

club, whilst a section headed "Entertainments" is wholly devoted to reviews of nine films. But, for examples of the most thoroughgoing exploitation of the cinema as an educational agency, one must turn to the schools of Japan. There, not only has every secondary school its motion picture study club, but also a constant flow of new pictures for use as an integral part of classroom work is supplied by the State. These serve both as aids to teaching geography, physics, chemistry, natural history and mathematics and for "fostering national morality through Japanese history. . . . This is the basis of our national education". The quotation is from a statement attributed to the Minister of Education in *School and Society* of March 3.

Science News a Century Ago

Darwin in the Andes

On August 14, 1834, Darwin set out on a riding excursion from Valparaiso. The first day brought him to the Hacienda of Quintero, which formerly belonged to Lord Cochrane. "My object in coming here," he said, "was to see the great beds of shells, which stand some yards above the level of the sea, and are burnt for lime. The proofs of the elevation of this whole line of coast are unequivocal: at the height of a few hundred feet old-looking shells are numerous, and I found some at 1,300 feet. These shells either lie loose on the surface, or are embedded in a reddish-black vegetable mould. I was much surprised to find under the microscope that this vegetable mould is really marine mud, full of minute particles of organic bodies". On the morning of August 16, he started the ascent of the Campana, or Bell Mountain, 6,400 ft. high, and the following day climbed to the top. "We spent the day on the summit," he wrote, "and I never enjoyed one more thoroughly. Chile, bounded by the Andes and the Pacific, was seen as in a map. . . . Who can avoid wondering at the force which has upheaved these mountains, and even more so at the countless ages which it must have required, to have broken through, removed, and levelled whole masses of them? It is well in this case, to call to mind the vast shingle and sedimentary beds of Patagonia, which if heaped on the Cordillera, would increase its height by so many thousand feet. When in that country, I wondered how any mountain-chain could have supplied such masses, and not have been utterly obliterated. We must not now reverse the wonder, and doubt whether all-powerful time can grind down mountains—even the gigantic Cordillera—into gravel and mud."

An Aerial Ship

On August 14, 1834, the *Morning Chronicle* gave a description of the great aerial ship which was then on exhibition on the premises of the Aeronautical Society, Paris, in the Champs Elysees. This novel conveyance consisted of a balloon 134 ft. long, 34 ft. high and about 25 ft. wide. It was in the form of the air-bladder of a fish, rather wide in the middle while the ends were in the form of pointed cones. It was described as capable of lifting 6,500 lb. The car, which was made of wicker-work, painted tricolour, was 66 ft. long and very narrow, with seats across it at regular intervals. It was fixed immediately under the balloon and it could accommodate thirty persons. The material of which the balloon was

made was prepared in such a way as to preserve the gas for fifteen days. There were rudders at each end of the car and paddle wheels of canvas stretched over light iron frames on either side. The principal projector of this gigantic undertaking was M. Lennox, formerly a superior officer in the French Army. A trial was to have been made on August 15, but it was postponed until August 17. On that day, great crowds assembled to see the gigantic balloon ascend, but at 12.30 p.m., just when the fully-inflated balloon was being drawn down for the aeronauts to embark, it turned upside down and burst with a loud explosion.

The Worcestershire Natural History Society

Referring to the publication of the "Illustrations of the Natural History of Worcester" by C. Hastings, M.D., the *Athenæum* of August 16, 1834, said: "We notice with sincere pleasure this first fruit of the Worcester Natural History Society being the substance of an introductory lecture delivered to them by Dr. Hastings, and including general views, comprehensive and interesting, of the Statistics, Geology, Botany, Zoology and Meteorology of that country. Gladly would we hail the establishment of such a Society in every county in England, as nothing, we conceive, would so decidedly tend to the collection, as well as diffusion of useful knowledge, to binding together all ranks in the pursuit of science, to promoting universal harmony and good will, and to ameliorating the conditions, both of the upper and labouring classes, by making them better acquainted with the necessities, the interests and the feelings of one another."

The Göttingen Magnetic Observatory

The study of terrestrial magnetism in the earlier part of the nineteenth century led to the formation in 1834 of the German Magnetic Union and the erection by Gauss of the Magnetic Observatory at Göttingen. This Observatory and its equipment were described in the number of the *Göttingische gelehrte Anzeigen* of August 1834, a translation of the article being afterwards published in the *Philosophical Magazine*. The observatory was about 100 yards from the Astronomical Observatory, and formed an oblong about 32 ft. by 15 ft. Everything in the building usually made of iron, such as locks, hinges, etc., was of copper, and draughts were prevented as much as possible. The principal instrument was the "magnetic bar made of Uslar cast steel which is particularly fit for magnetical observations". It was 610 mm. in length and weighed about 4 lb. It was suspended from the ceiling by a 200-fold untwisted silk thread, and the inconvenience caused by the stretching of the threads was overcome by an ingenious device due to W. E. Weber, the colleague of Gauss. Besides Gauss and Weber, Ulrich, Goldschmidt, Listing, Sartorius, Deahna and W. Gauss had made observations, while Sartorius had made observations at a country house in Bavaria. The concluding paragraphs of the article refer to the "double line of wires from the cabinet of natural philosophy over the houses of the town to the astronomical observatory", which had been continued to the magnetical observatory, thus forming a chain by which the galvanic current, including the multipliers attached to each end of the chain, has to run through a length of wire nearly 9,000 feet. "This arrangement," it was said, "is likely to produce the most interesting results."