25.5 per cent. to 32 per cent. tin.—The same complex, but containing the $Cu_4Sn$ in the larger crystals, and the above solid solution only in the minute eutectic. At 32 per cent. the alloy is pure $Cu_4Sn$.

32 per cent. to 38.5 per cent. tin.—A complex of $Cu_4Sn$ and $Cu_3Sn$, or of two solid solutions of these substances. At 38.5 per cent. the alloy is pure $Cu_3Sn$.

38.5 per cent. to 93 per cent. tin.—Large crystalline plates of $Cu_3Sn$ coated with a body that is almost pure CuSn, the whole being immersed in a eutectic of this body and tin.

93 per cent. to 99 per cent tin.—Large crystals of CuSn in a eutectic of this body and tin.

99 per cent. to 100 per cent. tin.—Large crystals of tin in the same eutectic.

The whole research presents one of the completest and most valuable studies of alloys which has yet appeared, and throws much light upon the nature of alloys in general.

### THE TRAINING OF TECHNICAL CHEMISTS IN ENGLAND.

ANOTHER interesting report presented to the same meeting was that of a committee, headed by Professor W. H. Perkin, on statistics concerning the training of chemists employed in English chemical industries. Information was received from 502 managers and chemists employed in English chemical industries, and while of course not every chemist so engaged is included it is believed that the list is tolerably complete. Of this number 107, or 21 per cent., are graduates of a university, while 395 have not taken a degree; 111 are fellows or associates of the Institute of Chemistry. It is perhaps worth while to present the following more detailed information from the report:

| | |
|---|---|
| Number of graduates of a British university. | 59 |
| Number of graduates of both a British and a foreign university | 16 |
| Number of graduates of a foreign university.. | *32 |
| | 107 |
| Number of non-graduates trained in a British university or university college..... | †137 |
| Number of non-graduates trained in a British technical college ..... | 165 |
| Number of non-graduates trained in a foreign university or technical college..... | 8 |
| Number of non-graduates trained in evening classes, analysts' laboratories, or otherwise ..... | 85 |
| | 395 |

* 13 of whom studied also in a British university or technical college.

† 20 of whom studied also in a foreign university or technical college.

These statistics present a certain amount of encouragement in that over 80 per cent. of those reported have had at least some training in university or technical college, but the proportion of graduates is deplorably low. It is also probable that most of those who have escaped enumeration have had little or no university training. On the other hand, the work of the technical colleges is clearly apparent, and this is a hopeful sign for the future. The number who have received training in a foreign institution is surprisingly low, only 76 in all. It is probable that the proportion in this country would run higher, and this in spite of the greater difficulties connected with an American's studying abroad. J. L. H.

## *CURRENT NOTES ON PHYSIOGRAPHY.*

### NORTHEAST LABRADOR.

DALY'S report on 'The Geology of the Northeast Coast of Labrador' (*Bull. Mus. Comp. Zool.*, Harvard College, XXXVIII., 1902, pp. 205–270, 10 pl., 3 maps) gives the results of a Brown-Harvard expedition in a forty-ton schooner, sailing from St. John's, Newfoundland, June 25, and returning there October 3, 1900. The Torngat mountains, rising to altitudes of 5,000 or 6,000 feet, the highest summits on the Atlantic coast from Hudson strait to Cape Horn, present many sharp ridges and peaks, unmapped and unnamed; their upper slopes are cloaked with coarse rocky detritus; their lower slopes show numerous signs of strong glaciation. The fiords by which the bold coast is so greatly indented are associated with all the features characteristic of strong glacial erosion; overdeepened floors and over-steepened walls, with hanging lateral valleys and cirques in adjoining uplands. A cascading stream descended 750 feet from one of the hanging valleys into

a fiord 500 feet deep, thus making a discordance of 1,250 feet between trunk and branch ice-channels. Although the coast exhibits a very large proportion of bare rock, moraines of well-preserved form are found here and there. The limit of post-glacial sea-action is about 575 feet above present sea-level at St. John's and declines northwestward somewhat irregularly to 250 feet at the furthest point reached. Within the wave-washed slope boulders are rare; sea-cut and sea-built shore lines are common.

A narrative of the expedition is given by Delabarre (*Bull. Geogr. Soc. Phila.*, III., 1902, 65–212).

PHYSICAL GEOGRAPHY OF NEW YORK.

THE series of articles contributed by Tarr to the *Bulletin of the American Geographical Society* is now published in book form—'The Physical Geography of New York State'—with a chapter on Climate by Turner (Macmillan, 1902, 397 pp., many figures and maps). It makes by far the most compendious treatise yet devoted to the physiography of the Empire State, and must prove of great service to students there and elsewhere from its interesting style, its abundance of illustration (some of the half-tone cuts are, however, blurred to the point of being useless defacements of the pages), and its plentiful reference to sources. Yet the book is disappointing, in so far as it shows that regional physiography is still an undeveloped subject, uncertain of its limits, relatively unsystematized and undisciplinary in its methods, and not clearly guided in its presentation by a thoroughly developed scheme of systematic geography. To Tarr, nevertheless, belongs the merit of actually accomplishing an important piece of work according to his best plan available for it, while other physiographers seem to hesitate to begin such tasks because they do not see clearly through them to the end.

NEW MAP OF SWITZERLAND.

THE Federal Topographical Bureau at Bern has recently published a four-sheet wall map of Switzerland on a scale of 1:200,000, in which the illusion of actual relief is most effectively produced. The original map was colored by Künemerly, artist-lithographer of Bern. It subdues the lowlands in a cool gray tint, and brings out the mountains as if lighted from the northwest by a midsummer sunset; the illuminated slopes being white or rose, the shaded slopes blue or purple. The area includes reaches from the southern Vosges and Schwarzwald to the northern border of the plains of Lombardy, and takes in the whole of the Jura on the west and part of the Tyrolese Alps on the east. Boundaries and the larger towns and cities are in red, water in blue, roads and names in black. Contours are drawn for every one hundred meters. The map is an exceptionally fine piece of work and should come into general use in the study of the Swiss Alps.

W. M. DAVIS.

## SCIENTIFIC NOTES AND NEWS.

THE committee of the House on Buildings and Grounds has reported favorably the bill, which has passed the Senate, carrying $2,500,000 for the construction of a new building for the Department of Agriculture, but reduced the limit of cost to $1,500,000.

DR. W. A. SETCHELL, professor of botany at the University of California, has been given leave of absence for the next academic year.

MRS. M. C. STEVENSON has returned to Washington from ethnological investigations at Zuñi.

AT New York University Professor Carl C. Thomas, head of the department of marine engineering, has resigned to devote his time exclusively to professional work on the Pacific Coast.

DR. ROSE BRADFORD has resigned the post, which he has held since 1896, of professor-superintendent of the Brown Animal Sanitary Institution, London.

MESSRS. SIEMENS and Halske, Berlin, have acquired the European patents of the system of long distance telegraphy, discovered by Professor Michel Pupin, of Columbia University.

DR. ANDREW BALFOUR, of Edinburgh, is going out as director of the chemical and phys-