

ARCHIVIST'S NOTE

The following was recovered in the spring of 1941 among the effects left in Mr Waltrip's rented room above the establishment that had most recently employed him, bound in butcher's paper and tied, somewhat formally, with kitchen string – the only one of his known manuscripts to have been finished, titled, and bound as though for submission to somebody. No institution by the name given on the title page has ever existed, in Paris or elsewhere, and the Association has found no record of its author having attended any school past the age of roughly eleven.

Certain passages nonetheless display a command of comparative philology and classical geometry difficult to explain by elementary schooling and bar work alone. Whether these were copied out, half-remembered from books read standing up in the backs of shops along the quais, borrowed from conversations with better-travelled men, or are simply the work of a mind considerably better furnished than its formal education would suggest, the Association does not propose to settle here. It is reproduced below exactly as found, uncorrected, on the belief – which the reader may judge for themselves – that a man's reach is often the most honest thing about him.

A T H E S I S

Concerning the Greatness of the Number Twenty, and Its Rightful Precedence Among All Other Numbers

Being a Study in Five Parts, Undertaken in the Author's Own Time and at His Own Expense, Submitted in Partial Fulfillment of the Requirements for a Degree the Author Was Not, at the Time of Writing, in Any Position to Confer Upon Himself — and Conferred, Regardless, Upon Himself

by

W. W.

L'Université Libre du Zinc

Paris

1940

Approval

This thesis, submitted by the undersigned in fulfillment of a requirement invented by himself for a degree of his own devising, is approved for defense to whoever happens to be at the bar.

W. W., *Author, Candidate, and sole Faculty of Record*

E. Hemingway, *Unofficial Advisor (by correspondence; consulted rarely, credited often, blamed for the worst sentences)*

No third signature could be arranged.

ABSTRACT

ABSTRACT. This thesis addresses a question the author has found strangely neglected by every book he has been able to get his hands on: why, among the whole endless family of numbers, is twenty the greatest of them? Existing accounts treat a man's favourite number as a matter of taste, no more arguable than his favourite colour, or else reduce numerical worth to prime factorisation and nothing besides. Both positions are rejected here. Drawing on comparative philology (Conant, 1896; Menninger, 1934; Jespersen, 1922), the geometry of the five regular solids (Heath, 1908), the study of the chromosome (Morgan, 1926), a plain look at the human body's own fingers and toes, and a body of testimony gathered first-hand in the ports and bars where the author has spent the whole of his working life, a five-part method for judging numerical greatness is proposed and put to use. Twenty is measured against nine rival numbers by this method. It is found, at the end, that twenty alone scores well under every heading at once — grounded in the body, embedded in language, sound in its geometry, prominent in the record of recent history, and, not least, felt — a combination achieved by no other number the author could find, try as some of them did.

Keywords: numbers, greatness, counting by twenties, the body, *W.W.*

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1. INTRODUCTION

1.1 Background and How This Came About

The author did not set out, some years ago, to become the sort of man who thinks about numbers. He set out, so far as he can remember, to keep his mother fed and to stay out of the way of men who might otherwise have found a use for him. Numbers came into it sideways, the way most things of importance seem to, and specifically they came into it by way of two letters that are not, properly speaking, a number at all.

It had become the author's habit, without much thought at the time, to sign the things he wrote — drink chits, the backs of napkins, the undersides of tables where the management could not easily get at them — with his own initials, W.W., set down quickly and always in the same hand. A woman in Antibes, on an evening the author remembers more clearly than he would like, looked at those four strokes with two glasses of absinthe behind her and declared them, with total confidence, to be a twenty. She was wrong about the arithmetic ¹ and right about everything else. The name did not leave him afterward. It is the contention of this thesis that it should not have been expected to, because the number she had landed on, by accident, happens to be the best one there is.

What began as an irritation — being addressed, with increasing frequency and by people who thought it a great joke, as a number rather than a man — became over the following two years something closer to a private research project, carried out in the gaps between shifts, on ships where there was nothing else to do with an evening, and in the back rooms of establishments whose owners were under the impression the author was doing their accounts. He was, some of the time. The rest of the time he was reading whatever could be found, in whatever language it came in, trying to work out whether the woman in Antibes had been merely lucky, or whether she had, without knowing it, put her finger on something true.

This thesis is the answer the author arrived at. It is: something true.

1.2 Statement of the Problem

No serious person has troubled to ask which number is the greatest, because the question is generally taken to be a child's question, on the level of asking which colour is the best colour, and the grown man who persists in asking it is assumed to have missed something on his way to adulthood. The author does not accept this. A colour cannot be measured against the shape of the human hand, or the structure of a solid, or the way a language chooses to count past ten. A number can. The fact that no one has bothered to do this measuring is not evidence that it cannot be done; it is evidence, at most, that no one who could do it has had sufficient reason to sit still long enough.

The author has had, if nothing else, a great deal of sitting still, in the slow hours of bars between the evening rush and the last stragglers, and on the decks of ships between one port and the next. This thesis is the use he has made of it.

1.3 The Question and the Claim

The research question of this thesis is stated plainly: *of all the numbers, which is the greatest, and on what grounds?* The claim advanced in answer is equally plain: *the number twenty is the greatest number, on grounds that can be shown rather than merely felt, though it is admitted freely that the author felt it a good while before he could show it.*

1.4 Why It Matters

It will be asked, by anyone patient enough to have read this far, why any of this should matter to a man who is not a mathematician, has no letters after his name, and earns his living pulling corks and settling arguments between drunks. The honest answer is that it does not matter to the world, and the author has no illusions on that account. It has mattered, however, a great deal to him, in the specific way that a question matters when it has been hung around a man's neck by other people and he has not been given the choice of taking it off. A man addressed for two years running as a number owes it to himself to find out whether the number was well chosen. This thesis is that owing, paid in full, so far as the author is able.

1.5 How This Is Laid Out

Chapter 2 sets down what the author has been able to find already written on numbers, counting, and the question of whether any number can fairly be called great. Chapter 3 proposes a way of judging the matter that does not simply take the author's word for it. Chapter 4 explains how that way of judging was put into practice. Chapter 5, the longest chapter and the one the author cares most about, sets out what was found, number by number and heading by heading. Chapter 6 discusses what it all comes to, and answers, so far as he is able, the objections he expects to be raised against him. Chapter 7 concludes. A list of everything consulted follows, along with three appendices for the reader who wants the working shown in full.

2. WHAT HAS BEEN WRITTEN ON THIS

2.1 The Study of Numbers Themselves

Serious writing on numbers, so far as the author has been able to discover it, falls into two piles that do not speak to one another. The first pile is mathematical, concerned with what a number does — whether it divides evenly, whether it is prime, whether it can be built from smaller numbers in an interesting way. The second pile is what might be called the human pile: the study of how peoples across the world have actually counted, in their own tongues, on their own hands, and what they have made of the numbers that resulted. Conant's *The Number Concept* (1896) belongs mostly to this second pile, and is, in the author's judgment, the single most useful book he has found on the whole subject, not least because Conant troubles himself to record, country by country and tribe by tribe, how high a people's counting goes before it gives up and starts saying "many."²

What neither pile does, so far as the author can find, is ask whether any number, considered altogether — as a shape, as a word, as a thing felt in the hand and worn on the tongue — comes out ahead of the others. Mathematicians decline the question because it is not, to them, a mathematical one. The students of language and custom decline it because they are trained to describe what peoples have done, not to judge between the results. The gap between the two piles is where this thesis has had to build its own scaffolding, for want of finding any left standing by better-qualified men.

2.2 Counting on the Body

The single most useful thread the author has pulled from Conant, and confirmed since in Menninger's *Zahlwort und Ziffer* (1934), is the near-universal habit, among peoples who developed their own counting before contact with others, of counting first on the fingers, and, where ten did not stop them, continuing onto the toes.³ A man who counts past both his hands and both his feet arrives, if he is thorough about it, at twenty, and a considerable number of the world's peoples have stopped there, built their whole manner of counting around that stopping-point, and never seen much reason to go further before starting again. This is not an obscure fact confined to one corner of the world; it recurs, independently arrived at, among peoples who could not possibly have compared notes with one another, which is as close to a controlled experiment as the study of custom is ever likely to provide.

The Maya of the old world across the ocean are the case most often cited, and Morley's account of their hieroglyphs (1915) sets out their counting-by-twenties in full: a system of dots and bars reaching to nineteen, at which point, precisely as a man runs out of fingers and toes, a new column begins.⁴ But the habit is not theirs alone. It survives, fossilised, in the middle of languages that no longer count that way in the main: the French speaker who says *quatre-vingts* for eighty says, without noticing it, "four twenties." The author's own mother's tongue does this without shame. Jespersen (1922), writing as a Dane on the nature and history of language in general, notes the same fossil sitting in the Danish words for fifty, sixty, seventy, all of them built, if one takes them apart, on twenty as the unit being multiplied.⁵ A man whose father is said to have come from that country, as the author's is said to, may be forgiven for finding this detail more affecting than it perhaps deserves to be.

2.3 What the Mathematicians Have Left Lying Around

Turning to the first pile, the mathematical one, the author has found less that speaks directly to greatness, but a great deal that speaks indirectly to it, most usefully in Heath's translation of Euclid (1908), where the five regular solids are set down in full in the thirteenth book.⁶ Of these five, one is built entirely of twenty faces, each one a perfect triangle, fitted together with a precision the author does not pretend to follow in all its proofs but can certainly follow in its consequence: that twenty is not merely a number arrived at by running out of fingers, but a number that shape itself seems to prefer, when shape is left to arrange itself as evenly as it possibly can.

2.4 The Body Again, from a Different Direction

Morgan's work on the chromosome (1926), which the author read in translation over three winters, more slowly than Morgan himself would likely have wished, establishes that the difference between a man and a woman is written, at the smallest scale anyone has yet managed to look, as a difference of one paired mark against another — a mark the science of the matter writes as two X's set side by side.⁷ The author is aware that an X, written twice, is not a twenty except by the same accident of the eye that turned his own initials into one at Antibes. He sets the fact down regardless, because he has come to believe over the course of this research that such accidents recur too often, in too many unconnected places, to be dismissed as accidents indefinitely.

2.5 What Is Missing

What is missing, in short, is a book that puts the finger-and-toe counting, the five solids, the chromosome, and the plain record of a life spent watching what people actually say and do around this number, side by side, and asks what they add up to. No one qualified has written it. The author is not qualified either, a fact he has not been able to get around by any honest means, and so has written it anyway.

3. A WAY OF JUDGING GREATNESS

3.1 What "Greatness" Is Taken to Mean Here

Before any number can be judged, the word doing the judging must be pinned down, or the whole exercise is no better than an argument in a bar at closing time, which the author has had a great many of and does not intend to reproduce in writing. Greatness, for the purposes of this thesis, is not taken to mean usefulness — the number one is useful beyond all the others and is not, on that account, great, any more than a hammer is great for being useful. Nor is it taken to mean size, which is merely a fact about a number, not an achievement of it. Greatness, as used here, means something closer to what is meant when the word is used of a man: that a number should be sound in its own structure, that it should be recognised and returned to by people who never met each other, and that it should be felt, by those who use it, as something more than a bare quantity.

3.2 Five Grounds, and Why These Five

The author proposes that a number's greatness be judged on five grounds, arrived at not by any formula but by noticing, over two years of reading and asking, which qualities kept recurring whenever a number seemed to matter to somebody. They are:

I. The Body. Whether the number is grounded in something a man can count on himself, without tools, without teaching.

II. The Tongue. Whether the number has left a mark on how peoples actually speak, in more than one place, arrived at independently.

III. The Shape. Whether the number holds up under the plain rules of arithmetic and geometry — whether it divides well, builds well, sits well among its neighbours.

IV. The Record. Whether the number turns up, of its own accord and without being forced, in the events and objects a people choose to remember.

V. The Feeling. Whether the number is carried by anyone as more than a quantity — as a nickname, a private mark, a thing worn.

No claim is made that these five are the only grounds on which a number might be judged. They are the five the author found himself returning to, and he has judged it more honest to say so plainly than to dress the matter up as a method arrived at by pure reason alone, which it was not.

3.3 How the Five Grounds Will Be Used

Each number examined in Chapter 5 is considered against all five grounds in turn, and a mark of Poor, Fair, Good, or Excellent is given under each heading, on the author's own best judgment, informed by whatever reading and testimony he has been able to gather. A number that scores well on one or two grounds is not thereby shown great; plenty of numbers manage that much. It is the number that

scores well across all five at once — grounded in the body, marked in the tongue, sound in shape, present in the record, and felt — that this thesis is looking for, and it is the author's finding, set out in full in Chapter 5, that only one number manages it.

4. METHOD

4.1 How the Numbers Under Study Were Chosen

Nine numbers besides twenty were selected for comparison, on the plain and admittedly unscientific ground that they are the numbers the author has most often heard other men claim, in bars, on ships, and once in a church, to be the best or luckiest or most important of all. They are: one, three, seven, ten, twelve, thirteen, forty-two⁸, one hundred, and pi, this last included at the insistence of a Genoese engineer the author served for the better part of a month and could not talk out of it.

4.2 Sources of Evidence

Evidence for the body and the tongue was drawn from Conant (1896), Menninger (1934), Morley (1915), and Jespersen (1922), cross-checked where possible against the author's own hearing of French, Danish, and the scraps of Basque picked up from a deckhand out of Bilbao who counted his wages, without fail, in twenties. Evidence for shape was drawn from Heath's Euclid (1908) and from arithmetic the author is confident enough in to have done himself, twice, at different sittings, to guard against a tired man's mistakes. Evidence for the record was drawn from the author's own reading of newspapers passed hand to hand in bars, from Allen's account of the recent decade (1931), and from the plain fact of what men choose to call things when they are naming them freely. Evidence for the feeling was drawn, chiefly and unavoidably, from the author's own life, on the ground that a man who has carried a number for two years is not the worst-placed witness to how a number can be carried, whatever else may be said against him as an impartial judge.

4.3 On the Author's Own Bias, Which He Does Not Pretend to Lack

It will not have escaped the reader that a man conducting a study of which number is greatest, while himself going by the nickname of the number he suspects will win, is not an unbiased judge. The author has considered removing himself from the case-study material in Chapter 5 for this reason, and has decided against it, on the ground that the alternative is to leave out the single piece of evidence he is best qualified to report on: what it is actually like to carry the number in question through the ordinary business of a life. A study of greatness that refuses all evidence of what greatness feels like, for fear of bias, has in the author's judgment thrown out the one ingredient that made the question worth asking in the first place. The reader is warned, and may discount the case study accordingly; he is asked only to weigh the other four grounds on their own separate merits before doing so.

4.4 Limits of the Method

This is not a mathematician's proof and does not claim to be one. It is closer to the kind of case a barman builds for a regular he has watched for years: not provable in the manner of a sum, but not idle either, and built on more evidence than a man's first impression

usually rests on. The author has tried, throughout, to say plainly where he is reasoning and where he is merely hoping, and asks the reader to extend him the same courtesy he has tried to extend to the numbers under study: a fair hearing before judgment.

5. FINDINGS

5.1 Ground I: The Body

Ten fingers and ten toes give any man, whatever his country or his schooling, twenty marks he can count without borrowing a tool from anybody. No other number on the list of contestants can make this claim without qualification. One is trivially present on the body many times over and proves nothing by being there. Ten is present twice, on the hands alone, and has been treated by whole civilisations as though the feet did not exist, which the author, having stood on his own for the better part of every working day of his life, considers a strange and somewhat ungrateful oversight. Twelve, thirteen, and forty-two correspond to no part of the body the author has been able to locate on himself or on any man he has served a drink to. Twenty, and twenty alone among the contestants, is the number a man arrives at by counting the whole of himself, hands and feet together, and stopping only because he has run out of self to count.

5.2 Ground II: The Tongue

As set out in Chapter 2, the habit of counting by twenties has left its mark, independently, in the numeral systems or numeral fossils of peoples with no plausible means of having borrowed the idea from one another: the Maya of the old world across the sea (Morley, 1915), the French, in whose mouth eighty is still and unashamedly "four twenties" (a fact the author's own mother confirmed was drilled into her as a girl and never once struck her as odd until her son began asking), the Danish, in whose older counting the same base recurs (Jespersen, 1922), and, by the testimony of the Bilbao deckhand mentioned above, the Basque, who the author was assured count the same way still, in daily use, without any sense of doing something old-fashioned by it. No rival number on the contestant list can show anything approaching this spread. Seven and three appear constantly as lucky or sacred numbers, which is a different matter entirely and is addressed under Ground V below; they do not appear as the base of anybody's actual counting.

5.3 Ground III: The Shape

Twenty divides cleanly by one, two, four, five, and ten, which is a respectable showing for a number of its size, though the author does not pretend it is the most divisible number available — twelve, admittedly, divides by more, and the author has marked twelve accordingly in the summary table below. Twenty's stronger claim under this heading is geometric rather than arithmetical: of the five regular solids known since ancient times and set down in full by Euclid (Heath, 1908), one — the icosahedron — is built entirely of twenty equal triangular faces, more faces than any of the other four solids can claim. That shape itself, left to arrange its flattest, most equal faces as evenly as possible around a point, arrives independently at twenty is, to the author's mind, not a small piece of evidence, whatever a trained mathematician might say about the limits of drawing conclusions from it.

Table 1. Divisors and geometric standing of the ten numbers under study

Number	Divisors (excl. itself)	Regular solid, if any
1	—	—
3	1	—
7	1	—
10	1, 2, 5	—
12	1, 2, 3, 4, 6	—
13	1	—
20	1, 2, 4, 5, 10	Icosahedron (20 faces)
42	1, 2, 3, 6, 7, 14, 21	—
100	1, 2, 4, 5, 10, 20, 25, 50	—
π	not applicable	describes the circle, not any solid

5.4 Ground IV: The Record

Left to name things freely, without any prompting from this author, the world keeps landing on twenty. Jules Verne, whose books the author read three times through as a boy on the strength of a single battered copy passed from hand to hand, sent his captain twenty thousand leagues under the sea and not some other distance ⁹. The American oculist's chart, now used the world over including in the port clinics the author has twice been sent to for his own eyes, calls sound vision "twenty over twenty," measured at twenty feet, for reasons the author has not seen explained but suspects are not entirely arbitrary. ¹⁰ The decade just finished, which Allen (1931) has already had the leisure to write a full history of while the author was still working through it night by night, is remembered by everyone who lived through any part of it as the Twenties, not the Nineteen-Twenty-Ones or the Late Nineteen-Tens, and the author has yet to meet the man who calls it anything else. In law, more than one country the author has made port in sets twenty as the age at which a young man stops being a boy in the eyes of the state, a fact he has had cause to notice rather closely, on his own account, in recent months.

5.5 Ground V: The Feeling — A Case Study

This section is offered with the caution already given in Section 4.3. It concerns the author's own life, and he has tried to set it down without either flattering the number under study or letting his evident affection for it stand in for evidence.

The nickname, once given, was not sought and for the better part of a year was resented. A man wants to be known by his own name, earned by his own hand, not by two letters a stranger happened to misread through a glass of absinthe. It is the author's honest report, however, that resentment did not hold. What replaced it, gradually and without his quite noticing the change until it had already

happened, was something closer to a private standard: a sense that the number he was being called had better be worth carrying, and that he had better try to be worth it in return. Whether he has succeeded is not a question this thesis is equipped to answer, and the author does not attempt to answer it here. He notes only that a number a man measures himself against, for two years running, without being able to help it, has by that fact alone demonstrated a kind of greatness that no divisor and no regular solid can supply on its own. A number that can be worn, and can be lived up to or fallen short of, has done something no merely useful number has ever managed.

5.6 The Contestants, Considered and Set Aside

One is foundational but not great; every number is built from it, which makes it indispensable and, for that very reason, unremarkable — a brick is not admired for being a brick. Three recurs constantly in stories and sayings but corresponds to no part of the body and to no numeral base the author has been able to find in honest use anywhere. Seven is beloved and called lucky by more men in more bars than any other number on this list, and the author does not dismiss that lightly, but a thing that is merely liked, without being grounded in the body or the tongue, has won a popularity contest, not the case this thesis is trying to make. Ten is grounded in the body by half measures only, ignoring the feet entirely, an oversight twenty does not share. Twelve divides beautifully and the author gives it full marks under Ground III, but it corresponds to no part of the body he has been able to find and has left no comparable fossil in the tongues he has checked. Thirteen is widely feared and this fear is itself a kind of recognition, but fear is not greatness, only its unhappy cousin. Forty-two the author cannot make a serious case for at all and includes chiefly so that the reader cannot accuse him of having stacked the contest. One hundred is round, remembered, and useful, but is no more than five twenties stacked together and borrows whatever true greatness it possesses from the smaller number underneath it. Pi is endless, refuses to resolve into a whole number no matter how far a man follows it, and while the Genoese engineer argued its case for the better part of an evening with real feeling, the author cannot in good conscience call a number great that will not, even in principle, finish being counted.

5.7 Summary of Findings

Table 2. Summary standing of ten numbers against the five grounds

Number	I. Body	II. Tongue	III. Shape	IV. Record	V. Feeling
1	Fair	Poor	Fair	Fair	Poor
3	Poor	Poor	Fair	Good	Fair
7	Poor	Poor	Fair	Good	Good
10	Fair	Good	Fair	Good	Fair
12	Poor	Fair	Excellent	Good	Fair
13	Poor	Poor	Poor	Fair	Fair
20	Excellent	Excellent	Good	Excellent	Excellent
42	Poor	Poor	Good	Poor	Poor
100	Poor	Fair	Good	Good	Fair
π	Poor	Poor	Fair	Fair	Good

Only twenty scores Good or better across the full breadth of all five grounds at once. This is the finding this thesis rests on.

6. DISCUSSION

6.1 What the Findings Come To

Taken singly, none of the five grounds set out in Chapter 3 would carry this thesis very far; a great many numbers can claim one or two of them, and the author has tried to be honest about that throughout Chapter 5. What no rival number on the list manages is to hold all five at once, without a weak point a critic might fairly press on. Twenty has one: it is not the most divisible number of its size, and the author has not tried to hide this. But greatness, as argued in Section 3.1, was never taken to mean supremacy on a single count. It was taken to mean a soundness that holds up when the number is turned over and examined from every side the author could think to examine it from. By that standard, and only by that standard, twenty stands where no other number on this list stands beside it.

6.2 Objections the Author Expects, and His Answers to Them

It will be said that a man measuring the world's numbers while wearing one of them as a nickname has cooked the result before he began. The author has answered this already in Section 4.3 and does not repeat himself here beyond saying that he would rather show his working and be doubted than hide it and be believed by accident.

It will be said that Ground V, the feeling, is not evidence at all but sentiment dressed up in a numbered heading. The author is prepared to lose this point in the case of any reader who insists on it, and would only ask such a reader to strike Ground V from the summary table and see whether the remaining four grounds still leave twenty standing where it stood before. He believes, having done this exercise himself before submitting the thesis, that they do.

It will be said, finally, that this is not a proper thesis at all, having been written by a man with no more than an elementary schooling, in the back rooms of bars, without a single university library at his disposal. The author does not dispute the facts of this objection. He disputes only that they settle the matter. A case is not wrong for having been made by the wrong sort of man to make it; it is wrong, if it is wrong, on its own terms, and the author asks to be judged on those and no others.

6.3 Limits of This Study

The author has not read every book there is on numbers, has not visited every port there is to visit, and has drawn a great deal of Ground IV evidence from the newspapers and talk that happened to reach him rather than from any systematic search he was equipped to carry out. A better-funded man, with a library and the time to sit in it, would very likely find further evidence this thesis has missed, on both sides of the question. The author would welcome this. He asks only that such a man start from the same five grounds, honestly applied, before declaring the case closed one way or the other.

6.4 What Follows From This, If Anything

The author does not imagine that this thesis will change how any other man counts, names his children, or calls his decade. He has written it, in the end, less to persuade the world than to settle something with himself: whether a name given to him in jest, by a stranger in a bar he never saw again, was worth the two years he has spent, on and off, trying to prove it right. He has satisfied himself that it was. What any other reader makes of the case is, as it has always been, their own affair.

7. CONCLUSION

This thesis set out to ask which number, of all of them, deserves to be called the greatest, and on what grounds a claim like that could honestly be made rather than merely felt. Five grounds were proposed: the body, the tongue, the shape, the record, and the feeling. Twenty was measured against nine rivals on all five, and was found, alone among them, to stand up well under every heading at once — the sum of a man's own fingers and toes, a base independently rediscovered by peoples who never met, a shape geometry itself seems to prefer when left to arrange its most honest solid, a number the world keeps reaching for when it names its decades and measures its eyesight and marks the last year of a boy's boyhood, and, not least, a number that can be carried, and lived up to, by a man who did not ask for it but has come, in the writing of this thesis, to be glad he was given it regardless.

Further study is recommended, chiefly by men better equipped than this author to carry it out. He offers this thesis not as the last word on the matter but as the first one he has been able to find written down, and hopes it will not be the last.

W.W.
Paris, 1940

NOTES

1. Twenty, properly rendered in the Roman manner, is XX. The lady's four strokes, being V's and not X's, would strictly have made either VVVV, no accepted numeral at all, or a repetition of five, four times over. The author raises the point only to set it aside; the lady was not counting in Latin, and neither, by the end of the evening, was anyone else at that bar.
2. Conant (1896) catalogues a number of peoples whose counting stops at two, three, or "many" well short of ten, which the author finds oddly comforting on the nights his own arithmetic fails him.
3. The author has confirmed this personally, more than once, by removing his boots in the presence of witnesses, to general amusement and no serious objection.
4. Morley (1915) sets out the bar-and-dot notation in full: a dot is one, a bar is five, and a shell-shape stands for nothing at all, which the author finds a very sensible thing for a numeral system to include.
5. *Halvtreds*, the Danish word for fifty, means literally "half-third times twenty" — that is, two and a half twenties. The author's father, whoever he was, is said to have come from this country. The author does not know what to make of this and sets it down without further comment.
6. The five solids are the tetrahedron, cube, octahedron, dodecahedron, and icosahedron, of four, six, eight, twelve, and twenty faces respectively. Only two — the dodecahedron and the icosahedron — required real cleverness on the part of whoever first found them, and it is the author's private opinion, defended nowhere else in this thesis, that the second is the finer of the two.
7. The author read Morgan by lamplight, in instalments, over a period he is not proud of, and freely admits to understanding perhaps two-thirds of it on a generous reckoning.
8. The Genoese engineer's own case for forty-two, so far as the author could follow it after the fourth glass, rested chiefly on its being twice twenty-one, which struck the author even at the time as begging rather more of the question than it answered.
9. Twenty thousand leagues works out, by the author's own arithmetic, checked twice, to something in the neighbourhood of eighty thousand miles — more than three times around the world at the equator, a distance Verne could as easily have called eighteen thousand, or twenty-five, and did not.
10. The standard distance for the American chart is twenty feet, a figure the author has not seen explained in any book available to him, and offers no theory of his own beyond noting that it is, at least, a great deal more than ten.

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APPENDICES

Appendix A: The Full Rubric

Poor — no meaningful showing under this heading.

Fair — a showing exists but is partial, indirect, or shared with many other numbers.

Good — a clear and specific showing, better than most rivals.

Excellent — a showing the author could find no rival number to match.

Appendix B: Counting-Systems Consulted

Maya (Morley, 1915); French, in its surviving numeral fossil (personal knowledge, confirmed by the author's mother); Danish, in its surviving numeral fossil (Jespersen, 1922); Basque, in current daily use (personal testimony, deckhand out of Bilbao, name not recorded).

Appendix C: A Short Timeline of Twenties Noticed by the Author in the Course of an Ordinary Life

Ten fingers, ten toes, present from birth. The icosahedron, twenty faces, known since before anyone now living. Eighty, in French, still secretly four twenties. Twenty thousand leagues, in the book read three times as a boy. Twenty over twenty, the mark of an eye doing its job. The Twenties, the decade just finished, called nothing else by anyone who lived it. Twenty, the age at which, in more than one country, a boy stops being allowed to call himself one. Twenty, the number a woman in Antibes read into four scratched letters that were not, in fact, a number at all, until she made them one.