



STILL BEARING TRIBUTE

POPULATION

## World Population Quadrupled Within Three Centuries

Fact That European Stocks Increased More Than Six Times Faster Than Others is Among Revelations of New Study

IN LESS THAN three centuries the population of the earth has nearly quadrupled. Up to 1900 the rate of increase was accelerating, but since the turn of the century the rate of increase slackened although of course there are millions more on earth now than there were in 1900.

The best estimate of the earth's population is 1,820,000,000 as of 1929. Dr. Walter F. Willcox, Cornell's professor of economics and statistics, arrives at this figure after an extensive study of earth population, past and present, reported in an extensive research into international migrations just published under his editorship by the National Bureau of Economic Research.

### Half of World in Asia

Asia, with the teeming hordes of China, is the most populated continent, with 954,000,000, or over half of the earth's inhabitants. Incidentally even for the present time it is most difficult to fix a reliable figure for China's population, due to the lack of census data and the turmoil of the Orient.

Europe has 478,000,000 persons on 3,800,000 square miles and is the most densely populated continent. Asia's pop-

ulation lives on a continent of 16,700,000 square miles.

North America, with a population of 162,000,000, outranks Africa's 140,000,000, although it is slightly smaller in area. South America has 77,000,000, and Australia and Polynesia together are credited with 9,000,000.

About the population of the earth before the seventeenth century saw the dawn of the modern scientific period, there is little information. Dr. Willcox's estimates begin with one for 1650. The difficulty of the task is shown by the attempts that were made in the seventeenth century by five writers. They ranged from 320,000,000 to 1,000,000,000. The figure arrived at by Dr. Willcox is 465,000,000.

Human beings increased to 660,000,000 in number in 1750; 836,000,000 in 1800; 1,098,000,000 in 1850 and 1,551,000,000 in 1900. In the last third of a century the increase in world population has been about equal to twice the total population of the United States. The rise of the white race is shown in the figures assembled by Dr. Willcox. European stocks have increased about 6.4 times since 1650 or about twice as fast as the non-European stocks.

Of today's 642,000,000 persons of un-mixed European stock, 164,000,000 live outside Europe, nearly one and two-thirds as many as there were in Europe in 1650.

Another interesting finding by Dr. Willcox is that there is now more American Indian blood in the Western Hemisphere than there was in 1650 when 13,000,000, practically all Indians, lived in the New World. One estimate is that the present number is 26,000,000, of whom two-fifths are in Mexico.

### People and Food

One of the enigmas in the world population figures is what caused Asia in the century before 1750 to increase in population at a rate twice that of Europe at the same time. Since 1750, on the contrary, Europe's rate of growth has been more than twice that of Asia. It appears that when and where the production of food or other economic goods has increased, population also has increased and often the standard of economic life has risen. Dr. Willcox has been unable to find evidence for an increase in food in Asia between 1650 and 1750 and he feels that the early figures for Asia and even the present figures are open to change.

So difficult is it to determine China's population at the present time that differences of 100,000,000 in estimates have been common. This is nearly equivalent to leaving out or counting twice the population of the U.S.A. in making world estimates. The figure adopted by Dr. Willcox for China's post-world-war population is 342,000,000, while the League of Nations 1929 estimate is 458,000,000.

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PHYSICS

## Three Million Volts Hurlled By New Compact Machine

A NEW compact electrical impulse generator hurling 3,000,000 volts is reported to *Nature* from the Metropolitan Vickers Laboratory, Manchester.

The new high voltage machine is only five feet diameter and ten feet high. It contains parallel charged oil-impregnated condensers with all spark gaps segregated in an air column with the air under high pressure. It thus combines the advantages of both air and oil gaps.

The engineers who constructed the new generator were: T. E. Allibone, F. S. Edwards and D. B. MacKenzie.

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