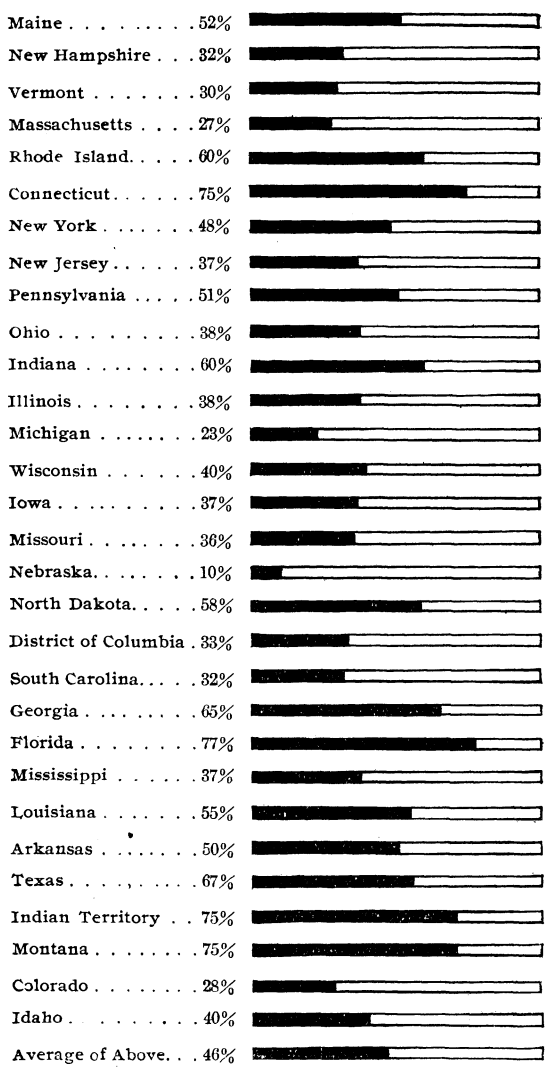
birds and mammals in different parts of the United States. While results obtained in this way express opinions rather than exact statistics, the column showing the percentages of decrease in bird life during the last fifteen years will be of value in arousing the national sentiment for the preservation of our rapidly disappearing wild life. The correspondence is published in detail, and a large edition of this special paper in the Annual Report has been ordered for distribution in various parts of this country where it will be of the most service.

DECREASE IN BIRD LIFE IN THIRTY STATES.

The shaded portions show the percentages of decrease throughout the States named during the last 15 years, according to the reports made to the New York Zoological Society.




During the past year four honorary members have been elected to the Society as follows :

Mr. Arthur Erwin Brown, Philadelphia Zoological Gardens.

Professor Daniel Giraud Elliot, Field Columbian Museum, Chicago.

Dr. C. Hart Merriam, Director of the Biological Survey, U. S. Department of Agriculture, Washington, D. C.

Dr. Philip Lutley Sclater, Secretary of the Zoological Society of London.

Public interest in this project has been stimulated by means of popular illustrated Bulletins. The Annual Report also is fully illustrated by engravings showing the Park as it is, and the London Zoological Gardens. A large colored map, executed by the Matthews-Northrup Co., of Buffalo, is included in report, and shows in detail the final plan as approved by the Society and the City.

Henry F. Osborn.

## *ENGINEERING NOTES.*

The opportunity for further improvement in the manufacture of armor-plate and consequent reduction of cost and price is well seen in comparing prices of this class of steel with those of other and more familiar sorts. With rails costing but $15 to $17 a ton, $\frac{3}{4}$ cent a pound, to make and selling at fifty per cent. higher figures in the market, and armor-plate at the following quotations, say at 25 cents a pound, there is obviously a grand opportunity for the mills to make money to-day and the inventor and the breaker of the monopoly to make more money later. The figures which follow are taken from bids of various makers for armor-plate to be supplied the Russian

government recently. The first two firms are English; the next four are French; the next two German and Austrian, and the next two American; the last is Russian:

| | All round Price. | 9 in. | 8 in. | 7 in. | 6 in. | 5 in. | 4 in. |
|---|---|---|---|---|---|---|---|
| | £ | £ | £ | £ | £ | £ | £ |
| Vickers, Sons, and Maxim | 117 | — | — | — | — | — | — |
| John Brown | 115 | — | — | — | — | — | — |
| St Chamond | — | 98 | 99¼ | — | — | 108 | 110 |
| Schneider et Cie | — | 100 | — | 106 | — | 111 | 114 |
| Chattillon | — | 97¼ | 99¼ | 103½ | — | 113 | — |
| Marrel Fieres | — | — | — | — | 106¼ | — | 116½ |
| F. Krupp, Essen | 112½ | — | — | — | — | — | — |
| Dillingen | 112 | — | — | — | — | — | — |
| Bethlehem Co. | 106 | — | — | — | — | — | — |
| Carnegie Co. | 106 | — | — | — | — | — | — |
| Witkowitz | 90½ | — | — | — | — | — | — |

The highest figures are submitted by English firms. The American bidders offer the lowest terms tendered by makers whose work is well-known and of the highest existing quality. They received the last Russian contract at their own figures and in spite of the lower offers of the French and Russian firms and the close figures given by Krupp. No award is yet announced for the present tender.

FRENCH builders and users of 'motor cycles' are apparently more active and enthusiastic in that new field of enterprise than are those either of the other European nations or of the United States. Frequent reports of competitions in which high speed and long routes have been distinguishing characteristics come to us, from Paris, particularly, and in some cases the reported results are exceedingly interesting and suggestive. The 'Criterium des Motor Cycles,' from Étampes to Chartres and return, occurred early in the present month. The run was 100 kilometers. There were fifty-three entries, twenty-eight actually taking part in the contest. In fine weather, but in a strong wind, M. Leon Bollée made the run in 1 hr., 57 min., 49⅘ sec., his nearest competitor making the time 2 hrs., 20 min., 53⅗ sec. The winning vehicle had an 8 h. p. motor with two cylinders. The running speed of the victor was 51 kilometers (32 miles) an hour, unequalled by any road carriage to date, though closely approximated by steam-carriage makers sixty years ago in Great Britain. This speed is, of course, regarded as much too high for safety, on the excellent highways of France, even. The overloading of the carriage with power ruled out the motor-cycle of M. Bollée, as it was found to be in excess of the limit of weight; but this excess of power is considered by the builder to be justifiable for carriages intended to be employed in hilly countries.

R. H. THURSTON.

## *CURRENT NOTES ON PHYSIOGRAPHY.*

### PHYSICAL GEOGRAPHY OF NEW JERSEY.

THE Final Report of the State Geologist of New Jersey now reaches a fourth volume, which gives a serious discussion of the physical geography of the State by Salisbury. It replaces the first volume of this final series (now out of print), in which the topography of the State was described by Vermeule, and forms a valuable text for advanced students. After a general account of the physical features of the State, their origin is explained by means of successive cycles of erosion. The first erosion cycle developed the Schooley peneplain, now seen only in remnants on the even uplands of the Highlands, and in the long crestlines of Kittatinny mountain and of certain trap ridges. Next came the Cretaceous and Miocene submergences, separated by an erosion interval of small geographic import, and followed by the uplift which added the coastal plain to the State. An important cycle of erosion was thus introduced, during which a well-defined peneplain was developed on the weaker strata, leaving the harder as embossed ridges. A late submergence distributed the thin veneer of the