our recent forms from this region, so there seems little doubt that these shells as well as the deposit in which they were found are post-glacial in age.

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CURRENT NOTES ON METEOROLOGY.

THE TEACHING OF CLIMATOLOGY IN THE UNITED STATES.

At the meeting of the Association of American Geographers in New York last December a paper was read by Professor Cleveland Abbe on 'The Present Condition in our Schools and Colleges of the Study of Climatology as a Branch of Geography, and of Meteorology as a Branch of Geophysics' (abstract in *Bull. Amer. Geogr. Soc.*, XXXVIII., 121–123). It appears that about 1,000 graded schools teach the elements of climatology as a part of geography, receive the daily weather maps and give talks upon their use in forecasting the weather. About 7,000 high schools, or seven eighths of the whole number, teach the elements of meteorology and climatology in connection with physical geography or physical geology.

The replies to a circular letter recently sent to 177 public normal schools in the United States indicate that in about 25 meteorology and climatology are taught in specific courses, in about 115 these subjects are taught in connection with physical geography or some other allied subject, and in the remaining 37 these subjects are not touched upon.

As to colleges and universities, out of 245 replies 49 state that they have specific courses in meteorology, 95 teach meteorology in connection with some other subjects, and 101 pay no attention to the subject. The corresponding percentages are 20, 39 and 41; probably the replies from other colleges and universities will not alter these ratios very much.

In fully one half of these institutions, from the lower schools to the higher universities, some form of laboratory method is pursued—that is to say, students are required to make personal observations, experiments and deductions.

LIGHTNING CONDUCTORS.

Bulletin No. 37, of the Weather Bureau, by Professor A. J. Henry, deals with 'Recent Practise in the Erection of Lightning Conductors.' It presents a description of the lightning conductors on the Washington Monument; the preface to the Report of the Lightning Research Committee, by Sir Oliver Lodge; the rules for the erection of lightning conductors as issued by the Lightning Rod Conference of 1882, with observations thereon by the Lightning Research Committee of 1905, and brief statements of the latest practise abroad, in Holland, Hungary and Germany. In this connection reference may be made to a recent book, 'Modern Lightning Conductors,' by Killingworth Hedges, in which some interesting illustrations are given of damage by lightning and of different methods of protection. The recent studies of lightning have brought out some definite rules to be followed if proper protection is desired, and there need be no more of the haphazard, ineffective and often dangerous 'protection' of years back.

SOIL TEMPERATURE AND SNOW COVER.

To the *Deutsches Meteorologisches Jahrbuch* for 1901, volume for Saxony, Professor Paul Schreiber, director of the section for Saxony, contributes a noteworthy practical, observational and experimental, as well as theoretical, discussion of soil temperatures and the effects of a snow cover. This study, which occupies nearly one hundred quarto pages, exceeds in completeness anything that we have yet seen on this subject. The distribution of temperature in the soil at readings over 32° F.; the snow cover and the effect of frost upon bare ground; and the theoretical aspects of the subject, are all discussed in great detail. A series of diagrams help to a better understanding of the text.

We note in the same volume of the *Deutsches Meteorologisches Jahrbuch* a page devoted to facsimile reproductions of barograph and of thermograph curves which showed special peculiarities during the year 1901. We suggest that similar diagrams would add greatly to the value of the annual

summaries of the different state sections of our Climatological Service of the Weather Bureau.

VOLCANIC ERUPTIONS AND RAINFALL.

THE eruption of Vesuvius draws attention once more to the supposed connection between rainfall and volcanic activity. Curiously enough, a recent number (Vol. III., No. 1) of the *Bolletino* of the Italian Meteorological Society contains a paper on this subject. It appears, from studies at Mt. Etna, that there is no evidence of any relation between the activity of the volcano and local rainfall. In this investigation both the daily variation in activity during the 1892 eruption, and the whole series of eruptions whose dates are accurately known, are taken into account.

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ENGLISH VITAL STATISTICS.

THE registrar-general's annual summary, giving the births, deaths and causes of death in London and other large towns in 1905, has just been issued. According to the abstract in the London *Times* the 76 great towns of England and Wales dealt with in the weekly returns for 1905 contained an estimated population of 15,609,377 persons in the middle of that year. The births registered in these towns in the period of 52 weeks ended December 30, 1905, numbered 438,360, and were equal to a rate of 28.2 per 1,000 of the population, the rates in the three preceding years having been 30.0, 29.7 and 29.1. The deaths registered in the same period numbered 244,840, and corresponded to a crude rate of 15.7 per 1,000, the rates in the three preceding years having been 17.4, 16.3 and 17.2. The death rate in 1905, calculated without reference to sex and age constitution of the populations, varied, as usual, considerably in the several towns, the lowest crude rate being 7.6 per 1,000 in Hornsey, and the highest, 22.1, in Merthyr Tydvil.

The 244,840 deaths at all ages included 61,279 of infants in their first year of life. In the 76 great towns infantile mortality, measured by the proportion of deaths under one year to registered births, was 140 per 1,000, the mean proportion in the preceding three years having been 150. Smallpox was the cause of 51 deaths in the 76 towns. Of these 10 belonged to London, 7 to Bradford, 5 to Oldham, 4 to Southampton, 4 to Burnley, 4 to South Shields and smaller numbers to 11 other great towns. Measles was the registered cause of 6,058 deaths, which corresponded to a rate of 0.39 per 1,000 living at all ages. Scarlet fever caused 2,082 deaths, which corresponded to a rate of 0.13 per 1,000 living. Diphtheria (exclusive of croup unless stated to be membranous) was the stated cause of 2,528 deaths, corresponding to a mortality of 0.16 per 1,000 of the population. Whooping cough accounted for 4,507 deaths and for a mortality equal to 0.29 per 1,000 living at all ages. Continued fever, mainly enteric, was the registered cause of 1,252 deaths, equal to a rate of 0.08 per 1,000 of the population. Diarrhœa (including dysentery and English cholera) accounted for 12,877 deaths at all ages, and for a death rate of 0.83 per 1,000 of the population.

The marriages in London during the year 1905 numbered 39,631, corresponding to a rate of 16.9 persons married per 1,000 of the population at all ages. This rate was 0.1 per 1,000 below the corresponding rate in 1904, and was 1.0 per 1,000 below the average rate in the ten years 1895–1904. In the year 1894 the marriage rate was 17.0; from that date it gradually rose to 18.8 in the year 1898, since which year it has declined almost continuously to its present level. The number of births registered in London during the 52 weeks ended December 30, 1905, was 126,620. In proportion to the total population of both sexes and all ages, these births were equal to a rate of 27.1 per 1,000. The birth rate in 1905, calculated in this way, was 0.8 per 1,000 below that in 1904, and was 2.2 per 1,000 below the average in the ten years 1895–1904. In the year 1895 the birth rate was 30.6 per 1,000, showing an increase on the rate in the previous year. Since that date, however, the birth rate has gradually decreased, the rate in the year 1905 being the lowest on record. The