alkaline solutions as the age of these organisms increased.

The following observations[6] have been made over a period of ten years. They are concerned with the stability of the acid-base equilibrium of the blood during gestation, and with the influence of the age of the animal and the duration of the gestation period in maintaining this balance of the organism. Seventy-four dogs have been studied during the period of pregnancy. The animals have varied in age from eleven months to ten years and four months. Determinations of the acid-base equilibrium of the blood as indicated by the reserve alkali of the blood (R.pH) were made by the method of Marriott[7] at the fourth week of the gestation period and during the terminal week. As a result of these studies in which the factor of the age of the animal has been considered, they may be divided into three groups. Group I is represented by twenty-two pregnant dogs between eleven months and three years of age. At the end of the fourth week of gestation, no disturbance had occurred in the acid-base equilibrium of the blood of this youngest group of animals. The reserve alkali of the blood was normal and varied from 8.0 to 8.15. Two of the animals in the group during the last week of the gestation period were unable to maintain this balance and showed a reduction in the reserve alkali of the blood to 7.95. The remaining twenty animals maintained a normal acid-base equilibrium of the blood throughout the period of gestation.

Group II is represented by thirty-four dogs, which varied in age from three years and one month to six years. The group is represented by animals between the two extremes of youth and early senility. By the end of the fourth week of the gestation period, one of the dogs in this group showed a reduction in the reserve alkali of the blood to 7.9. At the end of the gestation period, during the ninth week, twelve of the thirty-four animals showed a reduction in the reserve alkali which varied from the slight reduction from a normal of 8.0 to 7.95 to the maximum reduction from a normal of 8.15 to 7.85. Twenty-two of the animals in the group came to the end of the period of gestation without any disturbance in the acid-base equilibrium.

Group III is represented by eighteen dogs, which varied in age from six years to ten years and four months. These animals comprise the group approaching senility. At the end of the fourth week of the gestation period in animals falling in this group, eleven had shown a disturbance in the acid-base equilibrium of the blood. The reserve alkali was reduced from the normal readings of 8.0 or 8.15 to 7.9. At the end of the gestation period fourteen of the eighteen animals had developed in the reserve alkali a reduction which varied from a reading of 7.95 to 7.85.

The above observations on seventy-four pregnant animals of different ages and falling in three age groups, indicate that during a period of gestation in normal dogs there is a definite tendency for one of the physico-chemical states of the organism to become unstable. In a certain number of the animals there occurs a reduction in the reserve alkali of the blood. These observations furthermore show that this instability of the acid-base equilibrium of the blood during gestation is associated with the age of the animal and the duration of the gestation period. Pregnancy in old animals (Group III) is more apt to disturb this equilibrium than is the case in young animals. In old animals the disturbance develops at an earlier stage of the gestation period than it does in the younger groups of animals. The suggestion is made that these observations may have some connection with the development of the toxaemias of pregnancy.

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[5] McArthur, J. W., "Changes in Acid and Alkali Tolerance with Age in Planarians," *Amer. Jour. Phys.*, Vol. LIV, 138, 1920.

[6] MacNider, Wm. de B., "Concerning the Stability of the Acid Base Equilibrium of the Blood in Pregnant Animals," *Jour. Exp. Med.*, Vol. XLIII, 53, 1926.

[7] Marriott, W. McKim, "A Method for the Determination of the Alkali Reserve of the Blood Plasma," Arch. Int. Med., Vol. XVII, 840, 1916.

THE MAGNETIC MOMENT OF ATOMIC HYDROGEN[1]

THE researches of Stern and Gerlach[2] have established the quantum nature of magnetic moment for several of the atoms. Unusual interest attaches to the magnetic moment of the simplest of the atoms, atomic hydrogen.

In this research atomic hydrogen was prepared in a long discharge tube from undried electrolytic hydrogen by the method of R. W. Wood. An all-glass slit

[1] Contribution from the Chemical Laboratory, University of Illinois, Urbana, Illinois. September 11, 1926.

[2] *Ann. d. Phys.*, *74*, 673 (1924); *76*, 163 (1925).

system of three slits was made from Pyrex glass by a special method and sealed to the mid-point of the discharge tube. Between each pair of slits, tubes led off through liquid air traps to separate high-speed mercury vapor pumps. This use of separate pumps maintained a progressively increasing vacuum in the slit system and allowed the formation of an atomic ray with a minimum of general scattering. The slit system was cemented into a brass box[3] containing the pole pieces and the target.

An optical surface of Pyrex glass smoked with molybdenum oxide constituted the target. Without the magnetic field, a sharply defined slate-blue line on a white (or slightly yellowish) background resulted from an exposure of an hour or less to the discharge. With the magnetic field on, the central part of the line showed a distinct separation into two branches. This effect was best observed by light transmitted through the image. When observed by reflected light from the front side, the image showed in addition an undeviated central line of much less opacity than the deviated ones. This line may be due to high velocity hydrogen molecules from the discharge tube, and is receiving further investigation. Preliminary calculations point to a probable value of one Bohr magneton as the magnetic moment of the hydrogen atom.

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AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

THE FALL MEETING OF THE EXECUTIVE COMMITTEE

THE regular fall meeting of the executive committee of the council of the American Association was held on Sunday, October 17, at the Pennsylvania Hotel, in Philadelphia. The forenoon session was from 10:15 to 1:30, the afternoon session from 3:00 to 6:00, and the evening session from 8:30 to 10:10. The chairman of the committee, Dr. J. McK. Cattell, presided at all sessions. Other members who took part were Doctors H. L. Fairchild, W. J. Humphreys, Vernon Kellogg, B. E. Livingston, W. A. Noyes, H. B. Ward and E. B. Wilson. President L. H. Bailey, retiring president M. I. Pupin, and Dr. F. R. Moulton were unavoidably absent from all sessions and Doctor Kellogg was obliged to leave in the late afternoon. By invitation, Dr. Rodney H. True, secretary of the Committee of One Hundred on Scientific Research, took part in the afternoon session. Dr. C. E. McClung, chairman of the local committee for the fifth Philadelphia meeting, took part in the evening session, also by invitation. Eight members of the committee and Dr. McClung dined together at the Normandie Hotel, at the regular executive committee dinner.

[3] J. B. Taylor, *Phys. Rev.*, September, 1926.

The following matters received attention:

1. The permanent secretary reported that the income for the year just ended exceeds the expenditures and liabilities by over $4,800, which is specially interesting in comparison with considerable deficits for the last three years. These deficits were due primarily to inadequacy in the locally raised funds for the annual meetings and they were cared for by the permanent secretary's general reserves. These reserves are increased this year and amount to over $6,000.

2. It was voted that from the permanent secretary's funds available for appropriation there be set aside $5,000 as an *emergency fund,* to be expended only on action of the council or executive committee. It is intended that this fund shall be generally maintained, being subsequently made up whenever drawn upon for special needs, as in case of an annual deficit. The new emergency fund corresponds to the item recently shown in the permanent secretary's annual reports as "emergency fund," but this item is now rendered official and its amount is fixed at $5,000. After setting aside $5,000 in this way, the permanent secretary's funds (September 30, 1926) comprise:

Publication fund (for publishing Proceedings volume in 1929)	$1,482.41
Emergency fund	5,000.00
Unexpended balance of special fund for Committee on Place of Science in Education (from Commonwealth Fund, of New York)	848.93
Unexpended balance of appropriation for Committee on Annual Exhibition	250.00
Balance, available for expenditure	1,290.95

From the available funds of the permanent secretary, appropriations were made by the executive committee, at the meeting now reported, amounting to $600, as shown farther on.

3. It was voted that each section secretary be asked to present an approximate budget of his section expenses each fiscal year, these budgets to be considered generally at the fall meeting of the executive committee, or at the annual meeting in December.

4. It was voted that the Section Committee of Section K (Social and Economic Sciences) be authorized to expend, for section expenses in connection with the approaching Philadelphia meeting, $150 or such part thereof as may be needed, in addition to the regular allowance to every section secretary, of mile-