

Science News a Century Ago

Pentland's Travels in Peru and Bolivia

At a meeting of the Royal Geographical Society on March 25, 1839, extracts were read from a paper by Dr. Bowring "On the Geography of the Country around Cuzco", and an account was given by Joseph Barclay Pentland (1797-1873), H.M. Consul-General in Bolivia, of his travels in Bolivia and Peru during the preceding two years. With the exception of General Miller, it was believed Dr. Bowring and Pentland were the only persons who had visited Cuzco with a scientific object. During his stay in the city—the ancient capital of the Incas—Pentland made plans of the ancient and modern city, and examined the remains of Peruvian architecture. In his paper, he dwelt upon the extraordinary style of cyclopean construction of the ancient Peruvians, which was no less remarkable for the care shown and the remarkable size of the stones, some of which exceeded 150 tons in weight. In the course of his journey, he determined by astronomical observation the position of nearly forty places and he determined their height by barometric measurements. He also referred to a canal cut across a pass of the Western Cordillera into the valley of the Taena. This was planned by an Englishman named Scott and undertaken chiefly by British merchants. At one point it was 14,652 ft. above sea-level.

A Sawing Machine for Iron Rails

ON March 26, 1839, Joseph Glynn, F.R.S. (1799-1863), described to the Institution of Civil Engineers a "Sawing Machine for Cutting off Railway Bars", which had been erected at the Butterley Iron Works, Derbyshire, for cutting rails for the Midland Counties Railway. The machine had two circular saws each of them being 3 ft. in diameter and $\frac{1}{8}$ in. thick. They were mounted in headstocks which could be moved at right angles to the rails. They revolved at 1000 revolutions per minute between two disks of cast-iron faced with copper, and dipped into water. The rails were sawn while hot, it taking 12 seconds to saw through the ends of a 78 lb. rail.

Audouin's Advice to a Naturalist

A FRENCH naval officer, M. Lefebvre, about to travel in countries bordering the Red Sea, solicited instructions as to what objects he should study. Among those he appealed to was the French entomologist Jean Victor Audouin (1797-1841). In the *Athenæum* of March 30, 1839, appeared extracts from Audouin's remarks. "The Gulf of Suez", the article said, "is extremely rich in mollusca, zoophytes, crustaceæ and annelidæ and it is very desirous that the fugitive colours of the Doris, Bursatella, Orchidia, and Tritonia, etc., should be delineated. The animals of several of the shells, also found in the Red Sea, are hitherto unknown; for instance the Anatola, and the same may be said of the zoophytes, concerning which it would be highly important to possess the particulars of form as well as colour, both of which alter so quickly; those of the polypi with flexible stems would be particularly interesting. . . . It is supposed that many new spiders may be found in Abyssinia, and the genus *Lycosa*, to which the *Tarantula* belongs, should be especially examined. It is, however, chiefly the class of insects which may be enriched by a journey to Abyssinia."

Societies and Academies

Paris

Academy of Sciences (*C.R.*, 208, 545-608, Feb. 20, 1939).

H. COLIN and M^{lle}. M.-M. CHOLLET: Formation of inulin in annual plants. Conditions for formation of inulin are more easily realized in the *Campanulaceæ* than in the *Compositæ*.

G. MALÉCOT: Correlations between related individuals, in the hypothesis of homogamy.

V. A. KOSTITZIN: Compatibility of stable singular points of differential equations.

H. CARTAN and S. MANDELBJROJT: Solutions of Carleman's problem for a finite interval.

D. BELORIZKY: Imaginary triple collisions in the plane problem of three bodies.

R. JAMIN: Theorem relating to the isentropic flow of perfect gases.

J. BETHENOD: Determination of the range in which an alternating current arc functions.

F. CARBENAY: Propagation of high-frequency oscillations on networks for the transport of electrical energy.

T. KOFMAN: Action of visible and ultra-violet light on periodic reactions.

G. REBOUL and E. THIBAUD: Emission of ionizing radiations by salts of ordinary metals.

J. SOLOMON: Splitting of radioactive nuclei by neutrons. It is suggested that the action is analogous to 'predissociation' of molecules.

H. VON HALBAN, JUN., L. KOWARSKI and M. MAGAT: Intensity of the neutrons in cosmic radiation. Radio-element ^{82}Br was produced by cosmic ray neutrons, the intensity of which was much greater at a height of 9,500 metres in an aeroplane than on the ground in Paris.

M^{me}. T. GUILMART: Absorption in the ultra-violet of oximes in the solid state. The bodies exist in two forms with different spectra.

Y. DOUCET: Principles of cryoscopy and the construction of a cryoscopic apparatus.

C. DUVAL and G. MAZARS: Micro-estimation of halogen ions; acid-alkali test.

G. WÉTROFF: Reaction with chlorine of some derivatives of the phosphonitrile radical.

M^{lle}. M. MURGIER: Preparation of soluble molybdc acid.

M^{me}. Z. SOUBAREW-CHATELAIN: Constitution of molybdc acid in dilute aqueous solution.

R. PAUL: Opening of hydrofuranic and hydro-pyranic cycles by acetic anhydride.

W. S. REICH: A new series of esters of the oses, the azoyl-esters.

J. LUGEON: Instantaneous determination, without calculation, of any altitude of a *radio-sonde*.

P. GAVAUDAN, M^{me}. N. GAVAUDAN and J.-F. DURAND: Effect of some hydrocarbons and their derivatives on mitosis and on cytodieresis.

A. TOUBNADE and G. CHARDON: Mechanism of post-depressive hypertension observed after temporary insufflation of the lungs.

G. UNGAR and J.-L. PARROT: Influence of bleeding on the power of the plasma to destroy histamin.

H. MUNTZ: Fundamental laws of hæmodynamics.

M^{lle}. V. DEUTSCH: Sedimentation constant and molecular weight of syphilitic reagin.

S. METALNIKOV, A. YAKIMACH and O. YADOFF: Action of radioactive radiations on microbes.