

HISTORICALLY SPEAKING

MRS. JAMES T. GRAY

La Porte High School, La Porte, Texas

Historically Speaking—a playlet with numbers presenting historical data on the development of the zero, weights, measurements, and time—is designed to appeal to children in the upper intermediate and junior high grades. As written, the playlet would require about thirty minutes playing time; but it is so constructed that a classroom teacher could easily divide it into two or even four short presentations.

CHARACTERS

Mr. History—the narrator

The Numbers—1, 2, 3, 4, 5, 6, 7, 8, 9, and 0

Mr. Ruler

Two Cavemen

COSTUMES AND SETTING

Matters of costumes, setting, and scenery should be left to the ingenuity of the pupils, with the teacher's guidance; all, however, should be kept simple since attention should be focused on content rather than on props. A backdrop—if the presentation is to be on a stage—or a blackboard—if it is to be in the schoolroom—on which drawings of footprints gradually fade off into a 12 inch ruler, a graphic picture of the numbers 1, 2, 3, showing how they have developed into the characters we use today from being hurriedly written — = \equiv 1 2 3, drawings of the hand—perhaps measuring the height of a horse—etc. would blend effectively into the content material.

For Act II, the following props are suggested: a large calendar in use today and one of the proposed world calendars, if such is available; a stick; a bucket from which water drips slowly; a piece of rope knotted at two and one-half to three inch intervals; a large candle marked off into black and white sections; a sandglass; and, if possible, a pendulum clock opened at the back to expose the wheels, pinions, springs, etc.

(Children representing numbers One through Nine skip onto the stage.)

CHORUS.

Oh, we're the jolly digits;
We run from One through Nine.
If you have any problems,
We'll solve them for you fine.

(A noise is heard offstage; in comes Zero.)

ZERO (*strutting*). So, you think you don't need me! I may be called Zero or even "Nothing" but I'm very important just the same.

CHORUS (*chanting*). *Important* he says! He doesn't *even* count.

ZERO. But I do; and I can prove it.

CHORUS. Prove it then.

ZERO. Very well. I can do it in a very simple example. 8 plus 2 equals.

(*The numbers mill about trying to form an answer but are unable to do so.*)

ZERO (*finally closes in by one and solves the example*). You see, I have a place in an easy little example like that. Now, try this problem: John and Mary went in together and bought their mother a Christmas present for which they paid \$8.16. How much was each child's share?

(*The numbers form the problem and attempt to solve it. They stop with 48.*)

ZERO (*jeering*). 48 what? So 48 times 2 is \$8.16? That's news!

CHORUS (*apologetically*). Well, we do need a dollar sign and a decimal.

ZERO. Yes, and you need more than that. You need me. (*Moves into his place in the problem.*) Now, will you stop trying to run away and leave me? Haven't I proved I have a *place* with you?

CHORUS. Oh, we're beginning to see. That's why teacher calls you a "place holder." Come join our jolly group.

ZERO (*triumphantly*). Yes, and I'm more than a place holder. Sometimes I'm a real number. (*Holds up thermometer.*) You see, on this thermometer I'm a number.

ONE. But, really, we are very important. We're the base of ten, the backbone of our number system.

TWO. I challenge anybody to write a number and not use one or more of us!

THREE (*swelling with pride*). I guess we're about the most important-est folks in the world.

FOUR. Yes, and always have been, no doubt.

(*Old Man History, enters. This character will be the narrator and not required to memorize all of his lines.*)

HISTORY. Good day, children. I hear that you are *very* important.

Well, perhaps now, but like so many other folks, you aren't wise enough to realize that you weren't just born that way. There's a little matter called history that you should learn something about.

CHORUS. Old history! Who likes old history?

HISTORY (*patiently*). Please take your seats while I turn back the pages of time. (*Indicates places for them to sit.*) You'll soon see how you grew. Many and many years ago—almost more years than you can imagine—there were men here on earth. Now, these men lived very simply; they didn't have money as we do; they didn't

trade as we do today; but they did do some trading and they did have ways to show what we call "numbering." Look closely, now, and I'll show you.

(There is a rustling noise at the side of the stage and two pupils dressed caveman style enter. They carry sticks.)

FIRST C. Want horses? How many?

SECOND C. *(holds up four fingers).*

CHORUS. Kid stuff. Babies can do that.

HISTORY. S-sh! Sure, this period was the infancy stage of man. But they had their fingers or "digits," which we call you sometimes, with them at all times and could use them for counting as long as what they were counting didn't go above ten. But, look!

FIRST C. Want sheep? How many?

SECOND C. *(begins laying out sticks; lays out nine; lays up one big stick and removes nine small sticks. Again lays out nine, etc. until he has indicated forty.)*

TWO. What's he doing? He lays out nine little sticks, then lays out one big one and picks up the nine little sticks, then he does the whole thing over again.

HISTORY. You see, these people didn't have you, One, Two, Three, Four, Five, Six, Seven, Eight, Nine and Zero, so they had to make a real picture to show counting. Some of the ancient people drew marks on the ground; the Indians in our own country carried bags of rock to use in counting. *(Cavemen troop offstage.)*

CHORUS. Well, I never!

ONE. But, what did they do when they wanted to write it down so they wouldn't forget?

HISTORY. The time did come when man wanted to keep numbers in mind or make notation. To do this, some of the ancient people used a dust board upon which marks were recorded. This was known as the abacus from the Greek word *abax* or dust. This primitive instrument developed into a frame, like this *(holds up an abacus)*. The people of ancient Egypt, Babylonia, Greece and Rome used this instrument.

ZERO. Children play with things like that; that's kids' stuff.

HISTORY. Perhaps. But up to this time, you had not been born, Zero. *(History demonstrates how the abacus is used.)*

ZERO. Mr. History, how *did* I ever get here?

HISTORY. In the twelfth century the western world adopted the Hindu-Arabic numerals one through nine; but as long as the abacus was used, you were still not needed. *(History demonstrates how 2004 would be recorded on the abacus, calling attention to the empty columns.)* Finally, Zero, the Hindus realized the need for a sign to fill in these empty columns and then you were born.

ZERO. Hooray for the Hindus!

HISTORY. Yes, hooray for the Hindus. They gave us the best number system known today; and when they gave us you, Zero, they made it possible for us to do calculations, that is add, multiply, subtract and divide, as we do today.

ONE. All of this is interesting, but can't you tell us something besides things about Zero. He's getting a big head.

HISTORY. Would you like to know something about the history of weights and measure?

TWO. Sure. Many times we associate with names like feet, inches, etc., but I had never wondered about them.

HISTORY. From what I have told you already, would you like to guess how the first measurements were made?

(The numbers scratch their heads.)

ONE *(brightening)*. Now, there's the foot; and I've heard of horses' being so many hands high. *(He grows excited.)* That's it. Just as people used their fingers for counting long, long ago, they used parts of their bodies to measure.

HISTORY. You're absolutely right! Now, let's see how the parts of the body were used to measure.

(A child enters dressed as a twelve inch ruler.)

CHORUS. We know what that is. It's a foot and it's twelve inches long.

HISTORY. You're right; but listen.

RULER. I am a foot or twelve inches and you will find me so in all English-speaking countries, but in other countries I may be anywhere from eleven to fourteen inches. In the long, long ago men measured me by their own feet; but, of course, every man's foot is not the same size; but many, many years passed before I was standardized.

CHORUS. What does he mean by "standardized"?

HISTORY. Sh-sh. I'll tell you later.

RULER. You see, I'm marked off into twelve equal parts called inches. Inches comes from the word "uncia" meaning twelfth part. But can you imagine what part of the body was used at first to measure this part of me?

ZERO. Maybe it was the width of the great toe?

RULER. Very good try. But, no. It was the width of a man's thumb. Maybe the thumb was used instead of the toe because a man didn't like taking off his sandals.

TWO. What about the measure *hand* we hear used today.

RULER. The hand is four inches or the width of a good-sized man's hand.

THREE. I have even heard of the span. What is a span?

ZERO. I once heard of a span of mules.

THREE. Don't be funny, Zero. You're the only one of those around here.

RULER (*ignoring the repartee*). A span once upon a time was the distance from the end of the thumb to the end of the little finger when the hand was stretched out, or, as later standardized, nine inches.

FOUR. Gee, you really are smart, Mr. Ruler. I'll bet you could tell us lots about some more of your kinfolk. What about the yard? I hear it takes three of you to make a yard.

RULER. You are right. Of course, there are many stories told about the yard, but the one I like best is this. In the twelfth century Henry I of England fixed the yard as the distance between his nose and the thumb of his outstretched arm. Did you ever see a woman measure cloth in this way? But, eventually, of course, it was standardized as thirty-six inches.

FIVE. I help to tell how many yards there are in one measure—the rod. Could you tell us about it?

RULER. Yes, the rods were among the earliest standards of length. I suppose that was because rods were used to measure the acre; and, as you know, the acre is a measurement of land. Even in very early days men were proud to own so many acres of land.

SIX. Yes, I have heard that land is one of man's safest investments.

RULER. That's true. During the middle ages, the length of a rod was determined by lining up sixteen men outside of church on Sunday morning and measuring the combined length of all their feet. See, that was using the body again as units of measure.

EIGHT. But, some men's feet are long and some short.

HISTORY. True. That is why the rod was finally set by Henry VIII of England at five and one-half yards or sixteen and one-half feet; and an acre was decreed by him to be the area of a piece of land forty measuring rods long by four rods broad.

SEVEN. It seems to me that I once heard a man measured off an acre by using the rod he used to goad his oxen.

HISTORY. Yes, that is another story that is told about the rod and the acre. You may believe either or both.

NINE. I know one that I'll bet you can't say came from the body. The mile—anybody knows that many men couldn't have been lined up and measured.

RULER. But, you have guessed wrong, Nine. The mile comes down to us from the Romans. Originally, it was five thousand passus or paces of a Roman soldier. The pace was a Roman measure five feet long or the distance from the place where one foot left the ground to the place where it was put down a second time. So, you see, the human body was used again. In Roman times the mile was five

thousand feet, but in 1500 it was changed to five thousand two hundred eighty feet.

FIVE. But, why did they change it? Five thousand looks much simpler than five thousand two hundred eighty.

HISTORY. It was done to help the surveyors. The furlong, which was the commonest land measure in England at the time, could be divided into a mile eight times when there were five thousand two hundred eighty feet in the mile.

THREE. How confusing! What is a furlong?

HISTORY. Well, the furlong was something farmers had near them at all times, too; though, it was not a part of the body. It was the length of a furrow in an ordinary field or one-eighth of a mile.

TWO. Oh, dear, *a furrow*. But, what is a furrow?

HISTORY. Excuse me; I forgot that many of you have never lived on a farm; but I am sure all of you have driven in the country. How many of you have?

(The numbers wave their hands eagerly.)

HISTORY *(continues)*. I am sure most of you have driven along the highway and looked down the long rows of freshly plowed ground. *(The numbers nod enthusiastically.)* Well, those rows are the same as furrows.

TWO. And, the furrow used to be one-eighth of a mile. I'll bet our furrows are longer than that.

HISTORY. In many cases, yes. But can you imagine why.

THREE. In those days men didn't have tractors; they had to walk and drive oxen, but I'll bet they got plenty tired plowing a furrow.

NINE. All of this has been very interesting, Mr. History, but you also promised to tell us about weights as well as measures.

HISTORY. Oh, yes, I did! Measuring came before weighing. You will not be surprised to know, I'm sure, that the very first way of counting weight was what a man could carry or hold.

ZERO. Wasn't that a bit stupid? Anyone knows a man could carry more hay than rocks.

HISTORY. It may appear stupid to you, Zero. But just the same, it was a long, long time before man developed the idea of balancing. Just a minute; I'll show you the sort of scale early man used. *(Children enter carrying a stick hanging by a cord tied around the middle; on each end is tied an object. This makes a crude scale.)* As the ancient countries grew through trade and commerce, better means of weighing were needed; and as early as 3000 B.C. the Greeks, Romans, Babylonians, and Egyptians had standardized weights and measures.

ONE. There's that word again, *standardized*. What is a standard, Mr. History?

HISTORY. I did promise to tell you, didn't I? I'll explain it this way.

Earlier, we were talking about the yard's being the distance from a man's nose to the thumb of his outstretched arm. You know, of course, that distance would not be the same on every man. Therefore, one day a king said, "Hear ye! hear ye! a yard shall be thirty-six inches." Now, this yard is known as a unit of measure; and it is thirty-six inches because the law says so. But the standard which you are so interested in is an actual physical reproduction of this thirty-six unit. The standard yard is a bronze bar with fine lines engraved exactly thirty-six inches apart on gold studs set in the bar. So, when a yard is standardized, it is compared with this bronze bar. Other things are standardized in similar ways.

FOUR. That is interesting. If I were to order some material, I *would* want three units thirty-six inches long and not three of different lengths, wouldn't I?

HISTORY. Of course, that is why standards were necessary in busy, growing civilizations. These things grew out of the needs of the people. But, did you know that on some of the South Sea Islands people live so simply, merely trading things they have for the things they want, that they have not passed beyond the stage of this early, early man we have been talking about?

ZERO. Gee, do you mean that maybe they don't even know about us?

HISTORY. I shouldn't be surprised if they've never *even* heard of you, Zero. But, we should talk more about weights. Did anyone ever ask you which would weigh more, a pound of feathers or a pound of lead?

THREE. Yes, and I said lead!

HISTORY. And, why did you say lead, Three?

THREE. Well, just look how many more feathers it takes!

HISTORY. That's true, but you are confusing mass and weight. You see, mass is the actual quantity of the matter or material in the object and the weight is the strength of the pull of gravity.

FIVE. Gravity. Will you please tell us a little about gravity?

HISTORY. There is a force in the middle of the earth that pulls everything toward it. That force is called gravity. If any object is held above the ground and turned loose, it is pulled to the ground by this force. So, you see, what a thing weighs is determined by this pull called gravity, not by the quantity of the matter. But, we must hurry along and learn some more about weights. (*History claps his hands. Child appears representing the Grain.*)

GRAIN. I am the smallest unit of measuring. I was standardized thousands of years ago. Originally, I was a grain of wheat taken from the middle of the wheatear. In some countries I was a grain of barley. You will also find that I am used by your druggist to

weigh up your dosages of medicine.

DRAM. (*Enters and stands by Grain*). I am a dram. Originally in Greece, I was "a handful." So you see, I am more than a grain. In fact, I am 27.3437 times as much as a grain.

OUNCE (*enters and stands by Dram*). My name comes from *uncia* the same as does Inch, and I mean a twelfth part. You see, I came from Rome where a pound is only twelve ounces. It takes sixteen drams to make one of me.

POUND (*takes place in line*). I am the pound. Sometimes I am twelve ounces, but usually in America I am sixteen ounces. I come from the Latin *pondo*.

TON (*takes place in line*). Now, I am a heavy fellow. I weigh 2000 pounds if I am short or 2240 pounds if I am long. I am usually long in England but short in the United States and Canada.

HISTORY. These weights who have introduced themselves to you are what we call *avoirdupois*. This is an old French word meaning "goods of weight" and this system of weights is used in all English speaking countries; and it is used to weigh everything except drugs, metals, and precious stones.

(*The avoirdupois weights leave.*)

CHORUS. Thank you, Mr. History, for this interesting information. Will you come and tell us more some other time.

HISTORY. Yes, I will. When you mention *time*, it not only reminds me that it is time for me to go, but brings to mind all the interesting gadgets used in time past to tell the time of day or night. But, I'll have to return later to tell you that.

CHORUS. Good-bye, Mr. History.

ACT II

(*The numbers are speaking together when History enters. They go to meet him.*)

ONE. We were hoping you would come as you promised to tell us about the measurements of time.

HISTORY. I feel pleased. As I recall on my last visit you did not welcome me so warmly.

TWO. Oh, but *you* taught us a thing or two.

THREE. Indeed, you did!

HISTORY. Well, let us get down to work for the sand of time is running out.

FOUR. What a queer way to say that time is passing. Why do you say it this way?

HISTORY. When I tell you about the different ways of measuring time in the clockless ages, you'll understand. But, first let's see how many ways you can think of that we use to measure time.

FIVE. Well, just today I heard a little boy say that he is ten years old; so I am sure a year must be one measure of time.

HISTORY. You are right. Who can think of another?

SIX. I think I have heard it said that a year is made up of twelve months.

HISTORY. Right again. Who knows another way?

SEVEN. A month is divided into weeks.

EIGHT. And a week into days.

HISTORY. Fine. Let's stop here just a minute to see what it is in man's environment, or in the world in which he lives, that caused him to settle on these divisions of time.

NINE. Well, there's the world itself.

HISTORY. Yes, and what else?

NINE. And the sun and the moon and the stars.

HISTORY. You're right, Nine. Thousands of years ago men were aware that day always follows night, that the seasons—spring, summer, fall and winter—always follow each other in order, that the moon goes through a certain cycle, and that the sun seemed to follow a certain path. As early as four thousand years ago the Chaldean astronomers—or men who study the heavens—marked the path of the sun through the heavens and arrived at the idea of twelve months to the year. Then they divided the lunar, or moon, months into days and days into hours.

EIGHT. Well, all of these measures of time except the hours are found on calendars, aren't they? Do you mean to say we've had the same calendar we use now for 4000 years?

HISTORY. We have had a calendar all of this time, but there have been many changes made in it. For instance, the month of August which was named for Caesar's nephew Augustus at one time had only thirty days. Some of his admirers felt this not to be complimentary to him since the month of July, named for Julius Caesar, his illustrious uncle, had thirty-one days, so they added a day to August and stole another from the shortest month of the year, February.

SEVEN. What are these things called leap year? Why do we have them?

HISTORY. In order to keep up with the solar system, an extra day has to be added to February every four years and that is called leap year. During the time of Pope Gregory XIII, in 1582, it was found that the calendar was getting away from the exact year as figured by the astronomers. In fact, it was ten days beyond the solar year. The Pope decided to drop ten days and in addition to drop three leap years every 400 years. The year 1600 was a leap year, but 1700, 1800 and 1900 were not but the year 2000 will be.

ONE. Now, some folks have a hard time keeping up with their birthdays. Since the Pope and the Caesars changed the calendar, why doesn't the President or somebody make one so a person's birthday can be on the same day every year?

HISTORY. You are closer to fact than you think, One, because just such a calendar, called the World Calendar, is being worked on at this time; and, who knows, someday we may have a new calendar that we can all commit to memory!

TWO. But, won't the calendar makers go mad?

HISTORY. They'll just turn to something else. Progress cuts some people down but raises others up. That's life.

TWO. History, did you not promise to tell us something about the different timepieces used down through the ages?

HISTORY. Yes, but I'd like to show you some of the earliest kinds used. Do you see this stick? (*Numbers nod.*) One of the very earliest means of telling time was by fixing a stick upright in the ground and taking note of the spot reached by the shadow. (*Demonstrates.*) Of course, the shadows grew shorter before noon and then they gradually lengthened again after noon.

ONE. But, what if the sun didn't shine?

HISTORY. That was one of the troubles with this means of telling time that caused men to hunt something better. Another means of telling time which the Chaldeans discovered was the sundial. Many of you have seen these in parks. The main trouble with these, too, is that they do not show time on a rainy day, and they stop working at sundown. But it was the best man had for a long time, and they were found in ancient Egypt, Jerusalem, Rome, and Greece.

TWO. What did people turn to next, Mr. History?

HISTORY. Well, water is something in the environment that man cannot do without and always has near him. Eventually, someone experimented by making a small hole in the bottom of a bucket and then filling the bucket with water. The water leaked slowly but steadily out until what was put in at breakfast time was leaked out about supper time, thus measuring a day. Of course, in time these water clocks were made more and more elaborate. These clocks were popular in Greece and Rome.

EIGHT. But water freezes and evaporates; so that means of telling time couldn't be too exact, could it?

HISTORY. No, that was one thing against this type of time telling machine. Do you see this knotted rope? This was the sort of a time-piece the Chinese used. They set fire to this string and it smoldered and burned, marking off the hours.

FIVE. That could tell time at night, couldn't it?

ONE. Sure; but it had to be kept out of the wind.

HISTORY. You are right. I am told that this method of telling time is still used in parts of Korea. Fire was used to mark time on another ancient time-teller. At night, men used to mark a candle off in black and white sections that would burn in a given time. The hours were estimated from this, too; but, of course, the candles had to be kept out of the wind. Lamps later were used, note being taken of the oil being burned.

FOUR. What about the "sands of time," History?

HISTORY. For thousands of years the sandglass or hourglass was the most common timekeepers in general use outside the wealthy homes. The sandglass consisted of two glass globes, one above the other, separated by a very small hole which allowed sand to trickle from the top globe into the bottom globe. We find these on sale today for the careful housewife who wishes to time her three minute eggs.

SIX. Oh, I've seen those things. They're clever.

HISTORY. It is not known who invented the first real clock as we know it with its wheels, pinions, springs, pendulum etc. But it is recorded that in 1657 Huygens, a distinguished Dutchman, designed and either made or had made the first pendulum clock. Since that time, slow but steady progress has been made in time telling machines.

ONE. Well, we've certainly come a long way, haven't we? Even small children can have their Mickey Mouse and Donald Duck watches now, can't they?

HISTORY. We really have, but it is time for me to leave you again.

CHORUS. Good-bye, Mr. History, come again soon.

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Flower-pot covers now can dress up the clay flower pots holding the housewife's indoor plants. Made of Vinylite plastic sheeting, the covers resist moisture, chemical action from dissolved plant foods and abrasion by gritty soil particles.

Scrub brushes with long handles have been developed which will outwear five ordinary brushes, according to the manufacturer. The brushes employ stiff bristles made of Bakelite styrene plastic.