

Scientific American.

ESTABLISHED 1845.

MUNN & CO., Editors and Proprietors.

PUBLISHED WEEKLY AT

No. 361 BROADWAY, NEW YORK.

TERMS FOR THE SCIENTIFIC AMERICAN.

(Established 1845.)

One copy, one year, for the U. S., Canada or Mexico... \$3 00
One copy, one year, for Europe or Mexico... 4 50
One copy, one year, to any foreign country... 4 00

The Scientific American Supplement

(Established 1876)

is a distinct paper from the SCIENTIFIC AMERICAN. THE SUPPLEMENT is issued weekly. Every number contains 16 octavo pages, uniform in size with SCIENTIFIC AMERICAN.

Building Edition of Scientific American.

(Established 1885.)

THE BUILDING EDITION OF THE SCIENTIFIC AMERICAN is a large and splendidly illustrated periodical, issued monthly, containing floor plans and perspective views pertaining to modern architecture.

Export Edition of the Scientific American

(Established 1878)

with which is incorporated "LA AMERICA CIENTIFICA E INDUSTRIAL," or Spanish edition of the SCIENTIFIC AMERICAN, published monthly, uniform in size and typography with the SCIENTIFIC AMERICAN.

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NEW YORK, SATURDAY, OCTOBER 24, 1896.

Contents.

(Illustrated articles are marked with an asterisk.)

Table listing various articles such as Aerophile, Balloon ascent, Burial ground, etc., with corresponding page numbers.

TABLE OF CONTENTS OF SCIENTIFIC AMERICAN SUPPLEMENT No. 1086.

For the Week Ending October 24, 1896.

Price 10 cents. For sale by all newsdealers.

Table listing contents of the supplement by page number, including sections like AERONAUTICS, BOTANY, CIVIL ENGINEERING, etc.

AMERICAN AND ENGLISH RAILROAD TRACK.

The long standing controversy as to the respective merits of the American and English systems of railroad track has lately been revived with considerable vigor in the columns of the English Engineer...

American and English railroad practice, whether in roadbed or rolling stock, there are none so radical as those pertaining to the rail, ties and fastenings. With few exceptions, all the railroads of the world use one or the other of the two systems...

The radical difference between the two systems lies in the shape of the steel rail itself: for it is this that determines the details of joints, ties and fastenings. The English roads use a double-headed or "bull-head" rail, which, instead of having the base flattened out to form a bearing surface on the ties...

From these considerations, which are simple facts of history, it is evident that a strong prima facie case is made out in favor of the standard tee rail, whose section has been designed with a single view to carrying load, and is not modified, as is that of the double-headed rail, by any exploded theories of economy in operation.

During a recent trip over some of the best English roads, we noticed that, while the level and alignment appeared to be perfect, there was a roughness and noisiness of riding, as compared with our best American track, which could not be accounted for merely by the stiff springs and disconnected axles of the rolling stock.

the wide spacing of the ties and the weakness of the joints. In regard to the first point, the ties are laid 3 feet apart, as against 2 feet and less in this country. Now the ideal track for smooth running is that which provides a continuous, longitudinal tie or "sleeper" beneath each rail.

But by all odds the weakest place in the English track is at the joints, where the fishplates, answering to our angle bars, are singularly inefficient. This weakness is inherent in the bull-head system, and cannot be avoided.

The arrangement cannot claim to be even a suspended or bridge joint, as the plates never reach the ties; and what stiffness the joint may have results from the cantilever action of the rail ends that project from the adjoining chairs.

The track of the New Haven road, from New York to New Haven, consists of 100 pound rail, 6 inches in depth, laid with 18 oak ties to the rail (as compared with 10 to the rail in England), upon 18 to 20 inches of broken stone ballast.

If it should ever be the privilege of our esteemed contemporary to take the run over this 80 miles of track, we think he would hasten to revise his opinion that "English engineers have nothing to learn from American practice."

OUR TRADE WITH THE SOUTH AMERICAN REPUBLICS.

The commercial alliance of the United States with the many sister republics which are strung out along the eastern seaboard of the southern continent was a favorite theme with the late James G. Blaine. Such an alliance would be natural; it is suggested by our geographical position; and there are historical and sentimental reasons why these people in the south should prefer to trade with us rather than with the nations of the old world.

Diplomacy can accomplish much in the way of preliminary work. It can remove artificial obstructions and rough out a roadway on which the wheels of commerce may travel; but it is to the joint efforts of commercial associations and the individual manufacturers that we must look for the actual development of trade.