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ERNEST WHITE, M.B., B.S., in the Chair

THE LARGE NUMBERS OF THE OLD TESTAMENT

BY

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THE VICTORIA INSTITUTE

22 DINGWALL ROAD, CROYDON, SURREY

THE LARGE NUMBERS OF THE OLD TESTAMENT—ESPECIALLY IN CONNEXION WITH THE EXODUS

By R. E. D. Clark, M.A., Ph.D.

SYNOPSIS

Previous attempts to explain the very large numbers of persons mentioned in the Old Testament (e.g. at the time of the Exodus) are considered and held to be inadequate. It is argued that the word *'eleph='alaph*, translated *thousand*, must often have had the meaning *captain, chief, leader*, etc.

To test the hypothesis, the Biblical numbers at the time of the Exodus and at the entry into the Promised Land are considered in detail. A consideration of the uneven distribution of the digits in these numbers indicates that the latter have been compounded from two lesser numbers, in conformity with the hypothesis. Assuming this to be so, all possible constructions are placed on each of the Biblical numbers and graphical representations are given to exhibit the frequencies with which various ratios of officers/men occur. The results are fully consistent with the Biblical statement that the Israelites had captains over thousands, over hundreds and over fifties and confirm the view that the word *'eleph* was used for all three.

If we take them at their face value, the numbers that we find in the Old Testament are sometimes so large that they are altogether unbelievable.

Thus, according to Numbers 1, the number of males above the age of twenty who left the land of Egypt at the time of the Exodus was 603,550. This means that the total number of Israelites, including women and children, would have been rather over two million—a vast horde indeed. But two chapters later on it is stated that of these the total number of first-born males above the age of one month was only 22,273. If we allow that males and females were equal in number and that the Israelitish women who had families were on an average half-way through their

child-bearing life, this must mean that each such woman was destined to give birth to about 170 children in all—surely a quite impossible figure!

Other examples might be multiplied. Of the male inhabitants of the little village of Bethshemesh no fewer than 50,070 were killed as a result of their irreverent treatment of the ark of God (1 Sam. 6: 19). In 2 Chron. 17: 13 ff. we are told that Jehoshaphat had " men of war, mighty men of valour in Jerusalem ". Adding together the figures given we obtain a total of 1,160,000 and there at once follows the statement: " These are they that waited on the king, beside those whom the king put in the fenced cities throughout all Judah." Again, a wall, in falling, killed 27,000 men (1 Kings 20: 30). What are we to make of these and many similar statements?

Difficulties of this kind have long been urged as evidence of the unreliability of the Bible. It is alleged that the Bible writers let their fancies run away with them, that they exaggerated grossly in order to increase the seeming importance of the events they described, and so on. On the face of it this explanation does not seem likely. A modern writer wishing to make his readers believe in a wholly imaginary disaster would not say that a motor-car contained 2,500 persons, all of whom were killed in a road accident, or that a bomb fell on a school and slaughtered five thousand teachers and a quarter of a million children. Remarks of this kind would not impress a reader, they would at once raise suspicions as to the truth of the narrative. In this respect the position can hardly have been different in ancient times. How came it then that the stories were carried down and reverenced from one generation to another? There can be but one answer to this question. The original stories in the Bible must have been believable, and they cannot, therefore, have contained the huge number that we find in them to-day.

What, then, were the original numbers? It has sometimes been suggested that the Hebrew word *'eleph*=*'alaph*, translated *thousands*, may have had another meaning. Sir Flinders Petrie, many years ago, put forward the view that the word might be translated *families* and four passages are commonly cited in support of this possibility:—

(i) Judges 6: 15—" My family (=*'eleph*) is poor in Manasseh."

(ii) Micah 5: 2—" But thou, Beth-lehem Ephrathah, which art little to be among the thousands (=*'eleph*) of Judah . . ." (R.V. marg. gives *families* here).

(iii) Numbers 1: 16—" They are the heads of the thousands (R.V. marg. *families*) of Israel." The meaning *families* is supported by comparison with the context, especially vv. 2, 4.

(iv) 1 Sam. 10: 19—" Present yourselves before the LORD by your tribes and by your thousands." Cf. v. 21, where it is the *family* of the Matrites that is taken.

If we take this view we reduce the total for the Exodus to 5–6,000 men or say rather more than 20,000 Israelites in all. This seems reasonable enough, but unfortunately the alternative translation throws little light upon the many other instances in which Old Testament numbers seem absurdly large. To read *families* in place of *thousands* in many of the other texts can scarcely be said to improve the sense.

There is, however, another way out of the difficulty. If we look carefully into the way in which *'eleph* is used, we shall find that it often seems to mean not *thousands* or *families* but *captains* or *mighty men* or some similar equivalent.

A passage which strongly suggests this meaning is to be found in the story of how Israel came to make David king (1 Chron. 12: 23 ff.). It *might* be possible to suppose that over 310,000 men feasted with David, though the number seems very large. But what is more remarkable is that small and large numbers are mixed in a highly suggestive way. Thus Zadok took only 22 men (captains) but Manasseh 18,000. In addition some of the really large numbers seem to be described in a way that could hardly have reference to common soldiers. Thus, of the 50,000 of Zebulun it is said that they were " such as were able to go out in the host, that could set the battle in array, with all manner of instruments of war and that could order the battle array and were not of double heart " (v. 33) and the 40,000 of Asher were " such as were able to go out in the host and could set the battle in array " (v. 36). Similar descriptions are given of the Danites and of the 120,000 Israelites on the other side of Jordan who were also " men of war that could order the battle array " (vv. 37 f.).

From these repeated descriptions of the men concerned nothing can be clearer than that it was the *officers* who came to David, not the common rank and file of the army. Common soldiers do not go out in the host or set the battle in array. Fifty *'eleph*, then, means not fifty thousand but fifty officers. The numbers are all quite reasonable and quite small.

In the account of Jehoshaphat's retinue at Jerusalem the meaning of *'eleph* becomes even clearer still. Indeed, the meaning of the word is actually given: " *'eleph*, mighty men of valour " (2 Chron. 17: 16). If, instead of translating it, our translators had left it just as it was, its meaning would not have been in doubt.

If, then, we are prepared to accept the view that *'eleph* can mean not only *thousands* but also *officers* or *mighty men of valour*, etc., we can at once make sense of most of the large number of the Old Testament. The gigantic numbers of those who fell in battle or as a result of plagues take on quite sober proportions. In some instances, of course, it is difficult to be sure whether the word used really refers to *thousands* or to *captains*, and in a few instances it is impossible after so long a lapse of time to be

sure of the original meaning, though this would have been obvious enough at the time. But such instances are exceptional.

With regard to the enormous numbers which are often stated to have fallen in battle we must bear in mind that for the most part ancient battles were unlike modern ones. It was not, as a rule, the ordinary men who did most of the fighting, but the mighty men, the captains, the charioteers, the knights in armour. The unusual feature of the fight between Goliath and David lay no doubt in the fact that the Philistines had but one prize champion instead of a dozen or so less formidable ones. We are reminded, too, of the king of Syria who commanded his men: " Fight neither with small nor great, save only with the king of Israel " (1 Kings 22: 31). It was the *'elephs*, the mighty men, who fell in battle rather than the common soldiers, though on occasions of course the latter suffered also.

Sometimes very large numbers are given for cattle. But here again the same principle may apply. The natural leaders of cattle were often marked in a distinctive way (as by a special operation producing unicorns from rams) and the term *'eleph* might well have been applied to them by analogy with human leaders.

How, then, we may ask, did it come about that the words for *thousands* and *officers* became confused? In answer to this we may remind ourselves that the meanings are closely allied. The ancients may well have thought that a chief among them was equivalent to a thousand; we even read that his loyal subjects said to David: " Thou art worth ten thousand of us " (2 Sam. 18: 3).

In a standard Hebrew lexicon we find the entry *'eleph='alaph=a thousand.* And derived from this there is *'aluph='alluph=a chief* (usually translated *duke* in A.V. but sometimes *captain, governor, guide,* etc.). Sometimes the Hebrew vowel letter *u* drops out of *'aluph* and, apart from the pointing (a late introduction) the words for *thousand* and for *chief* become identical in all respects. It is interesting to note that, in the modern Israeli army, the word *'alluph* is used as the equivalent for *colonel.*

In early days, of course, the *'eleph* or *mighty man of valour* would have gained his title from the fact that he actually was the captain over a thousand men. But as time went by, the strict etymological meaning of the word would have been forgotten (we have only to look at our own language to see many examples of this) and the word would have been used with a wider meaning—for *captain* in general, irrespective of the exact number of men under his command.

Originally, then, we may suppose that a word meaning *thousand* and an identical (or almost identical) word meaning *mighty man of valour* was used over and over again in the Bible. Relics of such repetition still remain, notably in Numbers 31: 32 where *'eleph* is repeated no less than

three times in the giving of a single number. At the time the meanings would have been obvious enough but in later years scribes, seeing identical words, would simply have added the figures together. Thus " five *'eleph* and twenty *'eleph* " would naturally have been turned into " five and twenty *'eleph* " by a man who did not know that the two *'elephs* had different meanings.

In principle, then, we can see how the difficulties connected with the immense numbers of the Old Testament may be explained, even though we cannot in all instances restore the original text. There is no question of the writers of the Bible having been in error—far less that they invented or exaggerated the numbers they record—but merely that later scribes misunderstood their meaning and did what any one of us might have done in like circumstances.

* * * * *

We may now turn to consider one case in some detail—the numbers given for the Israelites at the Exodus and before the entry into the Promised Land (Numbers 1 and 26). We have already noted that it is difficult to accept the numbers as they stand and several other arguments may be used to support our conclusion. (1) Only a generation before, two midwives sufficed for all Israel. To-day a village of 2,000 in Egypt needs the services of one midwife. (2) In the wilderness Moses at first judged all the people single-handed. (3) Many of the stories, e.g. of obtaining water from wells, would hardly be credible if a multitude of two millions were involved. Let us then examine the figures given for the twelve tribes more closely.

In modern population statistics we can detect inaccuracies in available figures by observing the randomness or otherwise of the digits. It usually happens that more than 20 per cent of people claim to have ages divisible by 5 which means that some people are giving their ages to the nearest five years—the man of 49 says he is 50 and so on. Similarly, a population of 23,689 may be given as 24,000 so that in a group of such figures the proportion of noughts exceeds the expected one-tenth of the whole.

We may examine the figures in Exodus in a rather similar way. In Numbers 1 and 26, twenty-four figures are given. Of these all save two end in " 00 ", showing that the numbers are usually given to the nearest hundred. The other digits give us (*a*) the tens of thousands, (*b*) the thousands and (*c*) the hundreds.

Now in a group of units, all of them of similar size, we should not expect the first significant figures to be distributed at random. And in the Bible figures we find them distributed between 2 and 7 but clustering markedly

at 4 and 5 (see (*a*), Figure 1, p. 91). Digits (*b*) and (*c*) might, however, be expected to be at random.

It will be seen, however, that though the second digit is fairly well distributed between 0 and 9, the third (*c*) (see Figure 1) is distributed in a manner very similar to the first. Not one of the " *c*-numbers " is a 0, 1, 8 or 9; the smallest is 2 and the largest 7.

This shows, rather clearly, that each of the numbers given in the Bible has been derived from two numbers which have in some way been placed together. It is as if we read that the towns of about equal size in England, containing 30–50,000 inhabitants, always contained an odd two to seven hundred inhabitants in addition to a whole number of thousands and that this number was usually four or five hundred (38,400; 46,500, etc.). We should at once suspect such figures and would not be surprised to learn that they arose from an approximate total population given to the nearest thousand, combined with some other number, say the number of men serving in the police or fire brigade.

The similarity of the digits (*a*) and (*c*) suggests that they might be correlated with one another. But this is not so—the use of the standard formula for rank order correlation reveals no correlation at all. Another possibility is that (*a*) and (*b*) are correlated. According to Petrie's view this should definitely be so, for the number of fighting men would be expected to depend roughly upon the number of families which they represented. But here again there is no trace of correlation (indeed the coefficient is slightly negative but not significantly so). This lack of correlation would appear to be a sufficient disproof of Petrie's theory.

How then shall we understand the Biblical figures? The distinction between *'eleph=captains* and *'eleph=thousands* at once supplies the key, but not the total answer to our question. Thus, in Numbers 1, Ephraim had 40,500 men. Does this mean 40 captains and 500 men? Or could the two kinds of *'eleph* have been added together by a scribe, making the original, say, 35 captains and 5,500 men? And if so how are we to know that it was not 36 and 4,500 or 37 and 3,500, etc.? Likewise the number for Reuben is 46,500. Does this mean 40 captains and 6,500 men or 46 captains and 500 men, or what?

Clearly we need to know the ratio of men to officers. Now the Old Testament tells us repeatedly—some seventeen times in all—that the army was normally divided into " captains of thousands and captains of hundreds ". On a number of occasions we also read of " captains of fifties " but the rulers of ten, mentioned in Exodus 18: 21, 25 are not apparently mentioned again in connection with army organization. Every thousand men might then require (*a*) a captain of a thousand, (*b*) perhaps ten captains of hundreds, (*c*) or twenty captains of fifties, or (*d*) say five captains of hundreds and ten captains of fifties making an equal division between these two types of command. Thus the following

ratios of men to officers are possible.

	Men per captain.
$(a)+(b)$	91
$(a)+(c)$	47.5
$(a)+(b)+(c)$	32
$(a)+(d)$	62.5

In addition, if contingents were not quite full, the ratios would tend to be a little smaller than the above figures.

Let us now take, say, the figure for Reuben—46,500. We consider in turn all the possibilities (46 officers+500 men; 45 officers+1,500 men; 44 officers+2,500 men, etc.) and work out each ratio of men to officers. We repeat the process with all the twenty-four figures. This gives us a series of numbers representing possible ratios and we might expect these numbers to cluster around the true ratio or ratios. Graph A in Figure 2 (p. 92) was obtained in this way. It shows the average density of clustering of the numbers plotted against the numbers themselves. (The total number of numbers clustering around nine digits, including four on each side of the number in question, was plotted against the number.) Clustering is seen to occur most markedly around 65 but also around 40 and perhaps also 85–90. There is no trace of it around 32 however. In graph B (Figure 2) the number of officers was reduced by subtracting one for each thousand men or fraction of a thousand men. It should represent, therefore, the ratios of men to the more junior officers. Here again we note clustering at about 40 and at 67 but there is no sign of it at 32 or 85–90.

These graphs suggest that some of the tribes organized their forces by appointing, in addition to senior officers, one officer for every fifty men and that others employed a mixture of captains of fifties and captains of hundreds. If the men were equally divided between the two kinds of captains we should expect peaks at 62.5 in graph A and 67 in graph B which is roughly where we find them. If there were captains of fifties only we should get peaks at 47.5 and 50 respectively. The fact that the peaks are rather lower may suggest that where men were divided into groups of fifty, it proved necessary to appoint a few senior officers, say 3 or 4 per thousand, to act as liaison officers between the captains of fifties and the captains of thousands.

We now take the Biblical figures for the tribes and decide on a figure for each such that the average number of men per officer fits in with one or other of the peaks on the graphs. Of the twenty-four figures fourteen give rise to no ambiguity, the other ten can be fitted to either peak. Adding the figures together we obtain:—

Numbers 1—Minimum, 26,550 men and 577 officers.
Maximum, 33,550 men and 570 officers.
Total, adding *'elephs* together, 603 *'elephs* and 550 men (Numbers 2: 32).

Numbers 26—Minimum, 28,730 men and 573 officers.
Maximum, 32,730 men and 569 officers.
Total, 601 *'elephs* and 730 men (Numbers 26: 51).

The numbers in each tribe are now quite small—eleven of the twenty-four numbers are around two and a half thousand. This may account in part at least for the uniformity of the third digits (*c* in Figure 1) of the Biblical numbers. Perhaps 2,500 was a nominal 3,000 so far as the higher command was involved—some expansion always being allowed for without the creation of a new " thousand ". This might account for the distribution of the third digits.

It may be noted that if we take a ratio of about 90 men per officer (corresponding to a complete absence of captains of fifty), both totals become approximately 48–49,000. This, then, would appear to give an extreme upper limit. If, on the other hand, we take a ratio of 9 or 10 the total would be much too small and the consistency of the scheme breaks down for it is only possible to ascribe this ratio in a few instances.

We have now obtained a rough estimate for the number of the Israelites. Have we any means of checking the correctness of our total?

One passage which raises an immediate difficulty is Exodus 38: 26. Here we are told that every male of Israel over twenty years of age gave a half-shekel when a census was taken. The total of the silver collected is recorded and it agrees exactly with the 603,550 men mentioned in Numbers 1 (3,000 shekels=1 talent). The census mentioned *apparently* took place in the wilderness nearly a year after the exodus from Egypt and there is nothing in the context to suggest that on this occasion the Levites were excluded. Naturally enough, the passage has puzzled commentators for many years. Ellicott, who accepted the traditional figures, took the view that the census of Numbers 1 was a protracted affair the completion of which is mentioned in Exodus 38. In the *Pulpit Commentary* (1882) the writer says: " Perhaps the number was lost in this place, and restored from Numbers 2: 32, without its being recollected that the Levites were not included in that reckoning." Later commentators, so far as the writer has consulted them, appear to have nothing more to say and for the most part are apt to be content with the view that, since Bible figures are fictitious any way, no special difficulty arises in this place. Perhaps all that can be said is that, if we are convinced that the traditional figures given in Numbers are too large, then some such view as that suggested in the *Pulpit Commentary* would appear to be inevitable. When once the two meanings of *'eleph* had caused con-

fusion, we could hardly expect scribes to have copied out Exodus 38: 26 in such a way as to result in self-contradiction. If the original text had mentioned, say, four (this would give 27,550 men) or five (33,550 men) talents of silver it is not hard to suppose that a single word might have been altered to restore self-consistency. Admittedly, however, this is pure speculation.

There are, however, good Biblical grounds for thinking that the total we have suggested is at least roughly correct.

The Bible states that about 40,000 men passed over Jordan under Joshua (Josh. 4: 13). If the number of men over twenty at his command was rather less than 40,000 it might well have been brought up to this figure by youths of (say) sixteen to twenty who would certainly have been willing to assist on this momentous occasion. It would seem that there is good agreement with the number involved in the Joshua campaign.

Another check on the order of magnitude of the number we have obtained is given by the number of first-born males—22,273 (Numbers 3: 43). This included all males above the age of one month. If the average age of the male population was about 50 (see Numbers 3: 39), the number of these in the army, i.e. over 20 years old, might be about 13–14,000. If we take 30,000 as the figure for the army, each first-born male would have an average of 1.1 adult younger brothers. Thus the average number of sibs alive above the age of 20 would be 4.2 or about 7 allowing for all ages. This means that an average Israelitish mother might be expected during the course of her lifetime to have 14 children. Though this computation is very rough and ready (the data given in Numbers 3: 39 are probably insufficient for the average age to be determined in any case) this appears to be a reasonable figure which confirms the view that the number of the army of Israel that left Egypt did not differ very greatly from 30,000.

To this figure, however, women and children and the rather numerous Levites would have to be added. Is it possible that confusion in the meaning of *'eleph* has made the numbers of the Levites too large also? It seems difficult, though perhaps not impossible, to think so. If we take the Levite numbers as they stand, then we shall get a grand total of 140,000 men, women and children—a very great number, though small compared with the two million odd with which we started. But if the number still seems large, there are ample grounds in the Bible for believing that it *was* large. Pharaoh was fearful because the Israelites were fast becoming a nation greater and mightier than the Egyptians. Later, the sheer magnitude of the host—" this thy so great people "—is emphasized. The Exodus of the Israelites may well have been the greatest of all ancient migrations and we can be the more certain that, but for the good hand of God, it would have been a disastrous failure.[1]

[1] The Author is indebted to the Tyndale Fellowship, members of which made useful contributions in a discussion held at Cambridge in the summer of 1953.

Figure 1.

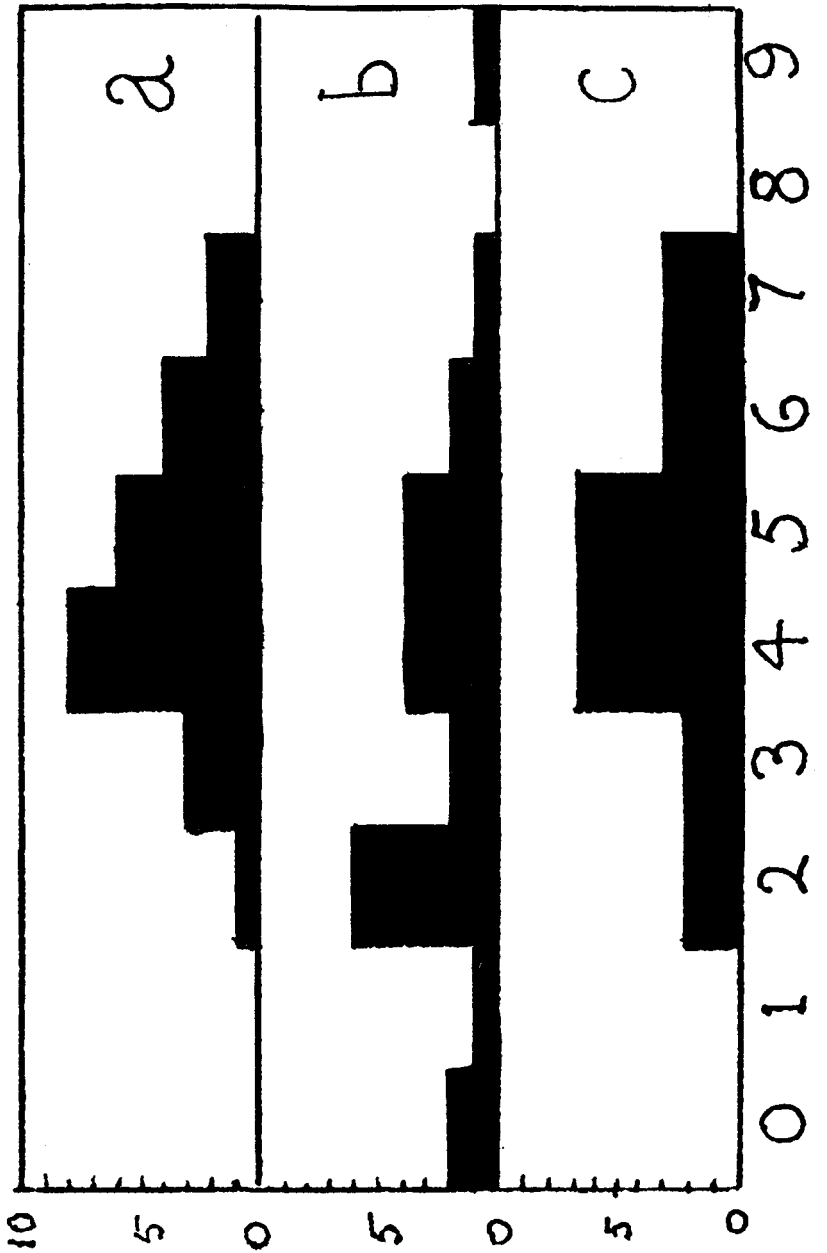
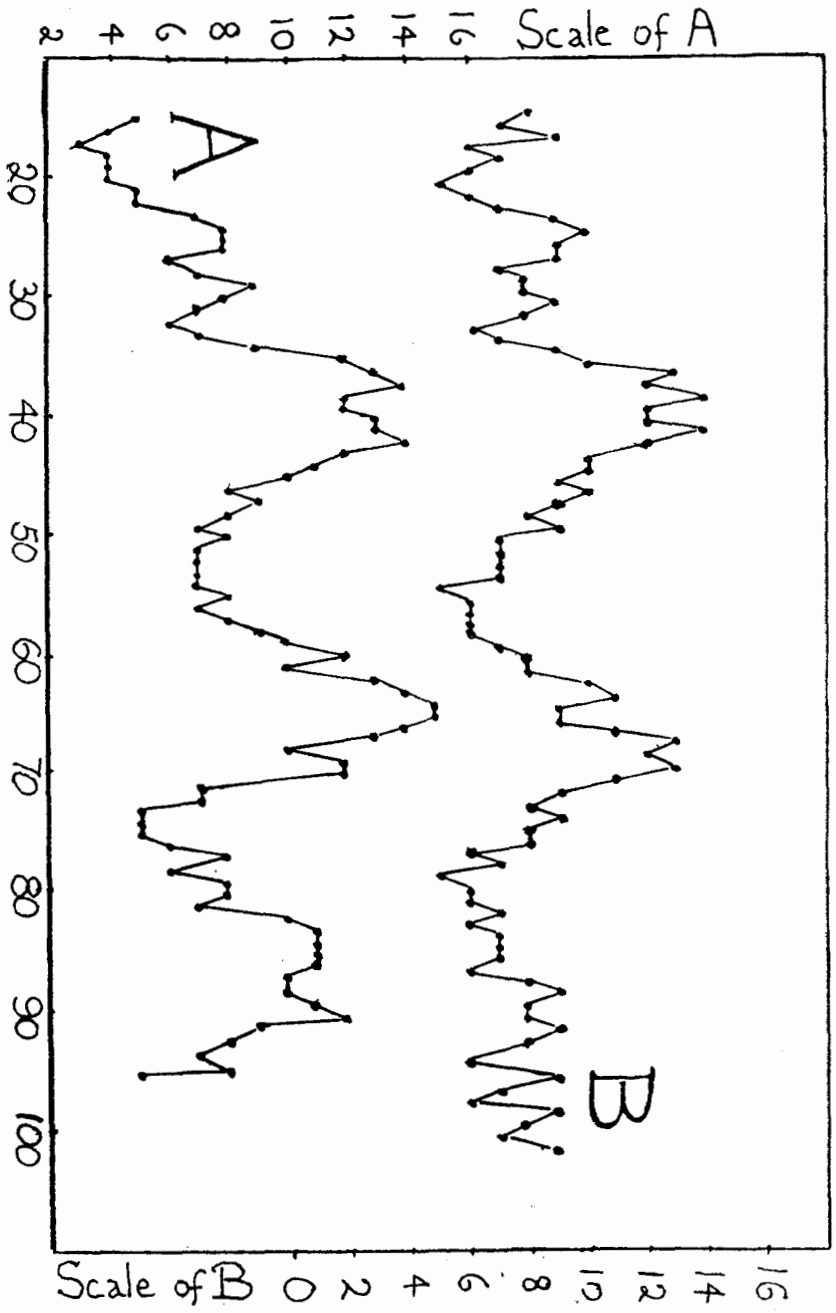


Figure 2.



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