

rested through all the fifty-six years.

Though difficult to understand at first, the voice on that aged wax cylinder, "There are more things in heaven and earth, Horatio, than are dreamed of," resounded clearly through the Regents Room of historic Smithsonian.

Bell and the two co-inventors, Chichester Bell and Charles Sumner Tainter, had placed the "graphophone," as they called it, and other apparatus in three sealed boxes with the Institution in anticipation of a court battle over priority in the invention of the phonograph. They left instructions that it was not to be opened unless instructions were given by two of the three inventors.

Both Bells are dead now, but 84-year-old Tainter, an invalid at San Diego, Calif., ordered the Institution to open the boxes. The ceremony was once postponed because permission had not been obtained from all of Bell's descendants.

Sealed in a metal-covered wooden case half the size of an orange crate, the "graphophone" was packed in with a rubber speaking tube for making records and the electrotype matrix for an early phonograph record. But the rubber tube had long since hardened and the copper plate long since turned green with age.

Two other boxes, containing a model of the "photophone," the first device ever to transmit the human voice without wires and based on the same principle as the talking picture today, were opened at the same time.

The photophone made use of one of the earliest "electric eyes" to convert a beam of light, controlled by the speaker's voice, back into sound again. The speaking tube with it, too, was stiff with years.

Mrs. David Fairchild and Mrs. Gilbert Grosvenor, both daughters of inventor Bell, who is noted for the invention of the telephone, were with Dr. C. G. Abbot, secretary of the Smithsonian Institution, and T. H. Beard, research director of the Dictaphone Company, when Mr. Beard set to work on the case containing the "graphophone" with a screw driver. A few minutes of work and the machine was in full view.

A phonograph recording machine was patented by Thomas A. Edison four years before, but it was not commercially successful. It used tin foil wrapped around a cylinder instead of the wax cylinder devised by the Bells and Tainter. The tinfoil cylinder has passed completely out of use, while the wax cylinder is still used for office dictation machines, discs made of wax and other materials for phonographs.

Science News Letter, November 13, 1937

SOCIOLOGY

Women Produce Large Share Of Family Income in America

One Out of Ten Families Are Headed by Women; A Third of Women Wage Earners Keep Homes as Well

THE hand that rocks the cradle not only rules the world but brings home the bacon.

Women in America today, whether they pound a typewriter or cook the family dinner, produce a large share of the family living, Miss Mary Elizabeth Pidgeon, chief of the research division of the Women's Bureau, U. S. Department of Labor, has found.

Women are at the head of one out of every 10 families in the United States, she found. Probably more than one-tenth of the nearly 11,000,000 employed women are the entire support of families of 2 or more persons. More than a third of these are home-makers as well.

The housewife herself, working at least a 50-hour week every week of the year, makes an enormous contribution to the family income, but one that is difficult to put into dollars and cents. The cost of her labor in preparing the family meals according to one estimate is \$1,167 a year. This is based on 15 cents worth of labor per meal—a very cheap estimate, Miss Pidgeon points out. If preparing the family meals represents about one-third of the housewife's services, then the money value of her work would run to over \$3,500 a year.

Women, by going into industry and taking jobs outside the home, have not forced men out of jobs, it appears from Miss Pidgeon's findings. Women found employment outside the home primarily because of the shift from household to factory manufacture or from hand skills of women to machine processes. It is not a question of women's taking jobs from men but of the adaptation of the sexes to the work of the world.

No Replacement

"Ordinarily the jobs performed by the two sexes differ and hence replacement as such does not occur," she states.

Where employment of women does increase though that of men may decline, it is due, Miss Pidgeon finds, to changes in process and the lower wage customarily paid women.

Miss Pidgeon's study was made at the

request of the following 10 large national organizations of women: American Association of University Women, American Home Economics Association, Interprofessional Association, National Board of Young Women's Christian Association, National Consumers' League, National Council of Catholic Women, National Council of Jewish Women, National Federation of Business and Professional Women's Clubs, National League of Women Voters, National Women's Trade Union League.

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MUSEUM SCIENCE

Visitors Can Turn Lever And Find Length of Lives

HOW long are you probably going to live? How does a cut finger heal? What happens when it gets infected? Where is that sacro-iliac joint that got out of whack and doubled you up with backache the other day? What is the



TOUCH

The design on this hand model shows where the touch corpuscles, nerve-endings sensitive to the touch, are located. It is on display at the new "Story of Man" Exhibition.



MUSCLE AND BONES

This strange looking skeleton is an object lesson of the new exhibit at the Museum of Science and Industry in New York.

scientifically approved way of brushing the teeth?

The answers to these and hundreds of other questions everyone has about the human body and its needs appear in the new exhibit at the New York Museum of Science and Industry.

The exhibit, planned so that visitors can push buttons and pull levers and then watch the wheels go around, tells the "Story of Man." The material was constructed abroad for the Oberlaender Trust and is lent to the Museum for its first showing in America.

Most interesting, probably, is the exhibit which enables visitors to predict their own length of life. You turn a lever until your present age and your sex show on two dials. Then you turn

the lever again and a third dial tells the age to which you will probably live, based on life expectation figures.

Another unusual exhibit lets the visitor do a little blood mixing of his own and understand that complicated matter of the blood groups, so essential in blood transfusions. You can see for yourself how the blood serum and blood cells mix if the blood samples are from compatible groups, and how the cells clot dangerously together if serum from blood of an incompatible group is added.

A fearsome model that looks like a

Hallowe'en nightmare is the man of muscle and bone—a skeleton with red strips representing the muscles of the body. Even more peculiar, looking, in fact, like an electrical man, is the figure that is half bony skeleton and half yellow wires. This model shows all the nerves on half the body.

Beginning with a model, enlarged 200 times, of the tiny egg from which human life starts, the exhibit shows the development of the body and all its organs and how they function.

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MEDICINE

High Blood Pressure Cause Still Unsolved Problem

Type Which Affects Most Hypertension Patients Seems Distinct From Other Diseases and Is Often Fatal

HIGH blood pressure is still an unsolved medical problem, it appears from discussions at the Tenth Annual Graduate Fortnight of the New York Academy of Medicine.

The condition is "a clinical sign, not a disease," Dr. Irvine H. Page of the Lilly Clinical Research Laboratory, Indianapolis, pointed out. "It is therefore not surprising that its causes are varied."

Many of the conditions which can cause high blood pressure are known, Dr. Page continued, but the number of patients in whom the cause is known is becoming small. The majority of patients now are suffering from a type of high blood pressure known medically as essential or malignant hypertension. The cause of this type is not known. It is called essential because it does not seem to be due to other diseases but almost to be a disease in itself, and the adjective malignant is used to indicate that it is always fatal.

Both the kidneys and the nervous system seems to be involved in the origin of high blood pressure. It may be, Dr. Page said, that the nervous system is over-active and "showers impulses" on normal blood vessels, or the reverse may be true, that the nervous system is normal but the blood vessels are overactive in their response to nerve stimulus. Neither of these possibilities, however, has been proved.

Surgical treatment of high blood pressure is still in the experimental stage, Dr. George J. Heuer, professor of surgery

at Cornell University Medical College, said.

"The results of surgical treatment," he said, "must be studied over a period of years before they can be evaluated."

"The cause of hypertension is not yet known," Dr. Heuer said. He believed that probably no single cause is responsible for its initiation. Reporting on the experiments done on animals and on observations made on humans, he said that these "fail to indicate definitely that any of the glands of internal secretion, such as the hypophysis, adrenal, ovary, thyroid or pancreas are primarily at fault." Nor did he believe that the central nervous system could be blamed.

Although surgical treatment of hypertension has not been established, nevertheless this procedure has effects on some of the manifestations of the disease, according to Dr. Heuer.

"What surgical procedure will prove to be the most productive of lasting benefit consistent with reasonable safety to the patient remains at the moment undecided," Dr. Heuer said in conclusion.

Kidney Disease

A kidney disease which occurs chiefly in young adults and children of flabby physical type and which can be cured although its cause is unknown was described by Dr. Albert A. Epstein of New York University College of Medicine.

The disease has the name nephrosis