

Scientific American.

ESTABLISHED 1845.

MUNN & CO., Editors and Proprietors.

PUBLISHED WEEKLY AT NO. 37 PARK ROW, NEW YORK.

O. D. MUNN.

A. E. BEACH.

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VOL. XL, No. 3. [NEW SERIES.] Thirty-fourth Year.

NEW YORK, SATURDAY, JANUARY 18, 1879.

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THE SCIENTIFIC AMERICAN SUPPLEMENT

No. 159,

For the Week ending January 18, 1879.

Price 10 cents. For sale by all newsdealers.

Detailed table of contents for the supplement, categorized by I. ENGINEERING AND MECHANICS, II. TECHNOLOGY, III. CHEMISTRY AND METALLURGY, IV. ELECTRICITY, LIGHT, HEAT, ETC., V. MEDICINE AND HYGIENE, VI. ARCHAEOLOGY, VII. MISCELLANEOUS.

OVER-DENSITY OF POPULATION IN CITIES.

The great and growing question as to the dangers, both to life and health, that result from an overcrowding of the population in large cities, has lately received a new treatment at the hands of the learned Dr. Parr, by the labors of whom the subject has been reduced to a science of almost mathematical exactness.

That man by his very nature is gregarious in his habits, and that, following the dictates of his nature, it is his wont to congregate in dense communities, is a fact so well known, and one that has been so often commented upon, as to appear trite in its repetition.

In round numbers, where we stand on an average 400 feet off from each other, we live on an average 50 years; where we are 300 feet off, we live 40 years; where we come within 60 feet of each other, we live but 30 years; and where we are but 20 feet off, we live but 25 years.

Such are some of the more important of the interesting facts given us by Dr. Parr in his valuable paper. The Architect, to which we are indebted for an abstract of these conclusions, remarks very truly that "no doubt the local circumstances of any particular community must always exercise a considerable influence on the death rate."

Without pretending to state the cause, we may call attention, in connection with this subject, to the following fact: From the figures lately published by the German Imperial Statistic Office, giving the mortality per 1,000 inhabitants in the chief cities of the world, we learn that the death rate in the city of New York is about one third greater than that of London, and a fraction greater than that of Liverpool, which, as Dr. Parr has shown, is the most unfavorable district in England.

PATENTS IN NEW SOUTH WALES.

A bill to amend the laws relating to patents has been introduced in the Parliament of New South Wales. It provides for the establishment of a patent office, the appointment of a "Patents Officer," and the issuing of patents for inventions, and the publication of the patent specifications.

vides for the establishment of a patent office, the appointment of a "Patents Officer," and the issuing of patents for inventions, and the publication of the patent specifications. Any person may obtain a patent for his invention, giving him an exclusive property therein, provided the invention has not been in public use in New South Wales for more than one year, or has not been patented in any other country more than one year.

SUN SPOTS AND COMMERCIAL CRISES.

To the numerous explanations that have hitherto been given by various writers on commercial topics, to account for the present depressed state of trade, there has recently been added another—this time from the pen of Prof. W. Stanley Jevons, who, in a late number of Nature, treats the matter at some length from a scientific standpoint.

Professor Jevons, in his present paper, endeavors to establish a direct relation between the latter periods and times of trade depression; and, although his studies have not as yet allowed him to fix the exact nature of the connection, the data that he furnishes exhibit at least some curious coincidences. After some preliminary accounts of what has been done in this field of research, both by himself and others, in former years, Professor Jevons says: "It is impossible in this place to state properly the facts which I possess; I can only briefly mention what I hope to establish by future more thorough inquiry."

Hyde, Clarke, Wilson, and Danson all argued, 30 or 40 years ago, that commercial fluctuations must be governed by physical causes; but the difficulty that has beset the theory is that hitherto no one has been able to detect a clear periodic variation in the price of corn. Sir William Herschel endeavored to do this at the beginning of the present century in his inquiry as to the economic effects of the sun spots: but his facts are too meager to justify any certain inference.