in the pumps to force the mud through the circulating system. In addition to a full treatment of these important considerations, the paper also deals with various other aspects of the testing of drilling mud and draws pointed attention to the lines on which further experimental investigation and research are necessary.

The paper is profusely illustrated with photographs, diagrams and sketches; and the graphical presentation of experimental results which the authors have frequently adopted is indeed very effective. The subject-matter has been presented in a very clear and lucid manner and the treatment is throughout thoroughly practical, with numerous references drawn from a wide range, including the authors' own experiences in this field of work. The paper is thus a most valuable and authoritative contribution to the study of an important aspect of present-day oil field development.

L. Rama Rao.

CENTENARIES

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Morton Richard (1637–1698)

RICHARD MORTON, a British Physician of repute, was born on 30th July 1637. He matriculated in 1654, graduated from the New College, Oxford, in 1657 and became an M.A. in 1659. Having been a minister and ejected from his living in 1662 on account of his refusal to comply with the requirements of the Act of Uniformity, he turned his attention to Medicine, became an M.D. in 1670 and afterwards settled in London.

His Career

He became a Fellow of the College of Physicians in 1679. James II omitted his name from the charter granted to the College in 1686, but he was restored to his position in 1689. He was censor for several years and eventually became a physician in ordinary to the king.

His Contributions

Morton was recognised to be one of the principal nosographers of the seventeenth century. He popularised the use of cinchona. There was keen rivalry between him and Sydenham. He published two important medical works: *Phthisiologia* (1689) and *Pyretologia* (1692).

The first of these is regarded as a treatise of the highest value. Morton uses the words Phthisis in a very wide sense, to denote not only wasting due to tubercle in the lungs but also the wasting effects of jaundice, gout and other ailments. His second book was one of the first books to recognise scarlet fever as a distinct disease. Morton's works were included in the *Opera medica* which was first published at Geneva in 1696 and went through several editions for nearly half a century.

Morton is said to have been "a man of great gravity, calmness, sound principles, of no faction, an excellent preacher, of an upright life."

He died in London on 30th August, 1698.

Giffen Robert (1837–1910)

SIR ROBERT GIFFEN, a British Statistician, was born at Strathaven, Lanarkshire on 22nd July 1837. His father was a petty merchant. He attended the village school and was in charge of the Sunday-school Library. This opportunity was fully utilised by him. He read all the books he could find and wrote articles and poems for a newspaper.

His Career

After having been in the legal profession for about ten years, he adopted journalism in 1860. He served for a time with John Morley on the staff of the *Fortnightly review* and later became an assistant editor of the *Economist* under Walter Bagehot. He was also the City editor for many newspapers and one of the founders of the *Statist*. In his classical *Report on local taxation* (1871), Goschen acknowledged his indebtedness to Giffen and in 1876 Giffen was appointed to the Board of Trade as the head of the Statistical Department and was later elevated to the position of Assistant Secretary and Controller. He retired from the latter position in 1897.

His Contributions

He was a prolific writer on financial and statistical subjects. His instructive handling of statistics and his keen eye for pitfalls contributed greatly to raise the reputation and encourage the study of statistics in Great Britain. Besides several articles

in learned periodicals, he had published eight books. The *Handbook of Statistics* was ready for publication at the time of his death. His presidential address on *The importance of general statistical ideas* to the section of economics and statistics of the British Association for the Advancement of Science in 1901 broke new ground. He was also a founder of the International Statistical Institute in London (1885).

HIS HONOURS

Glasgow University conferred on Giffen an honorary LL.D. in 1884. He was created C.B. in 1891 and K.C.B. in 1895. He was also a Fellow of the Royal Society. His services were required on various commissions and committees and his work on the Royal Commission on the Depression of Agriculture in Great Britain in 1893–1897, was greatly appreciated.

In a minute written after the passing of the Bankruptcy Act of 1882, Joseph Chamberlain described Giffen as "to a great extent the real author of the measure, to whose exhaustive memorandum on the subject, I owe the best part of my own knowledge".

The following estimate of his statistical ability may be of interest. "He had an arithmetical sense almost amounting to genius, a feeling for the probable errors of the factors used, and a courageous rejection of measurements where the inaccuracy wa too great. He had an intuitive feeling fc the relative importance of numbers."

While on a visit to Scotland, he suddenl died of heart-failure on April 12, 1910. H had no children.

Worth, Richard Nicholas (1837–1896)

R. N. WORTH, an amateur geologis was born on 19th July 1837 i Devonport. He was apprenticed at tl Devonport and Plymouth *Telegraph* an became a member of its staff in 185. Throughout his life he pursued the career a journalist.

HIS CONTRIBUTIONS

But Worth devoted all his spare time investigating the history and geology of tl West of England. Patient and exac dreading hasty theorising, he did not little for the archæology and geology Devon and Cornwall. In the last thir years of his life, Worth had 140 of h papers published, his geological pape having appeared in the *Quarterly Journ* of the Geological Society of London. I was a fellow of the same Society and twi president of the Plymouth Association a once of the Devonshire Association for t Advancement of Science, Literature and A

Worth died suddenly at Shangh Pri on July 3, 1896.

ASTRONOMICAL NOTES.

Planets during August, 1937.—Mercury will attain greatest elongation 27°E. on August 18 and will be visible for a few days about this date in the western sky soon after sunset. Venus will continue to be a morning star throughout the month; on August 3, it will be in conjunction with the Moon, the planet being about a degree south at the time. Mars is moving eastwards in the Constellation Scorpio and will be crossing the meridian at about sunset. There will be a close approach with Antares (α Scorpii) on August 26, the planet (Stellar magnitude, 0·1) passing about 2° north of the star; on August 15, Mars will be in close conjunction with the Moon.

Jupiter will be a conspicuous object in the eastern sky at about sunset reaching the meridian at about 10 p.m. Saturn is in the constellation Pisces and slowly moving westwards. It rises about 9 p.m. in the middle of the month. The Ring ellipse has major axis 43″ and minor axis 4″. Uranus can be seen close to the star σ Arietis (m nitude 5·5) which is nearly equal to it brightness. The minor planet Ceres will be opposition on August 21, but its magnitu at the time will be 7·8 and the object w be visible only with some simple optical a

Of the comets reported this year, o Whipple's Comet is still fairly bright and cessible to instruments of moderate apertu

Comet 1925 II (Schwassmann-Wachman a periodic comet, was found on May 6 Van Biesbroeck on plates taken at the Yerl Observatory. It was a very faint object magnitude 15·5. The comet has a sligh eccentric orbit situated between the orbits Jupiter and Saturn. As during previc oppositions, Van Biesbroeck notes striki fluctuations in the brightness of this Come

Among interesting phenomena occurri in August, mention has to be made of t Perseid meteoric showers August 10–1 the position of the radiant point is R. $3^h\ 0^m$ Declination 57°N.