The Population of the World.

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THE population of the world has been given by various statisticians as follows:—

In 1874,	according to	Behm and Wagner	1,391 millions.
,, 1878,	,,	Levasseur	1,439 ,,
,, 1883,	,,	Behm and Wagner	1,434 ,,
,, 1886,	,,	Levasseur	1,483 ,,
,, 1891,	,,	Wagner and Supan	1,480 ,,

The last estimate may be regarded as sufficiently trustworthy as a working basis: Messrs. Wagner and Supan have earned a just reputation for painstaking and thorough work, and, moreover, this estimate of the German savants has been established to more than one-half its bulk (*i.e.*, to 57 per cent. of the 1,480 millions) upon the actual results of recent censuses.

In dealing with this large population, we have to deal with big figures and a good many of them. As masses of figures do not convey to the mind so clear an impression of the real facts they stand for as may be conveyed by simple diagrammatic representations, I shall therefore show my figures as much as possible in the form of black and white illustrations.

For example, in No. 1 we have a graphic illustration of the following figures:—

	Population.
Asia	825,954,000
Europe	357,379,000
Africa	163,953,000
America	121,713,000
Oceanic Islands and Polar Regions	7,500,400
Australia	3,230,000
The World	1,479,729,400

People to whom these figures convey little or nothing can get, by looking at No. 1, a pretty clear idea of the bulk of population on the various continents, etc. Each of these seven black squares has been drawn to exact mathematical scale, and, if the first six of them be cut out, and then fitted by aid of a pair of scissors upon the large square at the bottom, it will be found that the total area of these six squares exactly covers the large square; in other words, the black surfaces of the six smaller squares "add up to" the black surface of the big square, which diagrammatically shows to us the number of people in the world—1,480 millions, approximately.

Here is another way to obtain a clear idea of how the world's population is split up. Thus: for every one thousand persons in the world there are:—

In Asia	558	persons.
,, Europe	242	,,
,, Africa	111	,,
,, America	82	,,
,, Oceanic Islands and Polar Regions	5	,,
,, Australia	2	,,
The World	1,000	,,

I.—Asia: 826 million persons.

II.—Europe: 357½ million persons.

III.—Africa: 164 million persons.

America: 121¾ million persons.

V.—Oceanic Islands and Polar Regions: 7½ million persons.

VI.—Australia: 3¼ million persons.

Total.—The World: 1,480 million persons.

No. 1.—These seven squares show the Population of the World: the areas of the squares respectively illustrate the sizes of the populations mentioned—not the areas of the various continents, etc.

We see that more than one-half of the world's population live in Asia, and nearly one-quarter in Europe; that about one-ninth of the people live in Africa, and just under one-twelfth in America (North, Central, and South combined), and that the aggregate populations of the Oceanic Islands, Polar Regions, and Australia account for only seven persons out of every one thousand people in the world.

If asked to guess at the distribution of the world's population, nine people out of ten would probably place Asia, 1; Europe, 2; America, 3. But we see that Africa takes the third place instead of it being occupied by America. This is mainly due to the North Tropical Zone of Africa, which is larger than the whole of the United States, contains 42 million more people, and which is also more densely populated. To this population of the North Tropical Zone of Africa, 60 millions are contributed by the Soudan and Upper Guinea only—a number which nearly equals the 63 millions of the United States of America enumerated at their census of 1890.

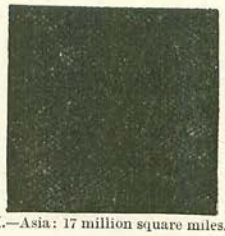
It is also somewhat of a surprise to find Australia coming below the Oceanic Islands, which contain nearly all of the 7½ millions shown in No. 1, square V. (These islands contain the New Guinea group, New Zealand, the Sandwich Islands, etc.) Only some 80 thousand persons live in the Polar Regions, and of these, Iceland claims 69 thousand. The population of Australia is considerably less than that of London, and is not quite equal to the combined populations of Paris and St. Petersburg.

And now let us compare the *sizes* of these continents, etc., whose populations we have briefly glanced at. No. 2 shows the area in square miles of each of the six divisions of the earth already named in No. 1. The actual figures are:—

	Square miles.
Asia	17,044,000
America	14,801,000
Africa	11,277,000
Europe	3,757,000
Australia	2,972,000
Oceanic Islands and Polar Regions	2,464,000
The World	52,315,000

Here again, as in No. 1, the black squares I. to VI. of No. 2 will, if cut out and fitted upon the large square representing the world's area, suffice to cover that square—they add up to it, just as the six rows of figures given here add up to the world's area, 52¼ million square miles, approximately.

In this race for size the result is very different from that in the race for population,



I.—Asia: 17 million square miles.

II.—America: 14¼ million square miles.

III.—Africa: 11¼ million square miles.

IV.—Europe: 3¾ million square miles.

V.—Australia: 3 million square miles.

VI.—Oceanic Islands and Polar Regions: 2½ million square miles.

Total.—The World: 52¼ million square miles.

No. 2. — These seven squares show the Land-Area of the World: the areas of the squares respectively illustrate the areas of the various continents, etc., in square miles.

Here, it is Asia 1, America 2, Africa 3: Europe is a bad fourth, and not far ahead of Australia, who was nowhere in No. 1. Europe, as regards size, might be cut out of the big square for the world in No. 2 without making much of a hole in it—but fancy the world *minus* Europe and Europeans! How quiet it might be if we were all submerged and the Atlantic waves lapped the side of Asia, which now adjoins Eastern Europe. Here's a chance for the Anarchists—don't waste time in pettifogging explosions, but blow up all Europe, and find your "equality"—and your proper level—at a certain number of fathoms beneath the sea-surface.

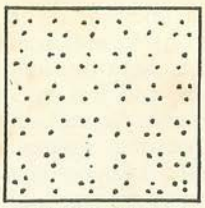
The following figures help us to appreciate the sizes of the six divisions of the world. For every one thousand square miles of land-area in the world, there are :—

In Asia	326	sq. miles.
,, America	283	,, ,,
,, Africa	215	,, ,,
,, Europe	72	,, ,,
,, Australia	57	,, ,,
,, Oceanic Islands and Polar Regions	47	,, ,,
The World	1,000	sq. miles.

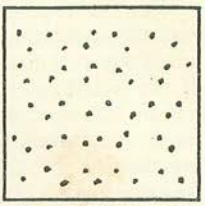
Thus, nearly one-third of the earth is in Asia, which also possesses more than one-half the population; more than one-quarter of the earth went to make America, and over one-fifth for Africa. Europe contains only one-fourteenth part of the world's area, although she has nearly one-quarter of the population, and Australia contains one-eighteenth part. The last division on our list takes the "shillings from the guineas," being a twenty-oneth part of the world's area.

Having now a fairly definite mental conception of the distribution of the world's population and of its area, we may turn to the interesting feature of density of population in various parts of the world: this is illustrated in No. 3.

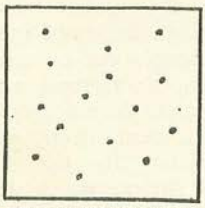
Each of the seven squares in No. 3 represents one square mile, and the little dots in the squares represent the number of persons to each square mile of the continents named. At last Europe leads—and easily. The mighty Asia, which has held first place in Nos. 1 and 2, has now to make way for Europe with her 95 persons to the square mile. We see that Asia has to each of its square miles of area only about one-half the population which live upon a European square mile. Africa, a long way behind, is third with 15 persons to the mile, and America has only 8 inhabitants upon each square mile. Australia comes last with the ample allowance of one square mile (approximately) for each member of its population.



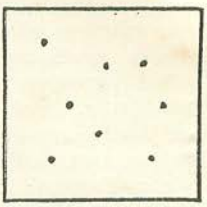
I.—Europe: 95 persons to the square mile.



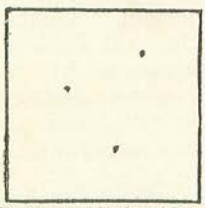
II.—Asia: 48 persons to the square mile.



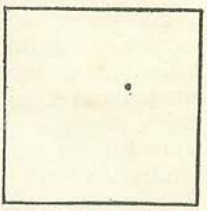
III.—Africa: 15 persons to the square mile.



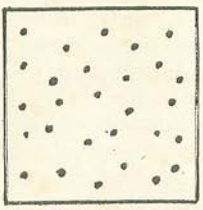
IV.—America: 8 persons to the square mile.



V.—Oceanic Islands and Polar Regions: 3 persons to the square mile.



VI.—Australia: 1 person to the square mile.



The World: 28 persons to the square mile.

No. 3.—These seven squares show the Density of Population of the World: illustrated by the number of persons to each square mile of the various continents, etc.

We may with advantage look at these facts in another way. The space for each person :—

In Europe is	7	acres.
,, Asia is	13	,,
,, Africa is	44	,,
,, America is	78	,,
,, Oceanic Islands and Polar Regions is	210	,,
,, Australia is	589	,,
,, the World is	23	,,

[It should be noted that the number of persons stated beneath each of the squares in No. 3 is the *nearest whole number*, and similarly with the number of acres just given: therefore, if 640—*i.e.*, the number of acres in a square mile—be divided by each of the numbers given in No. 3, the results will not in every case bring out the results just tabulated, and which are based upon my original working figures in decimals.]

This way of looking at the facts concerning density of population shows us that there is still ample room in the world for all of us, wherever we may chance to be located. The over-crowding of which we hear so much disappears when we take an extended view of the facts, which seem to invite us to spread ourselves out more than we do.

And now may come in the results of some calculations I have very carefully made as regards the future growth of the population of the world, and as to the year A.D. when our descendants will have so increased in number that there will then be only one acre for each person in the world, instead of the 23 acres mentioned above.

As a preliminary, I went into all the available facts upon which to compute the annual rate of increase in the world's population, and finally I determined that the rate of increase might be taken at 5 per 1,000 persons per annum: this means that for every one million persons living in 1891, there were:—

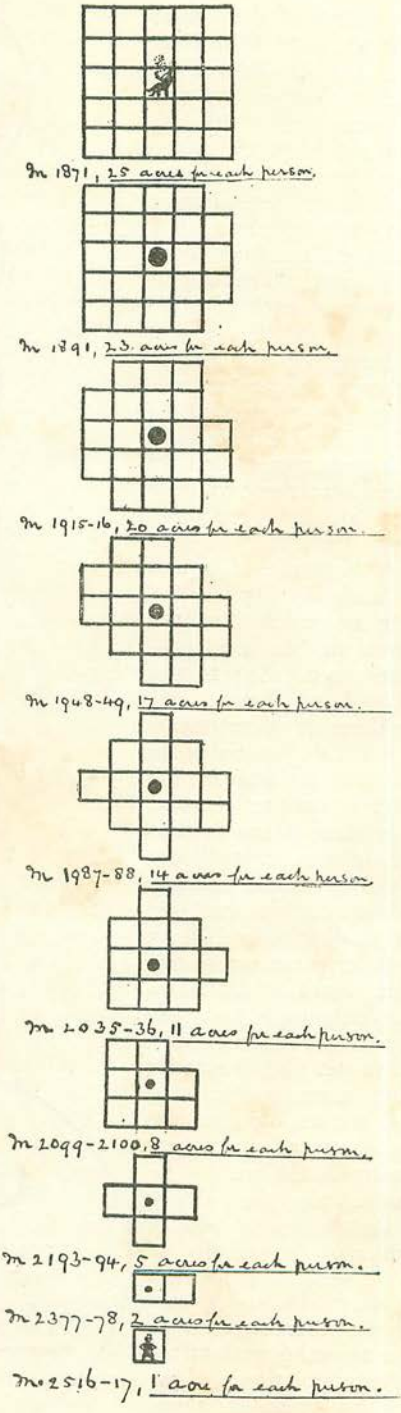
In 1892	1,005,000	persons.
,, 1893	1,010,025	,,
,, 1894	1,015,075	,,
,, 1895	1,020,150	,,
etc., etc.		

And the results for the future population of the world work out thus:—

In 1891			1,480	million	persons.
,, 1900	there will be		1,548	,,	,,
,, 1950	,,	,,	1,986	,,	,,
,, 2000	,,	,,	2,548	,,	,,
,, 2030	,,	,,	2,960	,,	,,
,, 2100	,,	,,	4,197	,,	,,
,, 2200	,,	,,	6,910	,,	,,
,, 2300	,,	,,	11,379	,,	,,
,, 2400	,,	,,	18,738	,,	,,
,, 2515	,,	,,	33,413	,,	,,
,, 2517	,,	,,	33,586	,,	,,

These figures show us, for example, that in A.D. 2030, the 1891 population will have doubled itself, and will have taken 139 years to do it in. The population of the United Kingdom has doubled itself in 80 years, and the population of England and Wales in 57 years; but we should be quite wide of the mark if we applied our own rate of annual increase to the population of the world—for our rate of increase is above the average. In France, for example, the increase of population is very slow; in fact, but for the attractions it offers to foreigners as a residence, its population would of late years have shown a falling off, because, while the births decrease, the deaths increase.

I may also point out that the above figures show us that between A.D. 2516 and A.D. 2517—621 years later than this present year, 1895—there will be in the world as many people as there are acres; there being 33,482 million acres of land, a number which, as we see, falls between the last two numbers in the above column.



No. 4.—For explanation see text.

But perhaps the best way to illustrate the

future growth of the world's population is to show it as in No. 4, where we see the gradual lopping-off of acre after acre from the 25 acres which were the space for each person in the year 1871, until, at the expiration of 621 years from now, only one acre will be available for each person. The dot in the centre of each of these diminishing estates (except two) represents the gradually thinning owner, who is wise enough to lessen his requirements—and his bulk—as his estate grows smaller and smaller; the two little figures in the top and bottom "estates" suggest a possible change of ownership during the 645 years of change to which the ten diagrams in No. 4 relate—*i.e.*, from A.D. 1871 to A.D. 2516. Long before this latter date our descendants will probably be living in the air, or perhaps in the sea for a change, so that the lessening of space, illustrated in No. 4, will not cause real inconvenience. Moreover, as we shall see when dealing with Nos. 5 and 6, one acre for one person is not a bad allowance. Belgium is now very nearly as crowded as this, and she yet finds room for all her manufactories and works, not to mention the ground-space of the recent Antwerp Exhibition.

As regards this diving into the future by aid of logarithms, the results of which procedure have now been shown in No. 4, etc., I may say that my estimate of the annual growth of the world's population (5 per 1,000) is probably somewhat lower than the actual rate—I have preferred to err on the side of moderation. If my estimate be approximately correct, and

No. 5.—These ten circles show the Population of Europe split up into the various countries here specified. The areas contained in these ten circles respectively illustrate the bulk of the various populations—not the sizes of the land-areas of the countries named.

I venture to think it will be so considered by statisticians, then the results I have deduced from it follow as a mathematical necessity—startling as some of them may appear. Astronomers, who have the advantage of dealing with facts less complex than are social facts, predict to a second, many years prior to the occurrence of an event, when this or that transit or eclipse will take place. It is no unusual thing to predict the results of this or that census, and to find the prediction closely akin to the ascertained results; and similarly with many other matters—life assurance, for example—in which a mathematical forecast is often ultimately proved by ascertained facts to have been expressed within relatively close limits of error. In the present instance, although the basis for calculation is not nearly so stable as in some other channels of statistics, it is yet sufficiently sound to make the diagrams in No. 4 worthy of attention, as a prediction of the future population of the world—necessarily, a factor of vast international range and social importance.

In No. 5 we have a graphic illustration of the population of the principal European countries. The area contained by each of the nine smaller circles represents the numerical bulk of each of the populations stated; and as these circles have been drawn to mathematical scale, the combined areas of them equal in size the area of the large circle at the bottom of No. 5. Here is a concise statement of the facts: for every one thousand persons in Europe there are:—

In European Russia	262	persons.
„ the German Empire	139	„
„ Austria-Hungary	116	„
„ France	107	„
„ Great Britain and Ireland	106	„
„ Italy	84	„
„ Spain	48	„
„ Belgium	17	„
„ Other Parts of Europe	121	„
Europe	1,000	„

The eight countries named are those which contain the largest populations. Turkey, without Bulgaria, has fewer people than Belgium, and, moreover, Belgium is a very industrious and worthy little country, and more entitled to a place than Turkey; so Turkey must be included in "Other Parts of Europe."

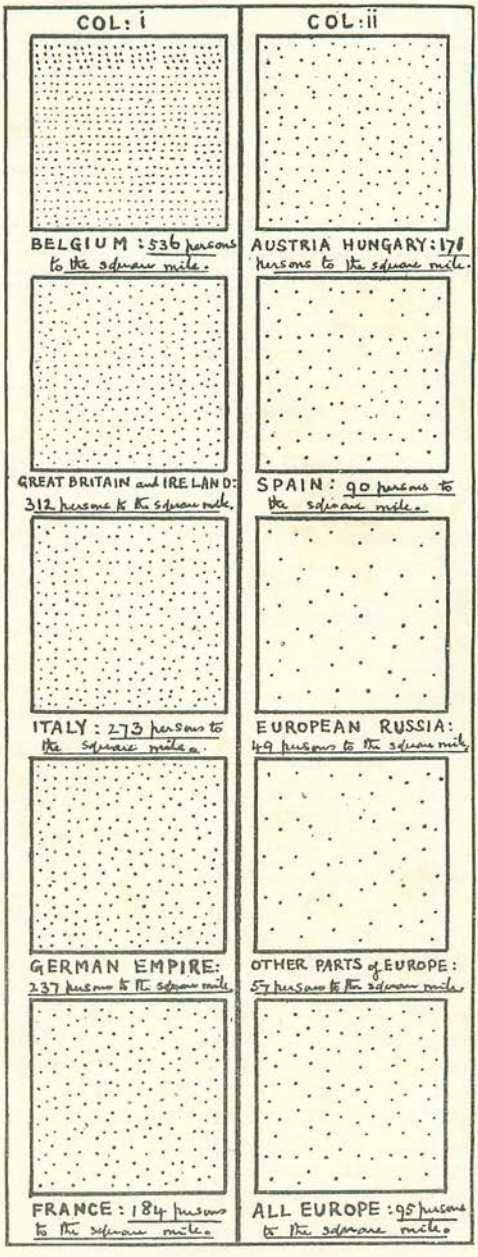
It is rather interesting to look at the first six circles—the leading six Powers of Europe—and to note that whilst the United Kingdom comes last but one as regards population, she yet holds her own in the very front rank as regards power.

Illustration No. 6 has been calculated after the fashion of No. 3, and upon the same scale. It shows to us the density of population in the various European countries to which it relates. Here, Belgium heads the list with 536 persons supported upon every square mile of the country. As there are 640 acres in a square mile, we see that the inhabitants of Belgium have each of them, upon the average, very little more than one acre of space—see my remarks about No. 4. When we look at this top square of No. 6, we are not surprised that Belgium is essentially a manufacturing country—it simply has not the room for extensive agricultural industries. In every available hole and corner the Belgians busy themselves with agriculture—they don't waste space as we do in England—and although agriculture is carried on with much industry, the Belgians—like ourselves—are largely dependent upon foreign supplies for their food.

I have put in all these dots very carefully in order to let each square show by the number of dots inside it the density of population to each square mile of the countries specified: in this way we get a clear idea of the different degrees of density of population of the European divisions—a clearer picture than figures can show to us.

For the rest, this No. 6 can very well speak for itself: it has been calculated upon sound facts, and it exactly represents these facts.

After Europe comes Asia—in point of interest—old Asia, older even than Europe in its quaint manners and fashions of men



No. 6.—These ten squares show the Density of Population in Europe: illustrated by the number of persons, *i.e.*, dots, to each square mile of the various countries named.

and things. But how incomparable with Western Europe is Asia of the 19th century! Asia is, for the main part (China), hopelessly conservative, and we have had a recent illustration of how modern progress may enable a little nation like the Japanese Empire to get the better of an old nation

nearly nine times as populous. The Chinaman shows to us the abuse of Conservatism in the East as plainly as we have seen the abuse of Liberalism in the West.

Compare, in No. 7, the short line (3) which illustrates the population of Japan, with the long line (1), which shows the population of China: the comparison makes us feel almost incredulous as to the success in the war of Japan over China—so great is the difference. And look, too, at the line (6) that shows the population of Corea, about which place China and Japan are fighting.

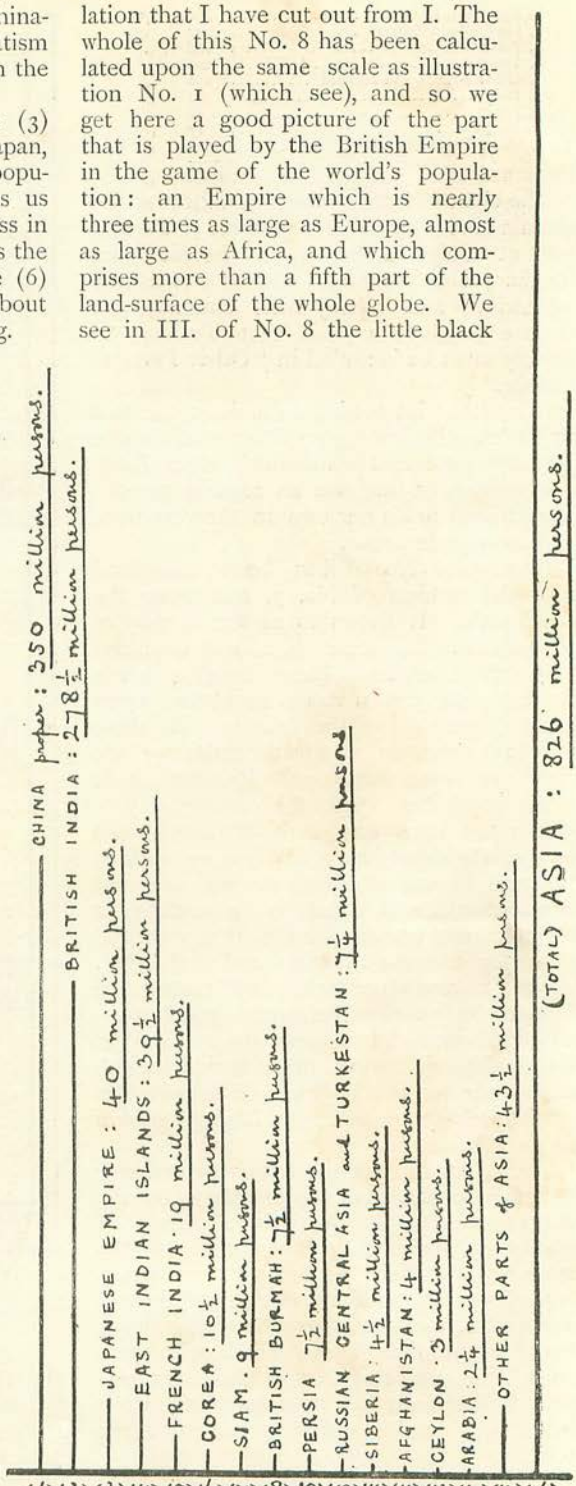
It should be noted that if the lines marked (1) to (15) be ticked off with a pencil on a piece of paper from No. 7, the total length of these fifteen lines will exactly equal the length of line (16), which represents the population of all Asia.

We see the distribution of Asia's population rather significantly in the following figures. For every one thousand persons in Asia there are:—

In China Proper	424	persons.
„ British India	337	„
„ the Japanese Empire	48	„
„ the East Indian Islands	48	„
„ French India	23	„
„ Corea	13	„
„ Siam	11	„
„ British Burmah	9	„
„ Persia	9	„
„ Russian Central Asia and Turkestan	9	„
„ Siberia	5	„
„ Afghanistan	5	„
„ Ceylon	4	„
„ Arabia	3	„
„ Other Parts of Asia	52	„
Asia	1,000	„

British India is the only division of Asia that as regards population comes anywhere near China, and these two divisions combined absorb more than three-quarters of the whole of Asia's people. The quality of the Japanese stands out in favourable contrast with the quality of the Chinese when we compare lines (1) and (3) in No. 7, and then note that there are in Asia 424 Chinamen for every 48 Japs.

I have not the space to deal with America and with Africa as I have dealt with Europe and with Asia, so these two continents must go without more notice than has already been given to them in Nos. 1, 2, and 3. I pass to No. 8, which shows in black and white the face of the world (I.), with the population of the British Empire omitted. What a gap it makes! The face of the world looks rather pale with the British Empire missing. In II. of No. 8 I show the piece of the world's population that I have cut out from I. The whole of this No. 8 has been calculated upon the same scale as illustration No. 1 (which see), and so we get here a good picture of the part that is played by the British Empire in the game of the world's population: an Empire which is nearly three times as large as Europe, almost as large as Africa, and which comprises more than a fifth part of the land-surface of the whole globe. We see in III. of No. 8 the little black



No. 7.—These sixteen vertical lines show the Population of Asia split up into the countries here specified. The lengths of these sixteen vertical lines respectively illustrate the sizes of the populations of the countries named.

I.—The Population of the World (1,480 million persons: see Fig. 1) with the British Empire—371¾ millions—"missing."

II.—The Population of the British Empire; 371¾ million persons.

III.—The Population of the United Kingdom: 37¾ million persons.

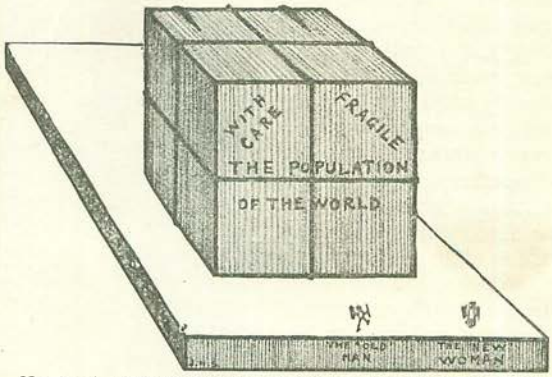
No. 8.—A comparison in black and white.

square, showing the population of the United Kingdom—which little square practically "bosses" the great square above it. These three squares, and their relative sizes, seem to emphasize the necessity of always maintaining the third square (III. Population of the United Kingdom) at the highest degree of harmonious density and unity of the particles that go to compose it.

And now let us see what a really insignificant body is this population of the world. For example, every living person could be contained in a square common less than twenty-two miles each way; each person of the 1,480 millions could have a square yard to stand on; and Mr. A. A. Chase or some other expert cyclist could be left outside with his machine, and ride round the square containing the world's population in about 3½ hours for the 87½ miles of boundary fence. Or the 1,480 million persons could each occupy a square yard of standing room in Bedfordshire and then fill up only two-thirds of that county. They could be tucked away down in Radnorshire, by a little squeezing, and leave all the rest of the world empty. Even the Isle of Man would hold nearly one-half of the world's population at one person to the square yard.

This fighting, struggling, white, black and tan, good and bad, very much mixed population of 1,480 millions could be packed in a cubic box measuring only 1,140 yards in width, 1,140 yards in depth, and 1,140 yards in height—see No. 9. Each person could be allowed 27 cubic feet of room inside such a box, and the box itself could be deposited when full in Battersea Park with a squeeze, in Victoria Park with ample room to spare, or in Hyde Park and not occupy much more than one-third of the ground-space of that park—and Mr. Chase, the cyclist, again, could, if left outside, run round the box containing the world's population in about six minutes for the 2½ miles; or, a person accidentally left unpacked—one of the two shown in No. 9, for example—could stroll round the box and inspect it in one hour easily. This is a literal and solid fact which can be readily proved—startling as it may seem to show in No. 9 a packing-case amply large enough to hold everybody in the world—a packing-case which, although a large one, would not occupy nearly one-half the ground-space of Hyde Park, London.

A fact like this serves to illustrate the really trifling importance of the world's population *en masse*, and, incidentally, the utter insignificance of the individuals who compose it.



No. 9.—A cubic packing-case containing the Population of the World less two persons—"1,480 millions" minus 2. This case measures (outside) only 1,140 yards in width, in depth, and in height, and each person inside it has 27 cubic feet of space.