

*Name prefixes of local significance must give way to standard identifications as growth of nation-wide dialing increases importance of easily grasped words*

# “WHAT’S YOUR TELEPHONE NUMBER?”

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THIS QUESTION is probably one of the most frequently asked of all—along with “What time is it?” and “How’s the weather?” And the answers to it are growing more and more to sound alike, at least as far as concerns the name portion of the number, no matter in what part of our country the question is asked.

Why is this? Why this change from names which had local significance to those that are “neutral” or “national”? For that matter, why have names at all?

To understand what is happening now, it is necessary, as in so many other inquiries, to go back a bit and see what has happened in the past.

In the very early days of the telephone business, it was possible to be connected simply by giving the name of the subscriber to the operator. With only a few subscribers, the operators could easily remember that the blacksmith shop was 80-J and the drygoods store was 50. Even today, in the very small communities there is still some calling by name and, occa-

sionally, a nostalgic response by an operator, “I know he’s not in his office because I just saw him go into the barber shop.”

But along with whipsockets and anti-macassars, these procedures became outmoded with the passing of time. As the telephone population grew, each subscriber had to be identified by a telephone number—a more impersonal method but a necessary one. Telephone directories and calling by number became required adjuncts to satisfactory telephone service. In the earlier days, these telephone numbers were composed of numerals only, and, as long as there was only one central office in a city, there was no need for a name-and-numeral combination.

As growth continued, the physical capacity of the first office in a city was reached and a second or “branch” office had to be opened. This brought with it the need for differentiating between the first and second in some manner. The choice lay between designating the offices



# NATIONAL TELEPHONE DIRECTORY

American Telephone and Telegraph Company

113-3	Bricey W. K.	Residence	30 Main
113-4	Brooker Charles F.	Residence	150 Main
114-1	Brooker Charles F.	Residence	150 Main
114-2	Brooker Charles F.	Residence	150 Main
114-3	Brooker Charles F.	Residence	150 Main
114-4	Brooker Charles F.	Residence	150 Main
114-5	Brooker Charles F.	Residence	150 Main
114-6	Brooker Charles F.	Residence	150 Main
114-7	Brooker Charles F.	Residence	150 Main
114-8	Brooker Charles F.	Residence	150 Main
114-9	Brooker Charles F.	Residence	150 Main
114-10	Brooker Charles F.	Residence	150 Main
114-11	Brooker Charles F.	Residence	150 Main
114-12	Brooker Charles F.	Residence	150 Main
114-13	Brooker Charles F.	Residence	150 Main
114-14	Brooker Charles F.	Residence	150 Main
114-15	Brooker Charles F.	Residence	150 Main
114-16	Brooker Charles F.	Residence	150 Main
114-17	Brooker Charles F.	Residence	150 Main
114-18	Brooker Charles F.	Residence	150 Main
114-19	Brooker Charles F.	Residence	150 Main
114-20	Brooker Charles F.	Residence	150 Main
114-21	Brooker Charles F.	Residence	150 Main
114-22	Brooker Charles F.	Residence	150 Main
114-23	Brooker Charles F.	Residence	150 Main
114-24	Brooker Charles F.	Residence	150 Main
114-25	Brooker Charles F.	Residence	150 Main
114-26	Brooker Charles F.	Residence	150 Main
114-27	Brooker Charles F.	Residence	150 Main
114-28	Brooker Charles F.	Residence	150 Main
114-29	Brooker Charles F.	Residence	150 Main
114-30	Brooker Charles F.	Residence	150 Main
114-31	Brooker Charles F.	Residence	150 Main
114-32	Brooker Charles F.	Residence	150 Main
114-33	Brooker Charles F.	Residence	150 Main
114-34	Brooker Charles F.	Residence	150 Main
114-35	Brooker Charles F.	Residence	150 Main
114-36	Brooker Charles F.	Residence	150 Main
114-37	Brooker Charles F.	Residence	150 Main
114-38	Brooker Charles F.	Residence	150 Main
114-39	Brooker Charles F.	Residence	150 Main
114-40	Brooker Charles F.	Residence	150 Main
114-41	Brooker Charles F.	Residence	150 Main
114-42	Brooker Charles F.	Residence	150 Main
114-43	Brooker Charles F.	Residence	150 Main
114-44	Brooker Charles F.	Residence	150 Main
114-45	Brooker Charles F.	Residence	150 Main
114-46	Brooker Charles F.	Residence	150 Main
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114-49	Brooker Charles F.	Residence	150 Main
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114-52	Brooker Charles F.	Residence	150 Main
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114-55	Brooker Charles F.	Residence	150 Main
114-56	Brooker Charles F.	Residence	150 Main
114-57	Brooker Charles F.	Residence	150 Main
114-58	Brooker Charles F.	Residence	150 Main
114-59	Brooker Charles F.	Residence	150 Main
114-60	Brooker Charles F.	Residence	150 Main
114-61	Brooker Charles F.	Residence	150 Main
114-62	Brooker Charles F.	Residence	150 Main
114-63	Brooker Charles F.	Residence	150 Main
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114-66	Brooker Charles F.	Residence	150 Main
114-67	Brooker Charles F.	Residence	150 Main
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114-71	Brooker Charles F.	Residence	150 Main
114-72	Brooker Charles F.	Residence	150 Main
114-73	Brooker Charles F.	Residence	150 Main
114-74	Brooker Charles F.	Residence	150 Main
114-75	Brooker Charles F.	Residence	150 Main
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114-77	Brooker Charles F.	Residence	150 Main
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114-79	Brooker Charles F.	Residence	150 Main
114-80	Brooker Charles F.	Residence	150 Main
114-81	Brooker Charles F.	Residence	150 Main
114-82	Brooker Charles F.	Residence	150 Main
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114-86	Brooker Charles F.	Residence	150 Main
114-87	Brooker Charles F.	Residence	150 Main
114-88	Brooker Charles F.	Residence	150 Main
114-89	Brooker Charles F.	Residence	150 Main
114-90	Brooker Charles F.	Residence	150 Main
114-91	Brooker Charles F.	Residence	150 Main
114-92	Brooker Charles F.	Residence	150 Main
114-93	Brooker Charles F.	Residence	150 Main
114-94	Brooker Charles F.	Residence	150 Main
114-95	Brooker Charles F.	Residence	150 Main
114-96	Brooker Charles F.	Residence	150 Main
114-97	Brooker Charles F.	Residence	150 Main
114-98	Brooker Charles F.	Residence	150 Main
114-99	Brooker Charles F.	Residence	150 Main
114-100	Brooker Charles F.	Residence	150 Main

All the telephones which could be reached by Bell System long distance service were listed by location, number, name, business or residence, and address in this "national" directory of nearly six decades ago.

When the compass points were exhausted there came the question as to what avenue of approach would be used next. Well, there was geography and there was history, natural as well as local and national. Why not try them? The resources here were practically limitless, and in the earlier stages it was relatively simple to name the new offices. From the geographical approach came "Bowling Green," "Fairfax," "Longbeach," "Trinity," and many others. Natural history provided "Cherry," "Hickory," "Orchard" and a few "Filiberts." National history produced "Adams," "Franklin," "Hancock," and "Plymouth."

Not many problem situations so far. It didn't matter if the same name were used in different cities, and these early names were generally simple and easily understood. However, when the naming trail

led into locally significant names, such as "Tashmo," "Glebe," "Esplanade" and even "McAdoo," some difficulties were encountered, although these were limited to those occasioned by a distant operator becoming tangled up in the pronunciation or spelling of a strictly local name.

About this time, a process of determining the phonetic value of office names came into use. A list of proposed names, secured from all possible sources, was prepared and then tested to see how good they were. In making the tests, operators were given the lists and proceeded to read the names over a circuit to other operators, who recorded them as they were understood. The names that were most frequently misunderstood, misspelled, or that required the most frequent repetition, were eliminated. However, since the testing took place en-

## "What's Your Telephone Number?"

tirely within a local area, there still remained many names which, while understandable in that vicinity because of their local significance, were destined for the casualty list with further developments in the telephonic art.

WITH THE PROGRESS of dial service, some new factors were introduced into the name selection procedure. A look at the dial will show some of these factors. One that is immediately apparent is the absence of a "Q"; therefore, no more "Quincy's" or "Quarry's." The letter "Z," if it appears on the dial at all, is placed in the tenth opening, the one used to dial "Operator," and so no names beginning with "Z" are usable. The use of "Zenith" is thus precluded, and it's probably just as well, for the possibility of its opposite, "Nadir," suggests itself—

which raises an irrelevant speculation as to why "Zenith" is so much better known than "Nadir."

In the earlier days of local dialing, the first two letters, followed by the numerals, were dialed. When this began, some name revisions had to be made. There could not be a "Market" and a "Main" in the same city, nor an "Adams" and a "Beacon." Sometimes this meant the elimination of a name that had been in effect for a long time, and such an undertaking was not without its problems—to use an understatement.

With the two-letter approach (and here maybe another look at the dial is advisable), there were and are 64 possible combinations. The letters begin in the second opening and continue through the ninth. There are, then, eight possible first letters

The image shows a large, dense grid of telephone listings from a Manhattan directory. The grid is organized into four columns and is framed by a decorative, wavy border. Each entry typically consists of a name followed by a phone number. The names are listed in alphabetical order within each column. The phone numbers are formatted with a two-letter prefix followed by a four-digit number. The grid is very dense, with many entries per line and column.

Listings in the current Manhattan (New York City) alphabetical four-column directory illustrate the 2-5 numbering plan.



*"Franklin" and "Bowling Green" are historic names which have served as central office designations and have thus become telephone number prefixes.*



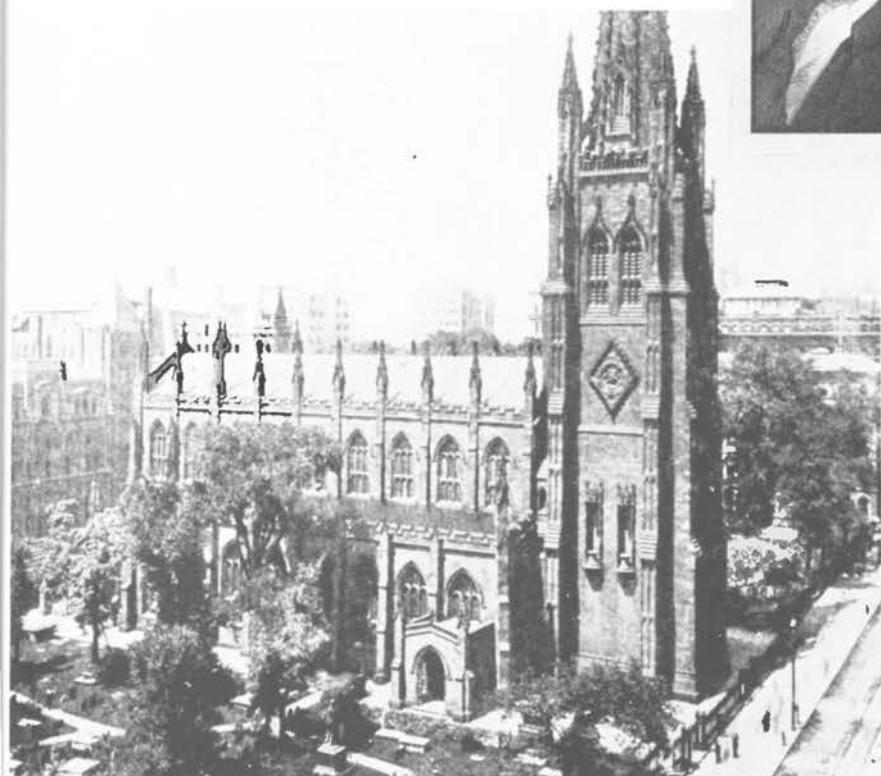
to be combined with eight possible second letters, or  $8 \times 8 = 64$ . Why only eight and not ten? The tenth opening's unsuitability has been previously accounted for and the first opening, occupied exclusively and aloofly by the numeral "1," was not deemed at the time to be sufficiently eligible to be endowed with letters because of a hovering specter called "preliminary impulse." In an era when most of the instruments were of the erect "desk stand" type, the process of unlatching the receiver from its

claws was calculated to cause an unwanted impulse to be transmitted to the dial machine. The machine was arranged to absorb this preliminary impulse, and as a result the first opening became, and still remains, unlettered.

Of the 64 possible combinations, there were and are four which are ordinarily not used because of the relatively few usable names that could be developed from them, i.e.:

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"Adams" and "Trinity" have also become familiar to generations of telephone users as identifying designations for telephone numbers.



Openings	1st Letter	2nd Letter
5-5	J,K,L	J,K,L
5-7	J,K,L	P,R,S
9-5	W,X,Y	J,K,L
9-7	W,X,Y	P,R,S

If completely mined, these combinations could produce "Klamath," "Kringle," "Ylang" (a Philippine tree), and "Wrath," all of which lack in various degrees the required characteristics.

With these four out, the possible names for a city were reduced to 60, and in some

cases this was even further reduced by other factors. For example, in one case "Georgia," a 4-3 combination, was so often dialed as GA that it became necessary to strap the 4-3 with the 4-2 combination so that, regardless of the spelling proclivities of the calling customer, the call arrived at the correct place. However, in so doing, another suitable name, "Hamilton," using the 4-2 combination, became unavailable.

In a few of the very large cities, three letter dialing was introduced. Theoreti-



The "Open Sesame" to most callers: a standard telephone dial. The letter "Q" never appears, and this type lacks the "Z" also.

cally, this resulted in there being a maximum possibility of 512 names:  $8 \times 8 \times 8$ . Impossible spelling combinations reduced this to about 325, but still this seemed to be adequate to handle the growth for an indefinite time.

Now that the outside limits seemed to be settled, the procedure of selection of names that met both the phonetic and dialing requirements became a matter of good judgment supported by technical knowledge. Locally meaningful names were retained wherever they met the requirements, and all seemed well and secure. Tests of names were made every now and then so that there would always be thoroughly acceptable ones available when a new office opened.

*Accentuating the Naming Difficulties*

BUT ALL was not well and secure. Growth continued,—enough to be threatening to the peace of mind of the nomenclature people. And then there was added to this relatively mild state of disquiet the full impact of intercity dialing by operators. This was an enormous step forward in the improved handling of long distance calls,

but brought with it an accentuation of the naming difficulties.

Passing a name over a circuit by voice is quite different from dialing the first three letters of the name. In the former case a call for a "Taylor" number, for example, generally arrived at a "Taylor" number. But with a distant operator doing the dialing, the call might start off as TAI (for a not unforgivable "Tailor") and land, if it landed at all, at an entirely different number. This difficulty with the orthographic placement of the third letter, together with a demand for more and more central office names, resulted in a change from three letters and four numerals to two letters and five numerals. This is referred to today as the 2-5 plan and is the basic structure of all local numbering plans.

With a numeral substituted for the third letter (the numeral in reality being part of the central office name), not only were the operator spelling difficulties somewhat eased but also the number of possible combinations and hence office names was increased, this time to 540. Why 540? Starting from the 60 described earlier, each

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multiplied by 10 gives 600. However, the tenth opening containing the numeral "0" and the "Operator" service code is not generally used and therefore it is  $60 \times 9 = 540$ .

It was about at this time that the possibility of intercity dialing by customers became a probability, and it was obvious that something further in the central office naming field had to be done. It was one thing for the natives of a city and all telephone operators to dial a particular number in that city, but it was quite another thing for all people everywhere in the United States and Canada to dial that same number. For that is, of course, what the plan of customer dialing of long distance calls sets out to do: to enable these 50-odd million customers to dial each other easily and simply.

#### *"A Multi-Office Country"*

UNDER SUCH a concept, the two countries become in effect a huge multi-office city, and a numbering plan to meet this condition had to be devised. As a first step, the countries were divided into areas each designated with a three-numeral code. These areas are geographical in that they follow state and province lines, but in the more thickly populated of these areas two or more three-numeral NPA (numbering plan area) codes have had to be assigned. This is so because no more than 540 central offices can be contained within one NPA code. Each central office within an area must have a different designation, consisting of the first two letters of the name and a numeral, so that when a call gets to the right area it will then get to the right office in that area.

By looking at the NPA map it can be seen that the codes have either a "0" or a "1" for the middle numeral. This plan of coding,

termed the X0X and X1X approach, had as its original concept that those containing 0 would be used where the entire state could be contained within one code, and those containing 1 would be assigned to states where more than one code was necessary. Thus, when the intertoll dialing facilities were fully available, a call to any place in Nevada could be handled on a "destination" basis by the operator's or the customer's dialing 702, followed by the two letters and five numerals of the called telephone. On calls to multi-code states, the proper code would have to be known or be obtained from an operator in much the same manner as telephone numbers are obtained from Information now.

It seemed to be a good plan, and one that had plenty of capacity. The X0X and X1X approach resulted in there being 152 possible combinations available. How? Neither 1 nor 0 are used to start a code, so in the X0X class, there are 8 different numerals to start the code and ten different numerals with which to finish it; therefore  $8 \times 10 = 80$ . Similarly, in the X1X class; but here codes ending in 11, of which there are eight, cannot be used since they are already in use for local service codes: 211 for Long Distance, 411 for Information, and so on. Accordingly, there are only 72 available in the X1X class. And  $80 + 72 = 152$ .

It seemed like a large enough figure, this 152, when there are only 48 states and 9 provinces to consider. Again, however, because of continual growth and resulting new offices, the possibility of exhaustion must be foreseen. Recently, the 1000th and 101st codes were assigned. The X1X class is being used up faster, and consequently there are a few states (e.g., Florida and Georgia) which have a code in each class. To meet the possibility that at some future

time all 152 would be used up, new equipment will be designed to handle NPA codes of a X01X class which will make 72 more codes available and, with luck, suffice until sometime beyond the year 2000.

*The Necessity for Change*

TO RETURN to the naming of central offices within each numbering plan area and the need for each office in the area to have a different designation, it was obvious that some names had to be changed. This, on occasion, required some nice judgment and diplomatic negotiations, especially when there were two cities in the same area having an office with the same name.

Also it was apparent in the interests of simplicity that uniformity of numbering must be the objective; that is, each number must consist of two letters and five numerals. Then came the question as to what these two letters should be. In the smaller places, which had never grown beyond one central office, why not retain the locality name as the name portion of the

number? Why not, indeed? The answer lies in the ingeniousness and enormous fertility of mind with which our towns and villages have been named. These, together with names of Indian descent, have resulted in a formidable array of appellations which, while colorful and significant, are insurmountable obstacles to an easy nation-wide dialing plan. Among them are Koeponick, Ephrata, Illahee, Scruggs, Hye, Quiggleville (no Q's available) and Zia (and no Z's). Good names, but they won't do.

To meet this complex situation there has been developed for each of the 60 possible letter combinations, four or five names which seem to meet all the requirements. They can be spelled and, what is more important, they can be dialed. Some appear on the opposite page, and there are others for each combination. The point about all of them is that they have met the various tests and that they can play their part in furnishing an ever-improving service to the customer.



*The three-numeral codes of the NPA map as designed for the United States and Canada.*

*"What's Your Telephone Number?"*

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2-2—Academy	5-3—Jefferson
2-3—Adams	5-6—Locust
2-4—Chestnut	6-6—Mohawk
2-5—Alpine	6-8—Murdock
3-6—Emerson	7-4—Pilgrim
3-7—Drake	7-7—Prescott
3-8—Dudley	8-2—Talbot
4-2—Garfield	8-6—Townsend
4-3—Hemlock	9-3—Webster
9-8—Yukon	

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Since the same names can be used in different numbering plan areas, telephone numbers in the different parts of the country are beginning to sound increasingly similar. Sentimentally this may not be too good, but telephonically, it is fine. Many a full-flavored local name must fall by the wayside as the changes are gradually made, and sometimes it is with considerable regret that a memory-laden name must be relegated to limbo. But, when in

so doing it becomes easier for anyone to talk with anyone else anywhere and at any time, it is not too inappropriate to echo the Bard and ask, "What's in a name?" Given an opportunity, some telephone people would be quick to reply "A lot more than meets the eye."

Over the past several years considerable progress has been made toward reaching the goal of full 2-5 numbering, a goal that is necessary for full nation-wide customer dialing. Today, about 20 million telephones, or nearly 40 percent, are on a 2-5 basis, with another 20 million planned by the end of 1957. These statistics portray the magnitude of the job; the complexities become apparent only by examining the past. While the future course of the basic numbering plan appears fairly well established at this time, no telephone people, and most particularly those who deal with these problems, would want to guarantee that there would be no further changes.