

terms as calendar, altimeter, humidifier, safety glass, chromium plate, and incinerator. Other trade names included Caterpillar Tractor, Lysol, Frigidaire, and Thermos Bottle.

Science News Letter, December 9, 1939

Reading More Than Visual

READING is a great deal more than just seeing the printed page, but psychologists have learned relatively little about the process of comprehension, Dr. Robert P. Larson of the University of Illinois, told his colleagues at the meeting.

Students who have difficulty in reading may comprehend very well what is read to them, or what they hear in a lecture, Dr. Larson found. Others who read well may have difficulty in listening.

Remedial training in listening was urged by Dr. Larson for some students.

In general, difficult material is comprehended best when read, the experiment revealed, and for this reason, Dr. Larson recommended that material presented orally as in lectures or radio talks should be less difficult than printed material in order to be comprehended with equal effectiveness.

Questioning revealed that some good readers who were poor hearers were hampered when the rate of speaking was not adjusted to their individual needs; others were unable to concentrate while listening.

Poor readers-good hearers reported inability to concentrate on reading, intense dislike for reading, a habit of skimming and dependence in comprehension upon a speaker's intonations, and pauses.

Comprehension, Dr. Larson concluded, is largely a centrally determined function operating independently of the mode of presentation of the material. Reading seems to be largely language or thought activity.

Little improvement in this central comprehension process can be obtained, he believes, by excessive mechanization of the reading skills.

Science News Letter, December 9, 1939

● RADIO ●

G. H. Collingwood, Forester of the American Forestry Association will answer questions on Christmas trees and give hints on their care as guest scientist on "Adventures in Science" with Watson Davis, director of Science Service, over the coast to coast network of the Columbia Broadcasting System, Monday, December 18, 4:30 p.m., EST, 3:30 CST, 2:30 MST, 1:30 PST. Listen in on your local station. Listen in each Monday

ARCHAEOLOGY

Battle Fronts of Europe's War Predestined Long Ago

Director of Archaeological Expeditions To Discover Remains of Prehistoric Balkan Wars Comments on Present

By DR. VLADIMIR J. FEWKES

Acting Director, American School of Prehistoric Research.

BATTLE fronts and vantage points of the present European War were predestined long ago by nature. Wherever the battle lines form in Europe, they are almost bound to follow lines of previous wars. For, from the dawn of human culture, man has had the warring habit, and one of his early discoveries was to recognize the strategic advantages of rivers, hills, and mountain passes.

The German Siegfried line and the French Maginot line are close to ancient Roman defenses which guarded outposts of the empire against Teutonic barbarians. Ancient Gaul was pretty well peppered with fortified towns, forts and camps. So were Roman provinces in the regions of Hungary, western Yugoslavia, and Austria. All of Rome's provinces were thoroughly militarized, and arteries of strategic significance were protected by intricate defense systems.

During the World War, soldiers digging trenches in various parts of the Balkans cut through ancient archaeological remains. Gunners established machine gun nests in ruins of Greek, Roman, or Byzantine forts. Labor crews tunneled or excavated prehistoric mounds, as they worked at sites chosen as advantageous for ammunition dumps, first aid stations, and the like. They reverted even to using caves, and in fact especially welcomed finding such shelters.

Little did these World War soldiers realize that many, many times before them, the ground had been soaked with blood. Nor did they think anything of the damage war was doing to archaeological science and its efforts to reconstruct European past events.

That salient vantage points have repeatedly served their military purpose through centuries, and even thousands of years, is evident from archaeological surveying in Europe. During the past ten years, the American School of Prehistoric Research, Harvard University, and the University Museum of the Uni-

versity of Pennsylvania have dispatched expeditions to seek traces of peaceful and warlike activity in the Balkans' past.

As director of these Balkan expeditions, the writer has had an opportunity to analyze the nature, location, and distribution of the many strongholds encountered. They shed an interesting light on modern military strategy.

Should the current war spread into the Balkan region, there is little doubt that many of these sites would see war service again. In all major river valleys crossing the Balkan massif, both sides in the World War called ancient ruins into use. This is only natural when it is realized that the Romans themselves took over and improved trails and routes already in existence for their arteries of trade and transportation; and the best protection for the vital Roman highways, in the mountains, at any rate, was from hilltops. Knowing this, an archaeologist searching for lost ancient sites in central and southern Europe cannot allow a single hill to escape his careful scrutiny.

During the World War, the once-famous Via Egnatia saw much action. Romans built this highway to run from present-day Thessalonike (Greece) to Durres, the chief seaport of Albania, and it is still traceable in the mountainous terrain. The road bed itself has been changed, but a line of ruins marking the protective outposts provide a dependable guide for retracing the Roman road. World War troops used the ancient ruins for machine gun emplacements.

East of Belgrade, Yugoslavia's capital, runs the Via Trajana which Roman engineers finally succeeded in building by 104 A. D. through the Danubian gorge of Iron Gate. This route was an important factor in Rome's conquest of the formidable Dacians, who were finally subdued to the status of Roman provincials. To protect the road and to guard the Roman limes, a line of forts and camps in modern pillbox manner was established on either end of the Iron Gate pass, and within it, too.

Ruins of these ancient Roman pillboxes now have so (*Turn to page 380*)

PSYCHOLOGY

Groups Differ on How to Keep America Out Of War

This is one of a series of articles, prepared by the Society for the Psychological Study of Social Issues especially for release through Science Service, on current research pertaining to the present emergency.

DIFFERENCES of opinion on how to keep America out of war are more marked among different political or religious groups than among different occupations, income levels or educational groups.

Fourteen questions put to many different sorts of people by Prof. Ralph H. Gundlach, of the University of Washington, Seattle, Wash., revealed whether they favored militaristic or non-militaristic measures to protect America's neutrality. Militaristic measures represented opposition to any cutting down of expenditures for armaments, opposition to unions as a bulwark against war and fascism, to the social ownership of industry, to the lowering of tariffs and reciprocal trade agreements, and to internationalism. They represented approval of more nationalism in the schools and the press. Non-militaristic measures represented the opposite of each of these views.

The groups of men favoring the most militaristic measures are members of the National Guard, members of veteran

groups, men who voted for Landon, business men and supervisors, men whose income is \$4,000 or more, and Catholics.

At the other extreme stand the groups who oppose militaristic measures: they belong to anti-war societies, they voted for Browder and Thomas, are Quakers, social scientists, those who profess no religion, and teachers.

Women favor fewer militaristic measures than men. The two female groups most in favor of such measures are those who voted for Landon and Catholics. Next in order come clerks and teachers.

At the other extreme are those who voted for Thomas, members of anti-war groups, those who profess no religion, and—in contrast to men—those women whose family income is \$4,000 or over. Women with lower family incomes tend to favor more militaristic measures.

It was found that workers do not differ significantly from owners in respect to the measures proposed to keep this country at peace, nor do the rich differ from the poor or the educated from the uneducated.

Those occupational groups which tend to favor militaristic measures are business men and supervisors. The groups opposed to militaristic measures are college professors in the social sciences, male teachers, and professionals. Skilled and unskilled workers stand in about the middle of the occupational series, whereas clerks and salesmen are more like those approving of extreme militaristic measures.

Many of the groups favor militaristic measures on some questions and non-militaristic ones on others. Farmers favor tariffs but are opposed to international alliances and the possibility of a United States of the World; and they are slightly opposed to organized labor. The labor groups, although they tend to favor non-militaristic measures, are strongly in favor of tariffs, more armaments, and the jingoistic statements that "anyone who attacks our vital interests must count on a fight to a finish."

Catholics are on the militaristic side on every item except two: they favor labor unions above the average and they look with some favor upon social ownership. Protestants favor fewer militaristic meas-

ures than Catholics in general, although they are as much opposed to labor unions as Catholics are in favor of them. People professing the Jewish religion are opposed to militaristic measures on all questions except the two which propose both military protection to American citizens and their trade abroad and the defense of this country's honor and vital interests with armed might.

Science News Letter, December 9, 1939

From Page 375

much accumulated debris over them that they are conical or semispherical mounds. But the mounds would offer welcome military advantage. It would be easy to tunnel into them and build munition dumps, too.

Even in the Alps, one of the most formidable barriers to human transit without mechanic aids, nature decided the courses of roads eventually to be broken by man. Some of the major passes of the Alps were crossed by man as early as the Old Stone Age. In the New Stone Age there were actually settlements in the passes about 3000 B. C. Archaeological investigation has shown that settlements and cemeteries belonging to the Bronze Age and the Iron Age indicate a continued stream of logical use of the convenient transit route.

Hannibal's crossing of the Alps with elephant units is a well known episode in Europe's military history, though the actual route he used is still disputed. The Roman routes in the Alps fell into disuse and ruin during the Middle Ages, yet the heritage from prehistoric periods was handed down all the way to our times. Certainly the Brenner Pass would play an extremely important role should the current war reach into the sub-Alpine area.

If World War trenching activities damaged some valuable records of past human activity, they left, on the other hand, some archaeological deposits revealed in plain sight, for us to find.

Archaeological study of Europe's ancient settlements, cemeteries, and battle lines, interrupted by present conditions, shows that combats of major proportions were waged in various parts of the continent during the New Stone, Bronze, and Iron Ages. Fortified settlements equipped with palisades and moats, weapons, grave offerings, and wound-marked bones, all provide a mute yet revealing witness to a seemingly incessant succession of Europe's battles.

Science News Letter, December 9, 1939

A FINE WATCH Is a Wonderful GIFT

THE ARISTO CHRONOGRAPH
is more than a fine watch



No. 1713

DISTINCTIVE FEATURES

1. A high grade movement of tried and tested time-keeping qualities. Seventeen jewel movement cased beautifully in burnished stainless steel. Fine Pigskin Strap.
2. A stop watch of superior quality reading to 1/5th second on a clearly graduated scale, and recording up to 30 minutes on a separate register.
3. Time-Out feature essential for interrupted timing. Independent starting, stopping, and clearing action.

Indispensable for LABORATORY, SPORTS, AVIATION, and everyday use.

List \$50.00. Specially priced at **\$35.00**
FULLY GUARANTEED FOR ONE YEAR

Send Check or M. O. or Sent C.O.D.
ARISTO IMPORT CO., INC. 630 Fifth Ave.
Dept. L5 Rockefeller Center New York, N. Y.