

About 50,000 towns and villages in the U.S. have no rail outlets and depend entirely on motor transportation.

Alaska's population has tripled in the last 20 years.

Youthful Scientist Invents Method of Direction Finding

Washington — UP — A 17-year-old boy scientist has invented a new method of direction finding to guide people who are lost without a compass.

It's such a big improvement over previous methods that

it has been officially adopted by the U.S. Air Force and the U.S. Army for use in survival training manuals.

The young inventor is Bob Owendoff, son of Lt. Col. and Mrs. Robert A. Owendoff of 153 Gundry Drive, Falls Church, Va.

Bob is a Life Scout and has always been interested in outdoor lore. He also has a keen interest in science, and has won top honors in high school science fairs.

Four Unhappy Hours
Three years ago, on a hiking trip with a Boy Scout troop, he got lost and spent four

unhappy hours trying to determine which way was east. When he finally got home, he made a careful study of all known methods of determining direction without a compass. He concluded that none of them was satisfactory. He set out to develop a new system.

His solution has won the applause of eminent mathematicians and astronomers, and has stood the test of more than 50,000 field trials.

Bob calls it the "shadow tip" method. It works like this: Drive a stake so that at

least three feet of it is above ground. Mark the tip of the shadow it casts. Wait for a while — 10 minutes is long enough — and mark the spot where the tip of the shadow is then resting.

East and West
A line drawn between the two marks will always point east and west (the second mark being the eastward direction).

Bob contends that this method is actually more accurate, in many instances, than a compass.

"A compass is really not such a reliable direction finder when you're lost in strange country," he explained in an interview. "Unless you know what correction to make for the magnetic variation at that spot, a compass can lead you astray by as much as 55 to 90 degrees."

His own method, which relies on the east-to-west movement of the sun, has an average error of about 8 degrees, he said, and even in extreme circumstances will not be off by more than about 30 degrees.

Bob is not the first person to think of using the sun's

movement as a clue to direction. At least three direction-finding systems based on shadow-marking have been in use for many years. Each of them, however, has serious disadvantages.

Easier at Night
Until Bob perfected his convenient "shadow tip" method, it was, ironically, much easier to find direction at night than in the daytime system, which has been in use since the dawn of recorded history, is simply to locate the North Star, Polaris. The classic method of spotting Polaris is to follow the tip of the Big Dipper, which will always point to a very bright star some distance away in the sky. In the Southern Hemisphere, the Southern Cross substitutes for the North Star.

Although Bob's father is an Army officer, it was his mother, a civilian employee of the Army, who called his system to the attention of military authorities. She did so by the simple expedient of dropping the idea into an employee suggestion box. After the Army adopted the idea, Bob got a check for \$500.



F. R. Brennan

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On the second day of Christmas
my true love gave to me **2** turtle doves
On the third day of Christmas
my true love gave to me **3** french hens
On the fourth day of Christmas
my true love gave to me **4** calling birds
On the fifth day of Christmas
my true love gave to me **5** golden rings
On the sixth day of Christmas
my true love gave to me **6** geese a laying
On the seventh day of Christmas
my true love gave to me **7** swans a swimming
On the eighth day of Christmas
my true love gave to me **8** maids a milking
On the ninth day of Christmas
my true love gave to me **9** ladies dancing
On the tenth day of Christmas
my true love gave to me **10** lords a leaping
On the eleventh day of Christmas
my true love gave to me **11** pipers piping
On the twelfth day of Christmas
my true love gave to me **12** drummers drumming

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In the Day's News

By FRANK JENKINS

What happened at Nassau?

It boils down to this: President Kennedy and British Premier Macmillan got together in an agreement to do these things:

1. Create at once a nuclear-armed bomber force.
2. Put Polaris-armed British submarines in action under the North Atlantic Treaty Organization (NATO) banner by 1970.

THIS far-reaching agreement to give the Western alliance a broadened nuclear shield against its Communist enemy will take effect in two stages:

1. The U. S. and Britain agreed to set aside IMMEDIATELY an undisclosed segment of their bomber forces for use by NATO — which would decide the emergency missions and targets if and when they are loosed against NATO's enemy.
2. The U. S. agreed to provide Britain with intermediate range Polaris missiles — MINUS warheads — for use on British submarines.

THESE forces — both bombers and submarines — will be committed to the new multi-nation NATO nuclear forces and the U. S. will assign to NATO one Polaris-armed submarine for each similar undersea craft equipped by the British.

We will sell the Polaris missiles to the British. The British will pay for them at their production cost, but will not be called upon to pay their share of the \$2.5 billion we have put into the development of the Polaris. Among other things, that will help to ease the burden on the British taxpayer, who is beginning to get restive under his tax burdens.

The British will furnish THEIR OWN nuclear warheads. That saves their pride by conceding that they are a nuclear power.

WHAT does all this mean? Well, among other things, it means that the U. S. is preparing to retire from the EXCLUSIVE nuclear field. We're getting ready to take the British into the lodge — which is reasonable, since British scientists, operating on their own, have created British nuclear weapons. The same deal, it is announced, will be offered to France — which has also created its own nuclear bomb.

That's about the shape of the deal put together on British soil down under the sunny skies of the Bahamas by the President of the United States and the Prime Minister of Great Britain.

Birthplace of the Star Spangled Banner at Fort McHenry, Md., is now a national shrine.