interest that many more are desired. As an example the following may be instanced: A well-known scientist in whose home Gilbert was a frequent guest, warmly welcomed by father, mother, and children, writes that one of his boys, when a little fellow, became so fond of the visitor that he for a year or so wound up his evening prayer with an added petition of his own invention—"O Lord! bless father, and mother, and Mr. Gilbert, and some ladies." It is often written of an eminent man that he was fond of children, but it is rare to find testimony as spontaneous and convincing as this to show that children were fond of him.

W. M. Davis

Cambridge, Mass.,
January 27, 1921

QUOTATIONS

THE PRINTING OF ASTRONOMICAL OBSERVATIONS

Printing has become so expensive that it will be necessary to revise some of our existing practises, and especially that with regard to original observations. There is an undoubted convenience in printing original observations just as they are made, for, however carefully they are discussed at the time, the general advance of astronomy may later provide an improved basis for discussion. Thus, old observations of position, such as those of Bradley or Groombridge, gained much from the growth in knowledge of instrumental errors, and old observations of variable stars have been rediscussed with advantage now that better magnitudes of comparison stars are available.

There is no reason to anticipate finality in improvement, and it is therefore a convenience to have the original material widely accessible; but one may have to pay too dearly for this convenience, and it looks as though the recent advance in prices had brought this contingency about. We have have to be satisfied to store a fair copy of the original observations in some accessible place, such as the library of the Royal Astronomical Society or of a well-known observatory. Perhaps it would be better to store two copies, one of which might be freely lent on demand, but not the other. There is, moreover, this to be said in favor of this more economical policy—it is not *always* the case that these original observations improve in value with time. No doubt they improve just at first, but something may happen which compensates the advantage of lapse of time; even Bradley's observations are to-day of historical rather than scientific interest, in comparison with modern observations, as Boss maintained stoutly years ago and others reluctantly admitted later. Micrometer measures of clusters by such careful observers as Pogson and Baxendell are to-day really not worth discussing; a couple of photographs at a few years' interval give better proper-motions—far better—than could be deduced by the use of these early micrometer measures. Hence the policy of holding up the printing of observations may in *some* cases obviate the need for printing at all; but if it is adopted, I would strongly urge the alternative of depositing a fair copy in some well-known library. And I may, perhaps, quote a particular instance to point the moral: recently I was interested in a particular variable of which maxima had been recorded by a particular observer nearly half a century ago; I got into communication with him, and found that he had given up observing and so far forgotten his own devoted work as to deny at first that he had ever made such observations! But he was good enough to ransack his papers, found the observations, and very kindly sent me a copy of them. They were of great value, and though perhaps it is going too far to say that they might have been lost, still it must be admitted that there was some risk of this disaster. Hence I should repeat the maxim deduced from my own experience and previously given in the form "when you have made five years' observations publish them" in a new dress:—"*Either* publish them, *or* deposit a fair copy in some well-known library, publishing an intimation to that effect."

As I have made reference to this increased cost of printing, may I call the attention of

other nations, who may not be similarly affected, to our altered circumstances? Before the war we welcomed papers from distant contributors almost unreservedly; our attitude towards such contributors personally is in no way changed, but our purses are not so full or are more rapidly emptied. We would ask them kindly to think twice before sending to us a paper which could just as well be printed in their own country; but I should add that this suggestion has no official character whatever, and is made on purely personal responsibility.—From an Oxford Note-Book in *The Observatory*.

SPECIAL ARTICLES

ON THE STABILITY OF THE ACID-BASE EQUILIBRIUM OF THE BLOOD IN NORMAL AND IN NATURALLY NEPHROPATHIC ANIMALS[1]

IN a recent number of this journal[2] a note was published which had as its object a discussion of the influence of the age of an organism in maintaining its acid-base equilibrium. In this paper the observation was made that when animals of different ages were intoxicated by uranium nitrate, the factor of the age of the organism in the reaction was expressed by an inability of the senile animal to maintain with the same degree of perfection a normal acid-base equilibrium as was the case with the younger animal. More recently studies have been undertaken which have had as their object an investigation of the stability of the acid-base equilibrium of the blood in naturally nephropathic animals following the use of an anesthetic,[3] and of the ability of an alkali to protect the naturally nephropathic kidney against the toxic effect of an anesthetic.[4] As a result of these studies the observation has been recorded that following the use of an anesthetic a greater disturbance in the acid-base equilibrium of the blood was induced in a naturally nephropathic animal than occurred in a normal animal. Furthermore, a more adequate degree of protection could be obtained in a normal dog against an anesthetic by the use of a solution of sodium bicarbonate than could be obtained in a naturally nephropathic dog.

The following study is concerned with an investigation of the stability of the acid-base equilibrium of the blood in naturally nephropathic animals as contrasted with normal control animals when this equilibrium is upset by the intravenous injection of an acid or an alkali.

Twenty-six dogs have been used in this series of experiments. Ten of the animals were normal and were employed as controls for the sixteen naturally nephropathic animals. The animals were anesthetized by ether. A glass canula was inserted into the femoral vein and connected with a buret. Through this connection the acid or the alkali was introduced into the animal's circulation. At the end of half an hour of etherization the reserve alkali of the blood (R.p.H.) was determined by the method of Marriott.[5] Blood for this purpose was obtained by puncturing the saphenous or external jugular veins. After making the initial determination of the animal's alkali reserve, both the normal control animals and the naturally nephropathic animals received intravenously either 5 c.c. per kilogram of a $n/2$ solution of hydrochloric acid or 25 c.c. per kilogram of a three per cent. solution of sodium bicarbonate. Determinations of the alkali reserve of the blood were made in both groups of animals at fifteen minute intervals during the first hour

[1] Aided by a grant from the Rockefeller Institute for Medical Research.

[2] MacNider, William deB., "Concerning the Influence of the Age of an organism in maintaining its Acid-base Equilibrium," SCIENCE, N. S., Vol. XLIV., 643, 1917.

[3] MacNider, William deB., "I. A Study of the Acid-base Equilibrium of the Blood in Naturally Nephropathic Animals and of the Functional Capacity of the Kidney in Such Animals following an Anesthetic," *Jour. Exp. Med.*, Vol. XXVIII., 501, 1918.

[4] MacNider, William deB., "I. A Study of the Efficiency of an Alkali to Protect the Naturally Nephropathic Kidney against the Toxic Effect of an Anesthetic," *Jour. Exp. Med.*, Vol. XXVIII., 517, 1918.

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