Dorsey, Minnesota, who emphasized the close relationship of genetic investigations on applied problems with other sciences, cooperation being particularly necessary to secure the greatest results. All who entered the discussion of this topic thought that cooperation should not go on so far as to attempt to direct another's research and that the success of any cooperation of this kind is limited by the mutual confidence of the workers.

At the close of the meeting it was agreed that no permanent organization should be formed but that informal meetings such as this should be arranged for whenever desirable. Professor L. J. Cole, who was elected chairman of the meeting, was voted to act as secretary *ad interim*. D. F. JONES,

*Secretary pro tem.*

## NATIONAL PARKS[1]

WHILE a small number of scientific societies were represented, the conference was well attended, especially by those interested in natural parks for recreation purposes. Their aim is to secure more parks and protect existing ones. Very few of the existing parks and preserves are free from liability to extensive modification through recreation activities, scientific forestry, fires, or exploitation. Even the National Parks must be watched and defended against external aggression. There are now only a few areas aside from the National Parks which have been set aside with the intention that they should be left in a natural state. Most areas have been and probably will continue to be set aside primarily as recreation parks, or as forest preserves. The main business of those interested in areas to be held in an original state, must of necessity be to get areas set aside within these forest preserves and parks.

The following was made evident by the conference.

1. That the forces interested in the establishment of natural parks and forest preserves for recreation purposes—to make "better citizens through contact with nature" are well organized, and are probably the strongest force operating to secure more parks and protect existing ones.

2. Science has left them quite uninformed of its needs for natural areas and of the practical significance of scientific results which may accrue from study of natural areas. They welcome the idea of biological study as a further argument for natural tracts.

3. They are, however, without constructive plans of management of the smaller tracts which will insure them against destruction from over use as recreation parks. Such plans of management must be based on knowledge of plant and animal ecology which they do not possess.

4. They are engaged in drafting legislation and in advising legislators without the counsel of those interested in preserves for research purposes.

5. It is incumbent upon scientific societies, museums, and universities to organize and to provide funds which will serve the following purposes: (*a*) to place information as to the scientific uses, and scientific management of natural areas, into the hands of those individuals and organizations working for the preservation of natural conditions; (*b*) to make possible the representation of scientific needs before legislative bodies and officials; (*c*) to provide for furthering the wise selection of new areas, and (*d*) to make existing areas accessible to scientists by the publication of lists and guide books.

V. E. SHELFORD

[1] Report of the delegate of the American Society of Zoologists to the National Conference on Parks, Des Moines, Iowa, January 10–12, 1921. This report will be submitted to the American Society of Zoologists at their next annual meeting. —W. C. ALLEE, *Secretary-Treasurer.*

## SCIENTIFIC EVENTS

### WORLD PRODUCTION OF COAL IN 1920

REPORTS received by the United States Geological Survey indicate that the total output in 1920 was about 1,300,000,000 metric tons. This, although a great increase over 1919, was still 42,000,000 tons short of the output in 1913, the last year before the Great War. The

course of production during the last decade is shown in the following table. The unit of measurement, it will be noted, is the metric ton, which will be most easily remembered by American readers as roughly equivalent to the gross ton of 2,240 pounds. The fluctuations in world coal supply, if expressed as index numbers, taking the output in the year 1913 as equal to 100, become as follows:

| | | | |
|---|---|---|---|
| 1910 | 86 | 1916 | 97 |
| 1911 | 89 | 1917 | 100 |
| 1912 | 93 | 1918 | 99 |
| 1913 | 100 | 1919 | 86 |
| 1914 | 90 | 1920 | 97 |
| 1915 | 89 | | |

These figures are necessarily in part estimated, for official statistics are slow in coming in and for certain countries of eastern Europe—notably Russia—even unofficial data are lacking. The figures are presented as tentative and subject to revision. As official reports are available for 92 per cent. of the world's output, the margin of error in the total probably does not exceed 1 or 2 per cent.

In comparing the 1920 output with that of the years before the war it must be remembered that the world's consumption of coal normally increases by leaps and bounds. The average rate of increase in the 20-year period preceding August, 1914, was 38,000,000 tons. Of course the waste and disorganization of the war have reduced the consuming capacity of many countries, but in other countries, notably the United States, requirements have been increasing at a rate greater if anything than before the war.

The present rate of production in the world is the resultant of conflicting forces; the decline in the war-torn countries is being offset in part by an increase in regions remote from the battlefields. In the belligerent countries of Europe the war cut heavily into production. Sometimes the cause of the decline was physical destruction of the mines, as in France; sometimes it was the drain upon the manpower of the nation; sometimes it was merely the economic disorganization and disruption of normal trade which attended the war. In France the 1920 output (excluding the Saar and Alsace-Lorraine) was 46 per cent. less than that of 1913; in Great Britain the decline was 20 per cent.; in Germany (also excluding the Saar and Alsace-Lorraine) the output of bituminous coal decreased 24 per cent., a decrease which was in part, however, offset by the increased production of lignite. In eastern Europe the old Austro-Hungarian empire, Russia and the Balkans, the breakdown caused by the war was even greater than in western Europe, and the decline in output proportionately large. Of all the major European belligerents only Belgium had in 1920 practically reattained the pre-war rate of production.

While in 1913 Europe led all the continents as a producer of coal, contributing 54 per cent. of the world's output, in 1920 she had yielded first place to North America and her share of the world's total had shrunk to 46 per cent. The largest factor in filling the void caused by the war in Europe was, of course, the United States. Our production increased from 38.5 per cent. of the total for the world, in 1913, to 45.1 per cent. in 1920. In that year our seaborne exports of coal were 22,500 net tons, five times what they were in 1913.

## TOP MINNOWS AS YELLOW FEVER ERADICATORS

ACCORDING to *The Fisheries Service Bulletin* the success which has attended the use of the top minnow (*Gambusia*) in eradicating malarial mosquitoes in various parts of the United States has led to the employment of the same fish in combating an incipient epidemic of yellow fever at Tampico, Mexico.

Dr. A. R. Stubbs, of the Standard Oil Co., who visited the Washington office in March, reported that cases of yellow fever appeared at Tampico during the past summer, and there was every indication of a serious epidemic, as the conditions for the spread of the disease among the natives were most favorable. In addition to numerous outlying ponds, pools, sloughs, and marshes in which mosquitoes breed, all of the native houses have open barrels or other receptacles con-