had discovered, and was studying with her husband, Pierre Curie. He rapidly reviewed the ground traveled since then, and continued: "All these discoveries which result from yours are as nothing compared with the fundamental fact which you found—I mean the formidable energy contained in the atomic system. If we are to succeed in being able to release it methodically it would relieve the world from the dread of seeing disappear, at short notice, reckoning time in relation to the age of the world, the fuel accumulated in former centuries which is at present our principal source of energy." Mme. Curie bowed low and took her seat simply and without a word among her eminent colleagues.

DR. LYNDS JONES, from the department of animal ecology of Oberlin College, is arranging a special field expedition to leave Oberlin on June 23, going west through Illinois, across the Mississippi to Iowa and on toward MacGregor, through Southern Dakota, across the Big Horn Mountains in Wyoming into Yellowstone Park. The itinerary will then take the party to Pocatelo, Idaho, on to Salt Lake City and southern Utah, visiting the National Mountains and Bryce's Canyon. Leaving Utah, the group will strike across the northern part of Arizona and the southern tip of Nevada into southern California. Proceeding to the coast a week's camp will be made near San Diego. Sixteen students will make up the party, traveling with automobiles with complete camping outfit. Special attention will be given to the study of bird and animal life and field maps and topographical surveys will be prepared covering all parts of the route.

THE Department of Commerce will send a party, headed by Assistant Secretary C. H. Huston, to Alaska this summer for the purpose of making a general investigation of conditions in which that department is particularly interested. The Bureau of Fisheries, the Coast and Geodetic Survey, the Lighthouse Service and the Steamboat Inspection Service are the bureaus of the department which are closely identified with the affairs of the territory. It is the purpose to determine in what ways these bureaus can be made of greater benefit in developing Alaska. Particular attention will be devoted to the salmon fisheries, which yield products of an average annual value of about $40,000,000 and in normal seasons give employment to upwards of 20,000 persons and represent an investment of about $70,000,000. It will be the purpose also to observe conditions in respect to the fur-seal industry at the Pribilof Islands, which work is administered by the Department of Commerce through the Bureau of Fisheries.

UNIVERSITY AND EDUCATIONAL NOTES

THE *Journal* of the American Medical Association states that ground was broken on April 10 for a new building which will accommodate the departments of botany, zoology, pharmacology and physiologic chemistry at Tulane University of Louisiana School of Medicine, New Orleans. The building is to be four stories high and will be erected at a cost of about $180,000, $125,000 of which has been subscribed by the general education board. The laboratory will be equipped at a cost of $30,000 and it is expected that the institution will be completed in December.

DR. WARFIELD THEOBALD LONGCOPE, Bard professor of medicine at Columbia University, and physician in chief at the Presbyterian Hospital, New York City, has been appointed professor of medicine at the Johns Hopkins University Medical Department, and physician in chief at the Johns Hopkins Hospital, beginning on July 1, when the one-year term of Dr. H. Canby Robinson will expire. Dr. Robinson went to the hospital with the understanding that at the end of one year he was to return to his post as professor of medicine and dean of the Vanderbilt University Medical Department.

PROFESSOR CHARLES L. NORTON, head of the division of cooperation and research at the Massachusetts Institute of Technology, will become head of the department of physics, vacant by the acceptance by Professor E. B. Wilson of a call to the Harvard School of Public Health.

BENJAMIN BRITTON GOTTSBERGER, who since 1920 has been a consulting engineer with offices

in New York City, has been appointed professor of mining in Yale University to succeed Professor James F. McClelland who resigned in 1919.

AT the New York Post-Graduate Medical School and Hospital, the laboratory of pathological chemistry, formerly a division of the department of laboratories, has been made an independent department and the name changed to the department of biochemistry. The personnel consists of Victor C. Myers, Ph.D., professor and director; Cameron V. Bailey, M.D., and John A. Killian, Ph.D., assistant professors; Hilda M. Croll, M.A., associate and Herbert W. Schmitz, M.D., assistant.

DISCUSSION AND CORRESPONDENCE

THE FUTILITY OF THE HUMAN YOLK SAC

IN the current issue of the *Anatomical Record,* Professor Arey publishes a brief but very interesting contribution (No. 90) from the Anatomical Laboratory of Northwestern University. He describes a human chorion containing two embryos, of 11.5 and 12 mm. respectively, one of which has a yolk sac, and the other has none—that is, none was found, and sections of the umbilical cord showed no trace of a yolk stalk. Hence the broad conclusion is drawn that "the human yolk sac is a vestige unessential to growth or differentiation (including vasculogenesis)." It is stated that one of these embryos "received all, or essentially all, the cells destined to form a yolk sac" and that "the total absence of a yolk sac in one embryo, which is otherwise normal in every way, further demonstrates conclusively that this organ is not essential to the growth of an embryo or to the proper differentiation of its parts; indeed, the embryo in question is slightly larger than its twin."

Since from the days of Wolff the yolk sac has been regarded as the source of the intestinal tract, and in young human embryos is seen to be the organ from which the allantoic duct and the digestive tube proceed, the startling nature of this conclusion becomes apparent. But it is universally recognized that the yolk sac does its work in early stages, and though the sac usually persists as a functionless rudiment until birth, its duct normally becomes parted through atrophy in embryos younger than the one under consideration. Does Dr. Arey's case indicate anything more than the precocious obliteration of the stalk of an organ no less essential than the placenta, likewise cast off after its very vital functions have been performed?

If the question is raised, Where then is the yolk sac in Dr. Arey's case? his own studies furnish a plausible answer, since in another specimen he has described a single sac with two stalks, each leading to a separate embryo. Under such circumstances, the early obliteration of one of the stalks would give rise to the conditions observed in the second case, and this possibility must be eliminated before accepting the proposed conclusion. In reading the account of a human embryo without a yolk sac, we recall Bentham's incredulous comment, "I am very glad, my dear sir, that *you* saw that, for had I seen it myself, I wouldn't have believed it."

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DEFLECTION OF STREAMS BY EARTH ROTATION

THE recent note by Professor Jennings suggesting that the steeper valley sides on the right of the south-flowing streams on Long Island may be due in some manner to wind action instead of to the deflective effect of the earth's rotation is a welcome contribution to an old problem. In spite of Gilbert's apparent acceptance of the earth's rotation in explanation of the unsymmetrical cross-section of those valleys, the small size of their streams has always stood in the way of it, all the more since Bowman showed, on the basis of accurate maps of the lower Mississippi, that even that great river shifted its course to the east or left, apparently under the control of the wind, and not to the west or right, as it should if the earth's rotation were in control.[1]

[1] SCIENCE, XX, 1904, 273-277.