

Character Test in Edison Questions

Psychology

The Edison scholarship examination is not what psychologists would call primarily a test of aptitude or inborn bent for inventive work.

It combines the general information test made famous by Edison several years ago with the old-style scholastic examination in physics, chemistry, and mathematics. A novel feature of the examination consists of a few questions testing character and judgment. Testing character in this way rather than by testimonial is a modern development which has come into use along with the modern psychological examinations first brought into prominence by the Army Intelligence Tests.

No use was made of what is perhaps the latest method of examination, now used in college entrance, Civil Service, and employment tests of the newer sort. This is called the "short answer test". It saves the applicant work and at the same time allows precise and uniform grading of all the examination papers. Such new

style test questions can be answered by "Yes" or "No", or by marking one of several given possible answers. Psychologists are interested in the fact that Edison did not use this method, as it is considered the simplest and most efficient form. It also makes the test independent of the person's ability to express himself in English and, since the scientific ability or inventive genius is not necessarily related to fluency in English composition, it would have eliminated a handicap to some.

Although many mechanical ingenuity tests, such as assembling block and wire puzzles or putting together simple pieces of machinery, have been devised, the Edison test did not, so far as announced, include similar problems. The tests made with physical apparatus rather than pencil and paper have been found to be valuable in picking those with imagination and reasoning ability useful in careers of invention and mechanical construction.

The first part of the Edison scholarship examination contains questions of the sort with which any school boy is familiar. They might have been taken from any college examination or from the entrance examinations for Annapolis or West Point. The following is typical:

"Define work, energy, and power, and give an illustration of each. How does weight differ from mass? How does force differ from energy? Would a body weigh more or less on the moon than on the earth? Why? Where would bodies weigh nothing?"

The questions in part two are more novel. They are designed to give the examiner an insight into the character and mental make-up of the boy examined. Some test ingenuity. Some measure ethical judgment. Some are designed to bring out the boy's ability to look ahead into the future. Here are some that probably no two people would answer in the same way.

"What new (*Turn to next page*)

Test Your Inventive Bent

Psychology

Do you have the "divine spark" necessary for a great scientist or inventor, of the Edison type? Psychologists believe that scientific aptitude is born in specially gifted individuals instead of being acquired by training. Perhaps, if you had the opportunity, you too could be an inventor or scientific wizard.

Here is a test that you can try on yourself. It is especially prepared by a Science Service specialist, but it is similar to other tests devised by psychologists to single out the few embryo scientists from among the thousands of "just ordinary folks". Compare it and your ability to do it with your success in doing the tests that Mr. Edison gave the 49 aspirants for the Edison scholarship.

All you need is a pencil and a few minutes of time. Do not look at the answers before you finish. Anyone can take this test. It is a measure of your natural "bent", not any special training or technical knowledge.

Ready? Begin!

1. Which of the following is the *best* definition of a thermometer? (1) a glass tube containing mercury. (2) an instrument used in laboratories. (3) an instrument, usually employing mercury, for measuring temperatures. (4) an instrument in common use in

many homes and offices.

2. How many people in the United States earn their living from science today?

3. Suppose you were making an experiment and wished to know very exactly the weight of the substance you were using. You weighed it several times and got the following results: 12.25 oz., 15.75 oz., 12.50 oz., 12.25 oz., 12.00 oz. What is most probably the correct weight?

4. Suppose you wished to know the contents of a tank from which several of your co-workers were drawing supplies of a certain liquid. You could not actually measure the liquid but you have the following facts at your disposal. Which of the facts would be important for your computation? (1) Total capacity of tank. (2) Number of persons using liquid. (3) Number of days since tank was filled. (4) Total amount drawn from tank since it was full. (5) Average daily evaporation. (6) Density of the liquid. (7) Frequency with which tank is filled.

5. Read each of the following statements and decide whether it is consistent throughout. (a) Moisture causes wood to swell. Today is a very damp day and therefore the wooden peg can be more easily driven into the

hole made for it. (b) Accuracy is essential to scientific work. Measurements made by different individuals seldom agree exactly. In order to insure accuracy, scientific data should be checked by more than one person.

6. Suppose two handbooks differed as to the best procedure for working out a certain experiment that you wanted to conduct. If you had plenty of time which of the following would you do? (1) Use a compromise procedure. (2) Go to a good technical library and try to find a third handbook. (3) Forget the handbooks and work out a procedure of your own. (4) Try out both the methods recommended and find out which is best. (5) Call up some expert on the subject and ask him for the best procedure. (6) Decide on one of the methods given and then follow it, ignoring the other.

7. Suppose you were driving in the country and your radiator sprung a leak. You had no equipment for repairing it, and there was no garage within miles, nothing but a small refreshment stand. What could you do, if anything, to lessen the leak until you got back to town?

Have you finished? If so, turn to page 83 for the answers.

Science News-Letter, August 10, 1929

Planes Displacing Ancient Transport

Aviation

In a matter of months, commercial aviation has made remarkable strides in Mexico and other parts of Latin America.

Small private lines that were plying trade in isolated spots are now linked, and today a net of airways is enmeshing all America very rapidly.

One can fly from the Texas border to the oil fields at Tampico, Tuxpan, or to Mexico City. From Vera Cruz there are lines to the Isthmus of Tehuantepec or to Tapachula on the Guatemalan border, or to Yucatan via the almost unknown coast of Tabasco and Campeche, forgotten since the pirates were driven off the Spanish Main. A branch line from Merida will soon cross Yucatan and Quintana Roo to Cozumel, over territory inhabited by hostile Indians where no one has ever been welcome. The Guatemalan government has a line from Guatemala City to Flores, in the inaccessible Department of Peten, where the Maya Indians from Chichen

Itza took refuge when their empire fell in northern Yucatan.

Mexican airlines from Tapachula in the south will soon be extended to Guatemala City, and mail will go from Texas to Guatemala in twelve hours. From there the Republic of Salvador and the Pacific side of Nicaragua will be linked with the Atlantic side by other units of the Pan-American system. Today one flies from Florida to Santiago, Chile, if one likes, and by fall one will be able to continue the journey across the Andes to Buenos Ayres, if aviation officials' plans come true.

Aviation in the United States, and aviation in the rest of America to the south, are of very different character. In the United States flying has merely supplemented or speeded up already existing excellent means of communication. In Mexico and other parts of Latin America good roads are even scarcer than railroads, and the airplane has jumped a broad gap in the

development of transportation. Airplanes serve where often there has been no other means of communication at all before.

Mexico, like other Latin-American countries, is a living museum demonstrating all stages in the history of transportation. The trimotor plane for Tampico flies overhead following the railroad past Teotihuacan, the ancient Toltec city of pyramids that is a landmark from the air. The tourist's automobile from Mexico City forces the Indian's burro off the village street in modern Teotihuacan.

The burro, loaded out of sight with sacks of charcoal burned in the mountains, is the Spaniard's most human gift to the Indian, and his only beast of burden. Before the burro came to him, as if out of heaven, the Indian carried everything himself, and in the course of thousands of burroless years he had developed the art to a fine point.

Science News-Letter, August 10, 1929

Edison Questionnaire—Continued

discovery or invention do you believe would be the greatest benefit to mankind? Why?"

"If you had been given a certain experiment to perform and had been informed that it could be done successfully, but you had failed ten times, what would you do?"

"If you were to inherit \$1,000,000 within the next year, what would you do with it?"

Part three is the old bugbear that has afflicted everyone who has ever applied for a job or attended business school. "Assuming that you have just graduated from high school and are anxious to land a job, write a letter——" You know the rest of it.

Part four is mostly the test of general information that Mr. Edison has relied on so much in the past. At the end, however, are two posers which do not come under this classification. Volumes might be written about them. Take a long pencil and try it yourself.

"What, in your opinion, should be done to improve the airplane?"

"Do invention and industry promote international agreement?"

Altogether there are 56 questions besides the letter writing test. If each one was answered fully and conscientiously, Mr. Edison should be able to obtain from them a good insight into the

"inner mechanisms" of his applicants.

Yet those familiar with the problem of modern employment procedure would hesitate to use this type of examination as a regular means of selecting men. They would question the possibility, for example, of giving any definite numerical rating to the answers of some of the questions. Suppose one boy thinks the new oil-burning motor is the key to improvement in the airplane. Another believes that a new alloy for making the frame is more important. Who can say which should get the higher mark? And how much higher?

Science News-Letter, August 10, 1929

"PFS" for "SS"

Navigation

Manufacturers of powdered fuel systems for ocean vessels have proposed that the prefix "PFS" should be used instead of "SS" with the name of a steamer using powdered coal as fuel. The builders of motor ships already have substituted the letters "MV" for the famous "SS" on their ships.

Science News-Letter, August 10, 1929

Canada is now shipping muskrats for breeding purposes to France, Great Britain, Germany, and Czechoslovakia.

Chameleonic Fence Post

Chemistry

A man's puzzlement over a fence post which he had painted black but which turned white every night was the starting point of a program of research which has culminated in the discovery of a number of chemicals having this remarkable chameleon-like property scientifically termed phototropy. Information regarding these chemicals has now been made public by the American Chemical Society.

The famous fence post was painted with a "pigment having a zinc basis." It would turn black soon after sunrise each morning, only to turn white again when darkness came. Many explanations have been given for the phenomenon, but scientists are not yet agreed as to the cause of it. They have, however, found several other substances besides the zinc sulfide, which was in the paint on the post, that will also change color with the light.

Most of the known phototropic liquids are solutions of colorless derivatives of certain dyes. The solutions are practically colorless in the dark, but turn the color of the parent dye when exposed to light.

Science News-Letter, August 10, 1929

Government leather specialists state that our domestic hide supply is falling shorter and shorter of meeting the leather requirements of the country.