it has hitherto undertaken or promoted, in that it involves tracing the progress of individual students throughout their careers in secondary schools and in college. Previous studies have presented in cross section pictures of a situation at a selected time without regard to what went before or followed in the experience of the individual student. The investigations, which will necessarily be prolonged through a period of ten years, will embrace the work done in most of the secondary schools and fifty colleges in Pennsylvania, and will, it is hoped, throw light on the validity of currently used methods of classification of pupils according to abilities and interests, on the degree of consistency to be looked for in normal educational growth, and on the actual efficiency of secondary and higher institutions in the organisation and administration of courses of study, the evaluation of educational products, and the rewarding of student effort. In tracing the progress of individual students through college, material will, it is thought, be obtained for dealing with difficulties resulting from the kaleidoscopic nature of the elective curriculum and the bewildering variety of personal contact and advice, much of it of a partisan character, to which the college entrant is exposed. Much might be done, it is suggested, in "initiating vigorous, wholly avowed and official measures to *understand* the student, and thus to discharge primary obligations of the college". Other matters of general interest in the report are reviews of the rise and present position of endowed foundations in the United States, of professional salaries, and of pension systems.

THE League of Nations sets a high value on the dissemination among the children and youth of a knowledge of its aims and achievements. The question how this may best be accomplished has been investigated during the past eighteen months by a joint committee representative of English and Welsh education authorities and teachers' professional associations, and the conclusions arrived at as a result of its labours are now published in a pamphlet entitled "Education and the League of Nations". The committee's investigations embraced work done in elementary and secondary schools and in training colleges and university training departments. It is in the elementary schools that progress has been most marked. In secondary schools there is a disposition to look askance at instruction in the principles and activities of the League as 'propaganda', and to mark time pending adaptation of examination syllabuses by the various school examination authorities to the League's educational policy. The teacher training institutions do not seem to have made hitherto an adequate response to Lord Eustace Percy's appeal to the conference of local education authorities in June 1927, when he pointed out that it is above all the students at these institutions for whom opportunities must be provided for acquiring a sound knowledge and a balanced view of the origin and work of the League. In its recommendations the joint committee has shown how this ideal may be translated into practice. It deals also with such matters as school celebrations, visits to Geneva, interchange of correspondence, school journeys, and the interchange of schoolboys and girls. If the minds of the rising generation are to develop the attitude postulated by the Kellogg Pact, it is essential that measures such as those recommended should be adopted, and not only in Great Britain but also among other, including less peace-loving, peoples. Copies of the pamphlet can be obtained (price 3*d*. each) from the office of the League of Nations Union, 15 Grosvenor Crescent, London, S.W.1.

Historic Natural Events.

Jan. 1, 1926. Rhine Floods.—The river began to rise rapidly on Dec. 27, and by Jan. 1 stood 32 feet above normal low water at Cologne, the highest level of the Rhine on record. Three-quarters of the town was under water, which stood 13 feet above the river banks. Great damage was done by the Rhine, Scheldt, and Maas in Holland; dykes burst, and wide areas of low ground were flooded. The floods were caused by heavy rain on the hills coinciding with high winter temperature and the melting of the snows.

Jan. 6–7, 1889. Rime.—After two days of frost and dense fog in Norfolk, the wind changed to south-west, and an unusually thick deposit of ice-needles, up to two inches in length, was formed on the windward sides of exposed objects. Many isolated deciduous trees, especially birch, oak, elm, and poplar, were badly damaged, while nearly all overhead telephone and telegraph wires were broken down.

Jan. 6–7, 1839. Great Storm.—On the night of Jan. 6–7, western and northern Ireland, northern England, and southern Scotland were visited by an exceedingly violent gale from the south-west, probably the worst since that of 1703. Many thousands of trees were uprooted in Ireland, houses were unroofed, chimney stacks and walls blown down. Many vessels were wrecked and there was great loss of life. Menai Suspension Bridge was damaged.

Jan. 6–7, 1928. Thames Flood.—The predicted height of the high tide at London Bridge on the early morning of Jan. 7, that is, the height to which the water would rise if the meteorological conditions were normal, was 21 feet above Admiralty datum. This is not especially high, for the predicted height sometimes reaches 25 feet. The water actually rose nearly six feet above the predicted height, making the highest known level of the Thames in London, and flowed over or through the embankments at several points in the City, Southwark, Westminster, and westward to Hammersmith. The low-lying riverside districts are below the level of spring tides, and were deeply flooded, while fourteen people, most of whom were sleeping in basements, were drowned.

The abnormal rise was due to a 'storm surge' in the southern North Sea. On Jan. 6 a deep barometric depression travelled rapidly across Scotland in an east-south-east direction, and in its rear a gale blew from north-west and north over the North Sea during the evening, driving a storm wave southwards. At 3 P.M. on Jan. 6 the level was 1·6 feet above the normal tide at Dunbar. Travelling along the east coast the wave grew in height and reached Southend at 11 P.M., raising the level 5 feet. Opposite the Thames estuary it divided into three parts; only a small part passed through the narrow Straits of Dover, raising the level about 3 feet, another part travelled north-eastwards along the coast of Holland, and the remainder entered the Thames estuary, reaching London at 1 A.M. on Jan. 7. An auxiliary factor in the London flood may have been the high level of the Thames itself, due to heavy rain and melting snow. On Jan. 7 the flow at Teddington Weir was 9500 million gallons a day, more than double the flow when the river is 'bank high'. This river water would, however, be rapidly distributed in the widening estuary, and probably did not contribute more than a few inches to the height of the tide at London Bridge.

Jan. 7, 1558. 'Calais' Storm.—It is recorded by Holinshed that at the taking of Calais "began a marvellous sore and rigorous tempest, continuing the space of four or five days together". A severe thunderstorm beat down houses and churches.

Jan. 7, 1831. Luminosity.—Owing to the presence of a kind of luminous mist, print could be read at midnight in Italy and Germany. The abnormally light nights continued for a considerable period.

Jan. 8, 1924. Cyclonic Wave.—A small but deep barometric depression passed from Ireland across France. It was accompanied by a cyclonic wave which struck the coast of Brittany, causing the sea to rise 3 feet above the level of the highest spring tides, and inundating the coast.

Jan. 9, 1857. Californian Earthquake.—An earthquake, preceded by strong shocks, was felt in southern California, from Sacramento to Fort Yuma, a distance of nearly 600 miles. It was most severe at Fort Tejon, in the neighbourhood of which a fissure 40 miles long was formed. A remarkable feature of the earthquake was its effect on the rivers of the district. The water of the Mokelumne River was thrown on its banks so as to leave the bed bare in one place, while the stream of the Kern River was reversed.

Jan. 9, 1896. High Pressure over Scotland.—During the second week of January, an anticyclone moved westward from the continent of Europe over the British Isles, where it combined with another anticyclone lying off our north-west coasts, and increased suddenly in intensity. At 8 A.M. on Jan. 9 the barometer exceeded 31 inches (1050 millibars) over the whole of Scotland, the first appearance of that isobar on our weather charts. The highest reading, corrected for gravity, was 31·139 inches (1054·5 mb.) at 9 A.M. at Ochtertyre, Perthshire. After Jan. 9 the whole system moved away south-westwards, and on Jan. 10 the highest reading was just below 31 inches. A remarkable return of high pressure occurred at the end of the month, when the corrected barometer rose to 30·975 inches (1048·9 mb.) at Valentia, Ireland. A peculiarity of both anticyclones was the mild weather associated with them. In the British Isles high pressure in winter is generally associated with frost and fog, but on both occasions in January 1896 temperature was almost everywhere above the freezing-point.

Jan. 10, 1608. Severe Winter.—The winter of 1607–8 was probably the most severe on record in western Europe, and was long remembered as "the great winter". In England the cold continued from Dec. 5 to Feb. 14, but on the continent of Europe it continued until the middle of March. On Jan. 10, in a church in Paris, the wine froze in the chalice. All the great rivers of western Europe were frozen, fires were lit on the Thames, and the Zuider Zee was crossed from Harlingen to Amsterdam. Many human beings, cattle, and young trees were killed. The break-up of the ice was followed by great floods.

Jan. 10–15, 1820. Great Cold.—A short period of very intense cold occurred from England to Italy. Arago remarks that on Jan. 10 a great number of mulberry trees split along their whole length, mostly trees from ten to thirty years old. The openings remained until the end of the frost, after which they healed up and the trees survived. An observer at Tunbridge Wells recorded that on Jan. 15 the thermometer fell to −10° F., "the lowest by fourteen degrees that I ever remember it". The details of this thermometer and its exposure are not known, so that this reading cannot be compared with modern 'records'.

Jan. 11, 1900. Haloes and Mock Suns.—Brilliant optical phenomena were visible over the greater part of south-east England during the morning. The common halo of 22° and the rarer halo of 46° were both visible and brilliantly coloured. Above both haloes were arcs of contact, and a mock sun appeared to the right of the true sun on the 22° halo. Some observers also saw a second mock sun to the left of the true sun.

Societies and Academies.

LONDON.

Geological Society, Dec. 18.—**Frederick Walker**: The geology of the Shiant Isles. The Shiant Isles form a small uninhabited archipelago in the North Minch, some five miles east of the Park district of Lewis. The group is made up almost entirely of crinanite sills separated by relatively thin argillaceous strata which have undergone considerable contact-alteration, but the fossil content of which (ammonites, belemnites, and one species of *Inoceramus*) assigns them to a low position in the Upper Lias. The two largest islands are each over a mile in length, and are joined by a shingle beach. A third large island lies about a mile to the east, and is also to a great extent made up of a single thick sill of crinanite. East of this island, however, the crinanite passes gradually into syenite, towards the centre of the sill, the thickness of the alkaline rock being at least 60 feet. The age of the igneous activity is almost certainly Tertiary, and is probably the same as that of the Trotternish sills in Skye. Although glacial striæ are not seen on the islands, their general aspect indicates a flow of ice from south to north during the Glacial Period.

DUBLIN.

Royal Irish Academy, Dec. 9.—**Gertrude Connolly**: The vegetation of southern Connemara. The paper dealt with the vegetation of a large area lying west of Galway between the sea and the mountains—a vast tract of almost unbroken bog. This area had not previously been examined botanically save along its margins. Rainfall and humidity are very high, and in consequence the bogland is perennially extremely wet and difficult to explore. The vegetation proved to be limited in number of species, and alternated mainly between those of drier and wetter bog.

LEEDS.

Philosophical and Literary Society, Dec. 10.—**G. W. Brindley**: (1) On the dielectric constants of helium and argon. The dielectric constants of these gases are calculated from the charge distributions obtained by Hartree, using an expression due to Pauling and others for the dielectric constant of an electron in a central field of charge Z^1e, Z^1 being chosen so that r^4 is the same for the hydrogen-like distribution as for the Hartree charge distribution. The calculated value of $(K-1)$ for helium agrees well with the experimental value, but the calculated value for argon is not good.—(2) Note on the accuracy of constants in an optical dispersion formula. The accuracy is considerably less than the accuracy of the experimental values of the refractive index. In the case of methane, if $(\mu-1)$ is assumed accurate to 1 part in 50,000, the constants in the formula $(\mu-1)=C/(p^2-n^2)$ can only be accurate to about 1 per cent, owing to the form of the dispersion curve and the limited range of experimental data.—(3) Note on distribution of charge with carbon atom (2). A continuation of a previous paper, pointing out that some new experimental measurements of the X-ray scattering factor F are in good agreement with the theoretical value given in Part 1.—**R. Whiddington**: Note on the electron gun. Experiments are described in which the electron beam from a gun is used in a cathode ray oscillograph and is found to possess a velocity much less than that calculated from the applied potential. A curious shortening of the beam under certain conditions was also observed.—**J. E. Roberts and R. Whiddington**: Note on inelastic electron