confirm the values derived from former results. The "Hourglass" or "Kaiser Sea," which is admittedly the most prominent mark on the planet, is a very suitable one for comparisons to find the intervals of rotation. Early in 1869 I saw it with a 4¼-inch refractor as it passed the central part of the disk. On February 2, 1869, it was central at 10h., on February 4 at 11h., and on February 5 at 11h. 30m.

I observed the same object in February of the present year with a 10-inch reflector (power 252), and noted it crossing the planet's central region at the following times :—

1884				h.	m.
February 14	...	...	...	5	55
15	...	...	...	6	35
19	...	...	...	9	5
22	...	...	...	11	4

I have combined my observation of February 4, 1869, with that of February 14, 1884 (as I regard this pair as the best obtained), to ascertain the rotation period. The interval includes 5487d. 18h. 55m. = 474,144,900 seconds. Correcting this for the difference in longitude between Mars and the earth at the two epochs and for defect of illumination (there is no necessity to apply any correction for equation of light, as the apparent diameter of the planet on the dates selected for comparison was about 16", and hence the distances were nearly the same), I find the time of rotation resulting from the discussion of these observations to be

h. m.   s.
24 37 22·34 (5349 rotations),

which is in satisfactory agreement with the periods computed by Kaiser, Schmidt, and Proctor from a much longer series of observations. In order to exhibit the small differences between the period now computed and those resulting from some of the best modern determinations, I give the following summary :—

		h.	m.	s.	
	J. H. Mädler ...	24	37	23·8	*Ast. Nach.* 349.
1864,	F. Kaiser	24	37	22·62	*Ast. Nach.* 1468.
1866,	R. Wolf	24	37	22·9	*Ast. Nach.* 1623.
1869,	R. A. Proctor ...	24	37	22·735	*Mon. Not.* vol. xxix. p. 232.
1873,	F. Kaiser	24	37	22·591	*Annalen der Leidener Sternwarte*, vol. iii. p. 80.
1873,	J. F. J. Schmidt	24	37	22·57	*Ast. Nach.* 1965.
1884,	W. F. Denning	24	37	22·34	

It is obvious that Mädler's period of 24h. 37m. 23·8s. is about one second too great. If we take a mean of the other six values (all within 0·6s. of each other) we get

h. m.   s.
24 37 22·626

which may be fairly regarded as a very near approximation to the true sidereal rotation period of Mars.

The computations of Kaiser, Schmidt, and Proctor are severally based on very long periods, the comparisons being modern observations with those of either Huyghens or Hooke during the last half of the seventeenth century. It is unfortunate, however, that there is some question as to the correct identification of the spots depicted in some of the ancient drawings. The representations by Hooke on March 2, 1666 (old style), at 12h. 20m. and 12h. 30m., also those by Huyghens in 1659, 1672, and 1683 give a large irregular spot, extending in a north and south direction, which can only be identified as the "Hourglass" or "Kaiser Sea." It would appear, however, that this interpretation is incorrect in certain cases, for the several drawings do not only show disagreements with each other but also when compared with modern observations originate discordances of period, small it is true, but still too large to be attributed to simple errors of observation. No doubt the period which approaches nearest to the truth will become apparent from future observations, though it can hardly admit of definite settlement for many years, inasmuch as the differences between the several times of rotation as above deduced are very insignificant, and must so closely accord with the real period of the planet that the errors such as exist must be allowed to accumulate over a lengthened interval before they will become distinctly manifested. A comparison extending over fifteen years is insufficient for the purpose, for a computed time of rotation, erroneous to the extent of one-tenth of a second, will still, at the termination of such a period, answer to the positions of the markings to within 9 minutes of time. It is to be remarked that Mr. Marth, whose opinion is entitled to great weight, has, for some time, adopted the period of 24h. 37m.

22·626s. for the rotation of Mars. This corresponds to a daily rate of 350°·8922, and forms the basis of his computations in his "Ephemerides for Physical Observations of Mars," annually published in the *Monthly Notices.*   W. F. DENNING

"The Electrical Resistance of the Human Body"

WILL you kindly publish the inclosed from Prof. Dolbear? It furnishes a complete explanation of the discrepancy between his measurements of the resistance of the human body and those which I have recently made. At the same time, as I have pointed out to him, the fact that this resistance may sink below 500 ohms with "soaked skin," even if that be "abnormal," is of the highest physiological importance, and goes far to explain the hitherto mysterious deaths from accidental passage of a current through the body. Most of these, as Prof. Forbes remarked to me, have taken place with alternate, not continuous, current machines.   W. H. STONE

Wandsworth, May 11

College Hill, Mass., April 23, 1884

DEAR SIR,—I have to acknowledge the receipt of your pamphlet "On the Resistance of the Human Body," for which I am obliged. I am glad to know that physiology has some one in its ranks who is interested in that line of work, and who knows what to do in order to settle such vexed questions.

I have also seen in the last *Electrical Review* that has reached me an article on the same matter, in which you refer to me and what has been published concerning some of my work, that needs a little elucidation. In the early days of telephony the experiment was often tried of making the human body part of the circuit in order to see how speech could be transmitted through the body, in the language of those days. Bell wanted to know what the resistance of the body was when in such circumstances, and I measured it from hand to hand when thumbs and fingers grasped the terminals of a wire and found it to vary between 6000 and 15,000 ohms, and wrote to him to that effect, and from that grew out the statement to which you have referred. Now *under such conditions* that work is right, as I have frequently since proved.

It seems to me that when we speak of the resistance of the body or of any body, and do not define what is meant by body, it is fair to assume that the body is the ordinary body under ordinary conditions. If the resistance (the *actual*) of the wire is found to be a thousand ohms by one party and another one files off the rust from the contacts and then finds the resistance less, both parties may be right. Now the skin of individuals is more or less horny in texture, and so has high resistance which soaking may reduce, and the question then properly arises, is the hard skin properly a part of the body? The resistance of a farmer's hand is often twice as great as that of a child's or of a man of sedentary habits, but solely, as I think, because of the thickness and density of his skin. Does not the question resolve itself into this—What is the resistance of a dry hand and the resistance of a soaked hand? What is the resistance of a good conductor and the resistance of a poor conductor? If the poor one is made better in any way, its resistance is correspondingly increased.

If the condition of the body is abnormal, its resistance may also be abnormal. I should call a soaked skin abnormal.

Still it is of the utmost importance that we should know what the resistance is under all conditions, as being the only way to advance in knowledge of the physiological effects of known currents, and I would again express my gratification at your persistent work in this field, and if I can in any way be of service to you I shall be pleased to be employed.

Yours very truly,
To Dr. W. H. Stone   A. E. DOLBEAR

Instinct in Birds

MR. GRAVES, who writes on this subject (NATURE, vol. xxix. p. 596), is, I fear, not so accurate an observer as the magpie, for he misquotes the day fixed by the birds for building, and then indicates that the young "mags" are restricted to four in each nest, while the fact is there are often six or seven in a nest. The magpie is too fond of a fresh egg for breakfast to escape the attention of the gamekeeper. I have often seen the greater part of their nest shot down, repaired, and reoccupied by the birds year after year. I know of no bird that begins the work of *nidification* here early in February, nor any that devotes two months to the work. The rook (*Corvus frugilegus*) is the first to