$3,000 Good Pay for Women

Economics

A woman with a salary of over $3,000 a year belongs to the exceptional minority, Mrs. Chase Going Woodhouse of the U. S. Bureau of Economics told the National Education Association in reporting the results of a salary survey of over 3,000 single women with full time jobs.

"As one might expect, by far the greater number, 2,321 to be exact, were in educational work, and 718 in all other fields," Mrs. Woodhouse said. Of those in educational work 194 were in administrative work and 2,127 teaching.

"The best paid women in this group were the three college presidents with an average salary of $8,200. Next came the nine principals of junior high schools, with an average salary of $3,859, four normal school principals with $3,800, and fifty-two college deans with $3,426. In teaching the highest average salary was $2,457 for the colleges, and the lowest $1,632 for the grade schools.

"Apart from educational work, fifty-two occupations were reported. The best paid woman was an executive in a commercial organization. She made $34,000 a year besides dividends on her stock. I think she illustrates a practice which we ought to encourage, that is to enter the family business. This step, so usual for men, is quite exceptional for women.

"The usual assumption that business pays better than the professions is not true of this group. The managers of cafeterias and tearooms averaged $3,300, and interior decorators $3,146; but all other women in business averaged less than $3,000. In the professional groups statisticians averaged $3,750, lawyers $4,587, Physicians $3,551, research workers $3,271.

"Is a higher degree an economic asset? To a librarian an M. A. is worth on the average $193 a year, and a Ph. D. $600. This is good interest on the investment."

Science News-Letter, March 3, 1928

Electrons in Hurry

Physics

Less than a three billionth of a second is all the time that it takes an electron to be knocked out of a film of potassium metal when light strikes it in a photoelectric cell—the device that has made television and radio photographs possible. At the New York meeting of the American Physical Society Dr. Ernest O. Lawrence and Dr. J. W. Beams, of Yale University, told of their studies of the length of time required for this "photoelectric effect."

In the photoelectric cell there is a film of potassium, and another electrode. When light strikes the film the electrons travelling from the film to the other electrode cause a minute electric current, which can be amplified by means of vacuum tubes. In this way a current of any desired magnitude but one which varies with the illumination of the cell, can be obtained. Because the response of the cell is practically instantaneous, it can be used in television and wire and radio photographic service.

Science News-Letter, March 3, 1928

Baby Handbag

Medicine

A de luxe portable outfit for transporting premature babies to hospitals has been invented by Dr. Julius H. Hess of Chicago.

Many infants die of thermal shock while they are being conveyed to hospitals equipped with baby incubators where they can be kept at an even warm temperature until they are strong enough to survive in a cold world. To meet this condition, Dr. Hess has devised an electrically heated handbag 24 inches long, 14 inches wide and 17 inches deep.

"A composite heating unit," he explained in reporting his invention to the American Medical Association, "permits the use of the 110 volt light current, either direct or alternating, the 32 volt current of the Pullman car, or the 6 volt current of the automobile battery. Insulated walls prevent sudden temperature change under any conditions."

An adjustable shutter at the top and another at the side regulates the ventilation while a disc thermometer mounted on the outside registers the temperature of the interior. A glass window in the top of the bag and an electric bulb inside allow observation of the minute occupant during transportation.

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Testing Metal With Radium

Physics

Using radium rays so penetrating that they can go through pieces of 15-inch metal to test for hidden flaws in large castings is one of the latest accomplishments of the Russian State Radium Institute at Leningrad.

These "gamma rays," as they are called, are similar to X-rays, but are of much shorter wave length. They are more penetrating and can pass through pieces of metal too thick to be examined with the X-rays. Examination by radium is said also to be cheaper than with X-rays, because the same radium can be used over and over for an indefinite time. Large and expensive photographic plates are not required, since the rays, after passing through the object, act upon a special, sensitive electroscope. The test record is preserved for future reference in the form of a simple diagram automatically traced. Another advantage is that gamma rays speed up the inspection—it may be cut down to a couple of minutes for a large casting—while X-rays require a very long exposure, often of several hours, when metal is more than two or three inches thick.

The apparatus, as developed by the Russian scientists, is very simply constructed. A tiny glass capsule with a radium preparation is inserted into a deep hole bored in a large lead ingot. This stops all rays, except a narrow strong beam that goes along the bore. This beam pierces the casting and encounters two filaments charged with electricity and enclosed within a copper cage. There is an air space between the filaments and the cage which act normally a perfect insulator, allowing no electric current to pass through it. But as soon as gamma-rays have a chance to get in the cage they ionize the air and turn it into a conductor.

Electricity, from a battery, flows from the filaments to the copper cage and from it passes through a galvanometer and back to the battery.

As intensity of the rays changes with thickness of metal pierced by them, the rate of ionization varies accordingly. Therefore the flow of electric current exactly mirrors the shape of the object under test. Any deviation at once shows that some imperfection is present.

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