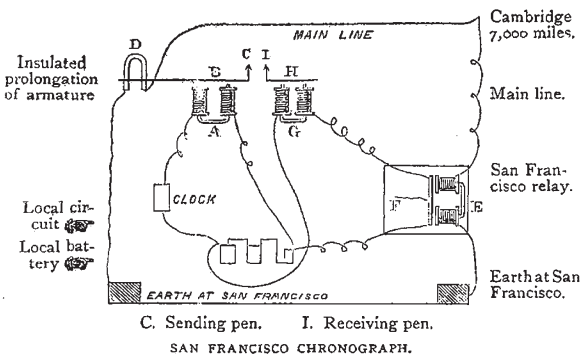


PHILADELPHIA.

American Philosophical Society.—We select the following extracts from the reports of the recent meetings of this Society:—

Prof. Trego has communicated an extract from a letter from Mr. Davidson of the Coast Survey, to Mr. D. B. Smith of Germantown, detailing the method employed to obtain the recent determination of longitude and the velocity of the electric current between Cambridge and San Francisco.

"I give you the first written news not only of our telegraph longitude success, but of the success of my plan for determining the time of transmission of clock signals from my clock to Cambridge and back, over 7,000 miles of wire, through 13 repeaters and a multitude of relays. Through the liberality of the Western Union Telegraph Company, I had two trans-continental lines placed at my use, and last night I succeeded beautifully. My circuit was as follows. My clock breaks the local circuit every second, depriving the helix A of its electricity, and the magnet of its magnetism. This relieves the armature B, which is drawn away by a spring, and the pen C makes its record on the revolving cylinders of the chronograph. At the same instant the main current to Cambridge and back is broken by the insulated prolongation of the armature at D, and the break transmitted to Cambridge and back, through 7,000 miles of



wire, to my relay E, which relieves the armature F, and the local circuit is broken; the helix G deprived of its electricity and the magnet of its magnetism, relieving the armature H, which is drawn away by a spring, and the pen I makes the record on the revolving cylinders of the chronograph. These two pens are on the same horizontal line. Our experiments show that it took 0.87 of a second to traverse the above circuit. I also made experiments through to Buffalo, Chicago, Omaha, Cheyenne, Salt Lake, and Virginia, and back. All successful. As this experiment was not contemplated by the programme of the longitude experiments, I have the satisfaction of seeing my ingenuity successfully proved."

Prof. Kirkwood has communicated through Mr. Chase a discussion of the periodicity of the Sun's spots. We shall return to this communication.

Mr. Dubois presented a specimen and analysis of silver ore, accompanied with the following note from the Assay Office, United States Mint:—

"In the Report of the British Commission on International Coinage, lately published, we find an extract from the *Journal des Debats*, of November 13, 1866, stating that the German assayers had found the average fineness of French gold coins of that year to be 808 thousandths, and a fraction. It adds that this is an unworthy source of gain to Government, whose ambition it should be to have the coins correct. The *Moniteur* of November 20 (official organ) replies, that this is as near to standard as can be expected from the defects of practical operation; and that it is the duty of Government to prevent these 'ill-founded criticisms.' Our own assays, for many years, have proved a deficiency in the French coins, averaging about one-thousandth. The apology of the *Moniteur* has no just foundation. Both at this Mint, and at San Francisco, the gold coins are kept close to the mark, scarcely varying the tenth of a thousandth; as is proved by annual assays, and by foreign reports. British coinage is equally exact.

"This fact affords an argument against the project of International Coinage. If we work to 900, and France to 899 or less, and both pass alike, the difference is against us."

DIARY.

THURSDAY, NOVEMBER 4.

LINNEAN SOCIETY, at 8.—On some Brazilian Plants from the neighbourhood of the Campinas: J. Correa de Mello. On two Indian Plants: N. Dalzell. On the Occurrence of a Luminous Insect near Buenos Ayres: R. Trimen. CHEMICAL SOCIETY, at 8.—Discussion on Dr. Williamson's Discourse on the Atomic Theory.

FRIDAY, NOVEMBER 5.

GEOLOGISTS' ASSOCIATION, at 8.—Comparative Anatomy as applied to Geology: Dr. C. Carter Blake, F.G.S.

MONDAY, NOVEMBER 8.

LONDON INSTITUTION, at 4.—Elementary Physics: Prof. Guthrie. ROYAL GEOGRAPHICAL SOCIETY, at 8.30.—President's Address. Journey to the Yellow River: Mr. Elias.

TUESDAY, NOVEMBER 9.

ETHNOLOGICAL SOCIETY, at 8.—On the Chinese Race; their Language, Government, Social Institutions, and Religion: Mr. Gardner.

WEDNESDAY, NOVEMBER 10.

GEOLOGICAL SOCIETY, at 8.—Australian Mesozoic Geology and Paleontology: C. Moore, F.G.S.—On some Plant and Insect-beds in New South Wales: C. Moore, F.G.S. Further Evidence of the Affinity between Dinosauria and Birds: Prof. Huxley, F.R.S.—On the Dinosauria of the Trias, with observations on the Classification of the Dinosauria: Prof. Huxley, F.R.S.

ROYAL MICROSCOPICAL SOCIETY, at 8.—On High Power Definition, with Illustrative Examples: Dr. G. W. Royston Pigott, F.R.A.S.—On the Structure of the Scales of certain Insects of the Order *Thysanura*: S. J. McIntire.

THURSDAY, NOVEMBER 11.

LONDON INSTITUTION, at 7.30.—On Architecture, or the Fine Art of Building: Prof. Robert Kerr.

ZOOLOGICAL SOCIETY, at 8.—On the Anatomy of the Aard-Wolf (*Proteles cristatus*): Prof. Flower, F.R.S.

LONDON MATHEMATICAL SOCIETY, at 8.—General Meeting at Burlington House.

BOOKS RECEIVED.

ENGLISH.—Chemistry: Prof. Atfield (Van Voorst).—Scenery of England and Wales: D. Mackintosh, F.G.S. (Longmans).—Practical Chemistry: Harcourt and Madan (Clarendon Press).—The Three Kingdoms of Nature: R. S. Houghton (Cassell).—Flora of Middlesex: Trimen and Dyer (Hurdwicke).—Natural Philosophy in Easy Lessons: John Tyndall (Cassell).—Vegetable Physiology: Dr. Lankester (Cassell).—Our Bodies: E. A. Davidson (Cassell).—Scientific Chemistry: F. S. Barff (Groombridge).—Science of Heat: T. A. Orme (Groombridge).—Mechanical Philosophy: R. Wormell (Groombridge).—How Crops Grow (Macmillan).—Travels in Central Africa: Mr. and Mrs. Petherick (Tinsley).—New Tracks in North America: W. A. Bell (Chapman and Hall).—Intelligence of Animals: E. Menault (Cassell).—Picture Natural History (Cassell).—Gold Fields and Mineral Districts of Victoria: R. Brough Smyth (Trübner and Co.).—The World of the Sea: A. Frédo (Cassell).—Prehistoric Times: Sir John Lubbock, Bart. (Williams and Norgate).—De la Rue and Co.'s Red Letter Diaries for 1870.—Natural History of British Moths: E. Newman (Tweedie).

AMERICAN.—The Mississippi Valley: J. W. Foster.—Production of Precious Metals: W. P. Blake.—Parsons on the Rose.—System of Mineralogy: Dana and Brush.—Guide to the Study of Insects: A. S. Packard. (Through Trübner and Co.)

FOREIGN.—Echinides: Cotteau et Triger (with atlas).—Ueber Ratrachier: Keferstein.—Protozoë Helvetica: W. A. and C. von F. Ooster.—Die Elliptischen Functionen: Hattendorff.—Leçons de Chimie: Alfred Riche.—Der Cultur-Ingenieur: vol. ii. part 2.—Die Chinacultur auf Java: van Gorkom.—Handbuch der Edelsteinkunde: Schrauf.—Die internationale Einigung durch das metrische System: C. Bopp.—Landwirthschaftliche Zoologie: Giebel.—Bibliothèque des Sciences naturelles (Zoologie): Gervais et Sauvage.—Erratische Bildungen im Aargau: Mühlberg.—Bergbaukunde (2 vols.): Lottner (posthumous).—Zur Kenntniss der Bryozoen: Nitsche.—Vierteljahrsschrift für öffentliche Gesundheitspflege: vol. i. part 3.—Dictionnaire technologique: Kumpf et Mothes (vols. i. iii). (Through Williams and Norgate: Asher and Co.)

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